

U.S. Real-World Biosimilar Adoption by Specialty Therapeutic Area

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Abstract

Objectives

Understanding trends in biosimilar adoption by specialty may advance provider and patient education while optimizing cost savings and health outcomes. Previous evaluations focused on surveys of specialty providers; however, we sought to evaluate utilization of reference versus biosimilar products by specialty across the U.S. over five years (2019-2023).

Methods

We analyzed data from Trisus Medication Compare (The Craneware Group, Edinburgh, UK) between 1/1/2019-12/25/2023 to identify encounters in eleven specialties (dermatology, endocrinology, gastroenterology, hematology, infectious diseases, nephrology, neurology, oncology, ophthalmology, rheumatology, and solid organ transplant) with a reference or biosimilar product dispensation for filgrastim, pegfilgrastim, infliximab, rituximab, bevacizumab, trastuzumab, insulin glargine, epoetin alfa, and ranibizumab. Analyses included yearly use trends overall and by specialty, age, and state.

Results

Dispensations from 1,782,569 patient encounters (reference, n=1,256,156; biosimilar, n=526,413) were included. Endocrinology (n=657,599), oncology (n=591,777), and gastroenterology (n=191,596) were most frequent; ophthalmology (n=1,824) and transplant (n=1,550) were infrequent. Biosimilar use was higher in non-academic centers (61.2% vs 55.7% with reference, p=0.0001) and outpatient settings (71.5% vs 52.1% with reference, p=0.0001). Biosimilar use was lower for pediatrics based on included indications (reference: 4.1%, biosimilar: 2.6%; p=0.0001), consistent across specialties. Biosimilar use increased annually overall (2019: 15.9%; 2020: 22.2%; 2021: 33.3%; 2022: 38.4%; 2023: 41.0%) and by specialty, except ophthalmology. Epoetin alfa use drove infectious diseases (76.5%), nephrology (62.4%), and hematology (55.4%) to have the highest biosimilar adoption rates, while ophthalmology (no use) and endocrinology (5.0%) had the lowest. Oregon, Montana, South Dakota, and Michigan had the highest biosimilar adoption rates (>45%), while New Hampshire, Alabama, and Mississippi had the lowest (<15%).

Conclusion

National data show increasing biosimilar adoption across specialty therapeutic areas, except ophthalmology, over a five-year period.

Background

- Identifying trends in biosimilar use by specialty allows for targeted approaches on a health-system and population level to advance education, increase use, and optimize cost savings
- Previous evaluations based on provider surveys demonstrate higher uptake in oncology, gastroenterology, and rheumatology, with prescriber choice mainly driven by formulary status, duration on market, patient cost savings, and patient experience¹⁻³

Methods

Objectives

- Primary:** yearly use trends of reference vs biosimilar product overall and by specialty
- Secondary:** evaluate reference vs biosimilar product use by:
 - Treatment setting: academic vs. non-academic center, urban vs. rural, inpatient vs. outpatient
 - Age (<18 years vs. ≥18 years)
 - State

Study Population

De-identified real-world dispensations of reference and biosimilar products between 1/1/2019 – 12/25/2023 using Trisus Medication Compare

Patients grouped by ICD-10 diagnosis codes to specialty area

Dermatology
Endocrinology
Gastroenterology
Hematology

Infectious Diseases
Nephrology
Neurology
Oncology

Ophthalmology
Rheumatology
Transplant / Immunology

Excluded patients with a dispensation for both reference and biosimilar product of same drug on same encounter

