Prevalence and Demographics of Autoimmune Hemolytic Anemia in the United States

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Key Takeaways

- **AIHA prevalence was higher in older age groups, with a peak prevalence in those aged ≥65 years**
- **Fewer than half of patients received an AIHA-related treatment in 2023, which could reflect heterogeneity in disease severity and/or the relapsing-remitting nature of AIHA[2,3]**
- **Prevalence increased by approximately 15% over a 5-year interval, from 10.1–14.9 per 100,000 in 2019 (32,777–48,482 patients) to 11.6–17.3 per 100,000 in 2023 (38,459–57,235 patients)**

Background

Autoimmune hemolytic anemia (AIHA) is a rare and potentially life-threatening condition characterized by destruction of red blood cells by the immune system[1–3]
- The primary pathogenic mechanism is the binding of warm or cold reactive autoantibodies to red blood cell antigens, leading to hemolysis and anemia[1–3]

While the epidemiology of AIHA has been examined in several European and Asian populations,[4–6] only limited data are available from the United States (US)[7]

Using US insurance claims data, this research aimed to determine the prevalence and demographic characteristics of AIHA over a 5-year period

Objectives

To estimate annual US AIHA prevalence proportions, including year, age, sex, and treatments, using US insurance claims databases

To use AIHA prevalence proportions to estimate the number of patients diagnosed with AIHA in the US in 2019 and 2023

Methods

- This retrospective cohort study used data from 5 US claims databases (HealthVerity, Merative MarketScan Commercial Claims and Encounters, Merative MarketScan Medicare, Merative MarketScan Multistate Medicaid, and Optum's de-identified Clinformatics® Data Mart Database), standardized to the Observational Medical Outcomes Partnership Common Data Model, version 5.3
- Cohorts were developed and constructed in ATLAS, a web-based, open-source application that provides a unified interface for analyzing patient-level data
- Patients were required to have ≥1 claim with an AIHA diagnosis code (International Classification of Diseases, 10th Revision, Clinical Modification code D59.1X) in a given calendar year and a second claim between 30 and 365 days prior
- Annual prevalence in the years 2019–2023 was calculated among individuals with ≥6 months' continuous observation in the database in the given calendar year and stratified by age group, sex, and ≥1 prescription fill for an AIHA-related treatment (systemic steroids, immunosuppressants excluding rituximab, and rituximab)
- To estimate the number of diagnosed AIHA patients in the US, low- and high-end database-derived prevalence proportions were standardized to US population estimates within age and sex strata (6 age groups, each separated by sex), derived from the United States Census Bureau
- In data sources that included both commercial and government-assistance insurance types (HealthVerity and Optum Clinformatics®), patients aged <65 years were categorized as having commercial insurance, and those aged ≥65 years were categorized as having government-assistance insurance

Results

AIHA Prevalence Proportions

- AIHA prevalence in 2023 across databases increased with age, ranging from 2.7 to 4.3 per 100,000 in the <18 years age group and from 30.6 to 61.2 per 100,000 in the ≥75 years age group (**Figure 1**)
- In general, the databases showed an increasing trend in annual prevalence proportions in each age group from 2019 to 2023 (data not shown)
- Across databases and over time, AIHA prevalence was higher in females, accounting for 55%–67% of cases (**Figure 2**)