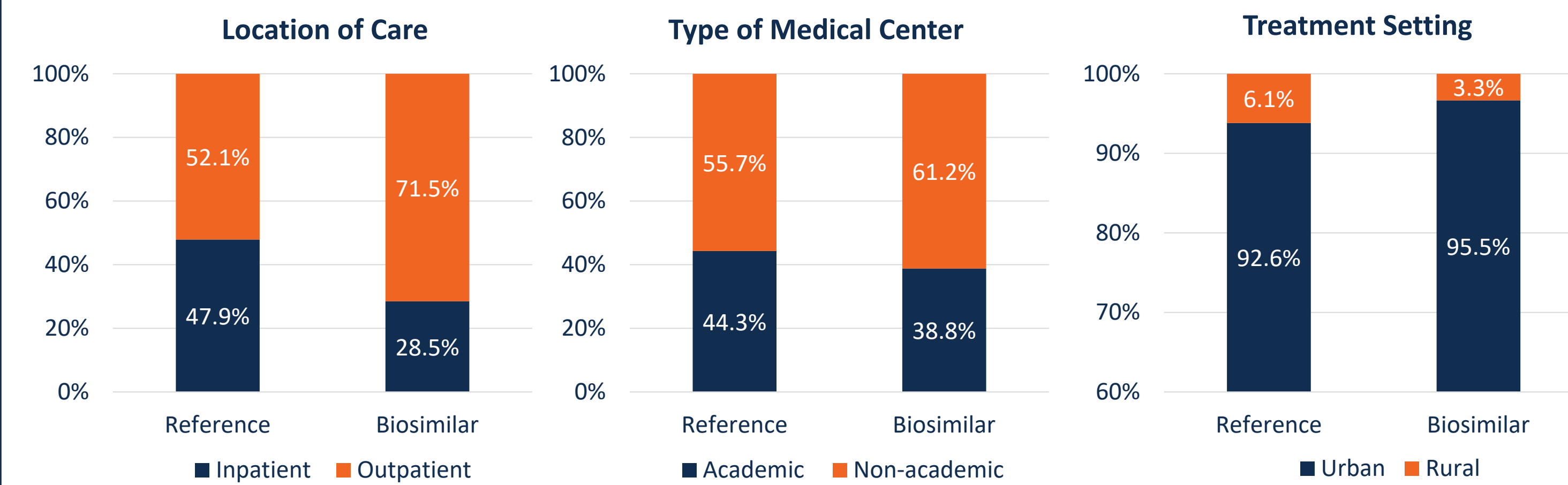
Overall study population (n=1,782,569)

Reference (n=1,256,156)

Biosimilars (n=526,413)

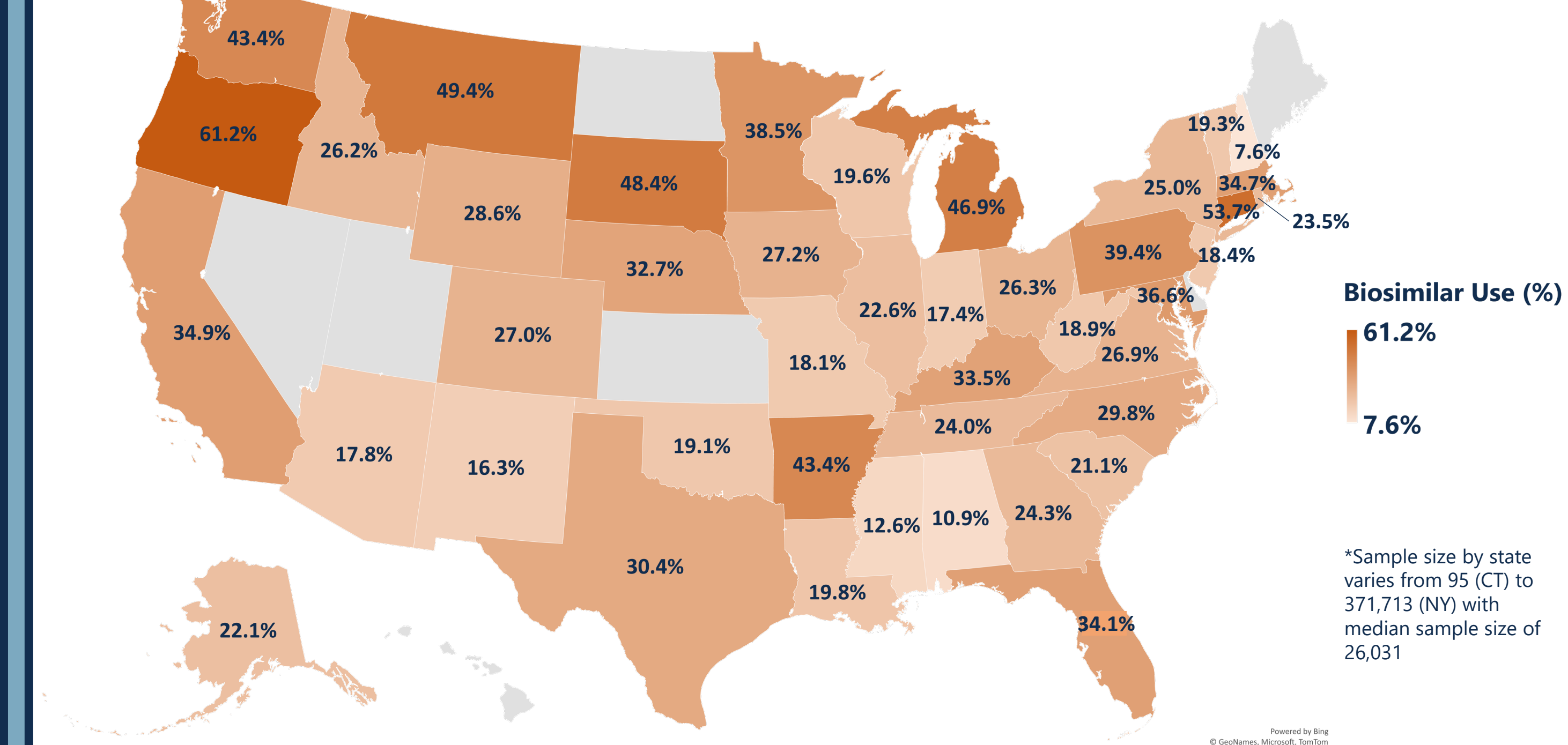
Baseline Demographics

	Reference (n=1,256,156)	Biosimilar (n=526,413)
Age, mean (years)	58.9	60.1
Age <18 years	52,112 (4.1%)	13,723 (2.6%)
Age ≥18 years	1,198,566 (95.4%)	511,595 (97.2%)
Male, n (%)	572,083 (45.4%)	231,205 (44.2%)



Biosimilar Use by State

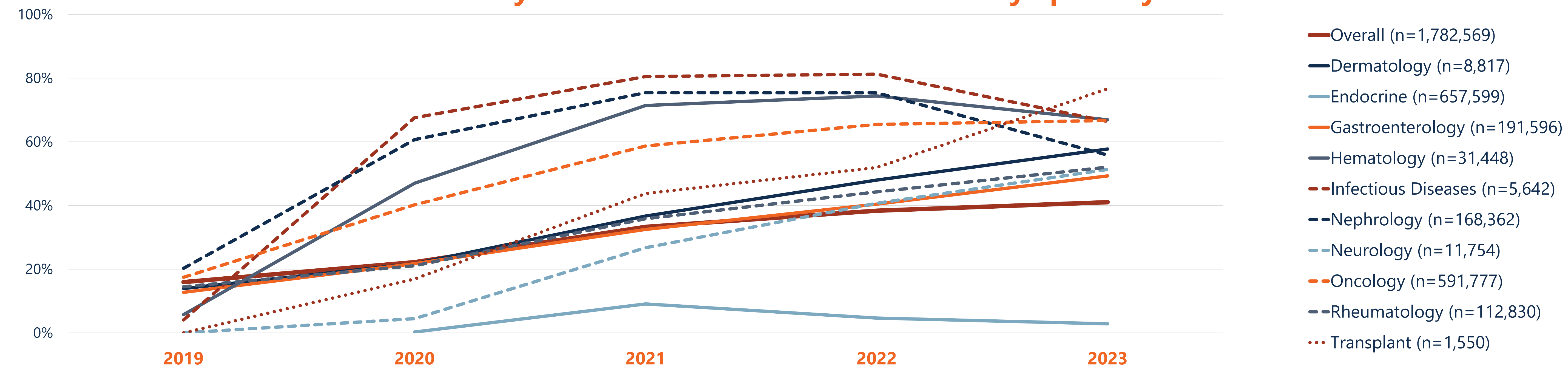
Rate of biosimilar dispensations over 5-year study period*