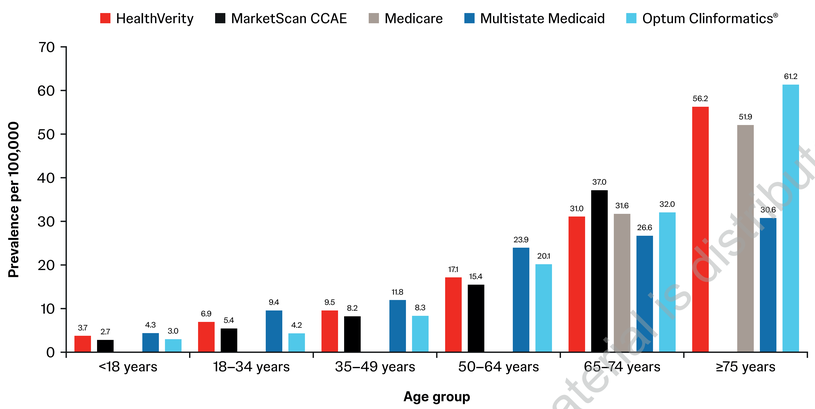
AIHA US Population Estimates in 2023

- After standardization to the 2023 US Census population, the estimated prevalence of AIHA in 2023 ranged from 38,459 to 57,235 patients, corresponding to prevalence rates of 11.6–17.3 per 100,000 (**Figure 3**)
  - This marked an increase from the 2019 US Census-standardized estimates of 32,777–48,482 patients, with corresponding prevalence rates of 10.1–14.9 per 100,000

AIHA Treatment

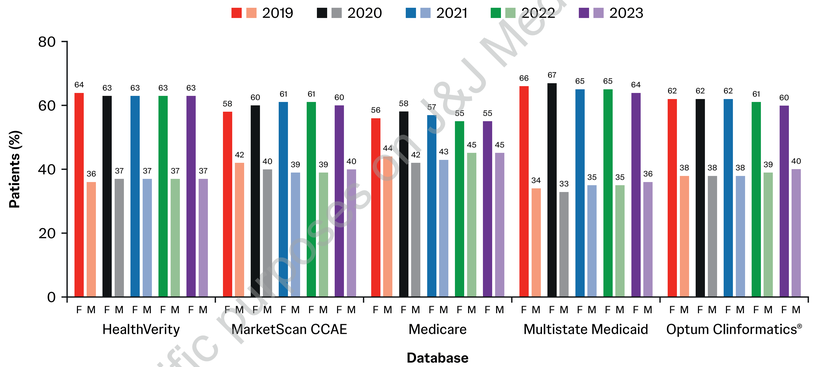
- Across all databases, approximately half (44%–55%) of patients received any AIHA-related treatment in 2023, with Multistate Medicaid-insured patients having lower and Medicare-insured patients having higher AIHA-related treatment utilization compared to those with commercial insurance (**Figures 4** and **5**)
- Approximately one-third (26%–34%) of patients with AIHA received systemic steroids, 9%–17% received rituximab, and around one-third (25%–31%) received a different immunosuppressant; approximately half of patients remained untreated (**Figure 5**)

Figure 1. ***AIHA annual (2023) prevalence proportions by age group and database***



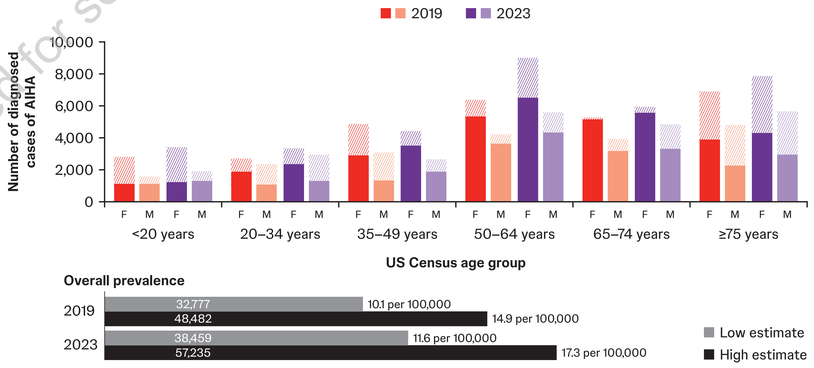
Strata with <20 cases were excluded; missing bars in each age group indicate data sources that did not have enough data for estimation.
***AIHA**=autoimmune hemolytic anemia, **CCAE**=Commercial Claims and Encounters.*

Figure 2. ***Percentage of patients by sex, year, and database***



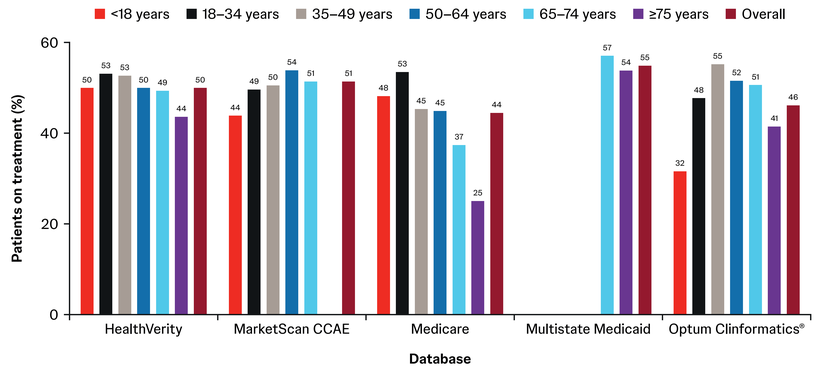
***CCAE**=Commercial Claims and Encounters, **F**=female, **M**=male.*

Figure 3. ***US population estimates for diagnosed AIHA in 2019 and 2023, stratified by age and sex***



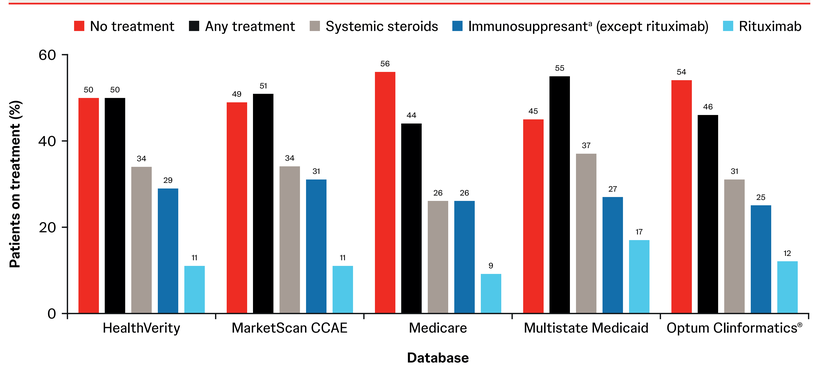
Solid bars indicate low estimate; hatched bars indicate high estimate.
***AIHA**=autoimmune hemolytic anemia, **F**=female, **M**=male.*

Figure 4. ***Percentage of patients with AIHA who were on treatment in 2023 by age group and database***



Strata with <20 cases were excluded; missing bars in data sources indicate age groups that did not have enough data for estimation.
***AIHA**=autoimmune hemolytic anemia, **CCAE**=Commercial Claims and Encounters.*

Figure 5. ***Percentage of patients with AIHA who were on treatment in 2023, by treatment type and database***



Indicates treatment in the same calendar year. [a]Includes azathioprine, mycophenolate, cyclosporin, cyclophosphamide, danazol, and bortezomib.
***AIHA**=autoimmune hemolytic anemia, **CCAE**=Commercial Claims and Encounters.*

PRESENTED AT: The 67th American Society of Hematology (ASH) Annual Meeting and Exposition; Orlando, FL, USA; December 6–9, 2025. **REFERENCES: 1.** Jäger U, et al. *Blood Rev.* 2020;41:100648. **2.** Packman CH. *Transfus Med Hemother.* 2015;42:317-324. **3.** Michalak SS, et al. *Immun Ageing.* 2020;17:38. **4.** Hansen DL, et al. *Clin Epidemiol.* 2020;12:497-508. **5.** Maquet J, et al. *Am J Hematol.* 2021;96:E291-E293. **6.** Kao HW, et al. *HemaSphere.* 2025;9:e70152. Abstract PF1206. **7.** Bozzi S, et al. *PLoS One.* 2025;20:e0323843.
ACKNOWLEDGMENTS: This study was funded by Johnson & Johnson. Medical writing and editorial support were provided by Fiona Scott, PhD, on behalf of Twist Medical and were funded by Johnson & Johnson. **DISCLOSURES: AK**, **CB**, **CK**, **LJ**, and **ZC** are employees of and may hold stock in Johnson & Johnson. **SS** reports consultant payments from Johnson & Johnson and Sanofi, and honoraria from argenx. **RG** has no conflicts to disclose.