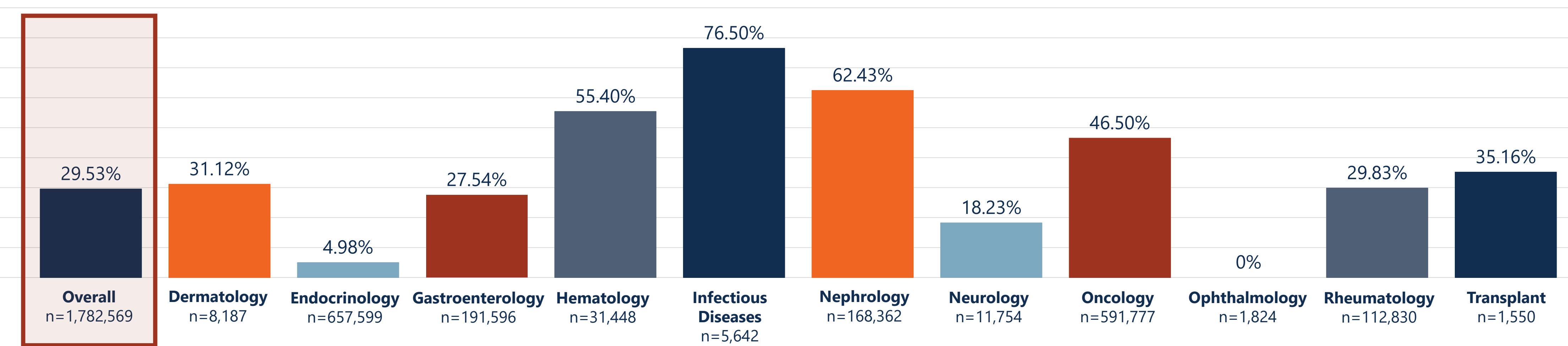
Specific Product Use

Product Name	Number	Percent
FILGRASTIM		
Reference (Neupogen)	20,330	17.7%
Filgrastim-aafi (Nivestym)	10,595	9.2%
Filgrastim-ayow (Releuko)	0	0%
Filgrastim-sndz (Zarxio)	55,015	48.0%
Tbo-filgrastim (Granix)	28,715	25.0%
PEGFILGRASTIM		
Reference (Neulasta)	117,610	76.8%
Pegfilgrastim-fpgk (Stimufend)	0	0%
Pegfilgrastim-pbbk (Fylmetra)	0	0%
Pegfilgrastim-apgf (Nyvepria)	278	0.2%
Pegfilgrastim-bmez (Ziextenzo)	4,242	2.8%
Pegfilgrastim-cbqv (Udenyca)	25,925	16.9%
Pegfilgrastim-jmdb (Fulphila)	5,049	3.3%
INFLIXIMAB		
Reference (Remicade)	182,797	66.8%
Generic infliximab	9,852	3.6%
Infliximab-axcq (Avsola)	3,782	1.4%
Infliximab-abda (Renflexis)	28,991	10.6%
Infliximab-dyyb (Inflectra)	48,181	17.6%
RITUXIMAB		
Reference (Rituxan)	105,583	69.0%
Rituximab-arrx (Riabni)	327	0.2%
Rituximab-pvvr (Ruxience)	20,607	13.5%
Rituximab-abbs (Truxima)	26,456	17.3%
BEVACIZUMAB		
Reference (Avastin)	57,344	56.1%
Bevacizumab-awwb (Mvasi)	33,304	32.6%
Bevacizumab-bvzr (Zirabev)	11,583	11.3%
Bevacizumab-maly (Alymysys)	9	0%
Bevacizumab-adcd (Vegzelma)	0	0%
TRASTUZUMAB		
Reference (Herceptin)	59,563	59.4%
Trastuzumab-anns (Kanjinti)	25,655	25.6%
Trastuzumab-qyyp (Trazimera)	6,080	6.1%
Trastuzumab-dttb (Ontruzant)	1,146	1.1%
Trastuzumab-pkrb (Herzuma)	1,564	1.6%
Trastuzumab-dkst (Ogivri)	6,192	6.2%
INSULIN GLARGINE		
Reference (Lantus, Basaglar, Tuojeo)	624,853	95.0%
Insulin glargine-aglr (Rezvoglar)	0	0%
Insulin glargine-yfgn (Semglee)	32,746	5.0%
EPOETIN-ALFA		
Reference (Epoen, Procrit)	88,090	36.3%
Epoetin alfa-epbx (Retacrit)	154,716	63.7%
RANIBIZUMAB		
Reference (Lucentis)	1,824	100%
Ranibizumab-eqrn (Cimerli)	0	0%
Ranibizumab-nuna (Byooviz)	0	0%

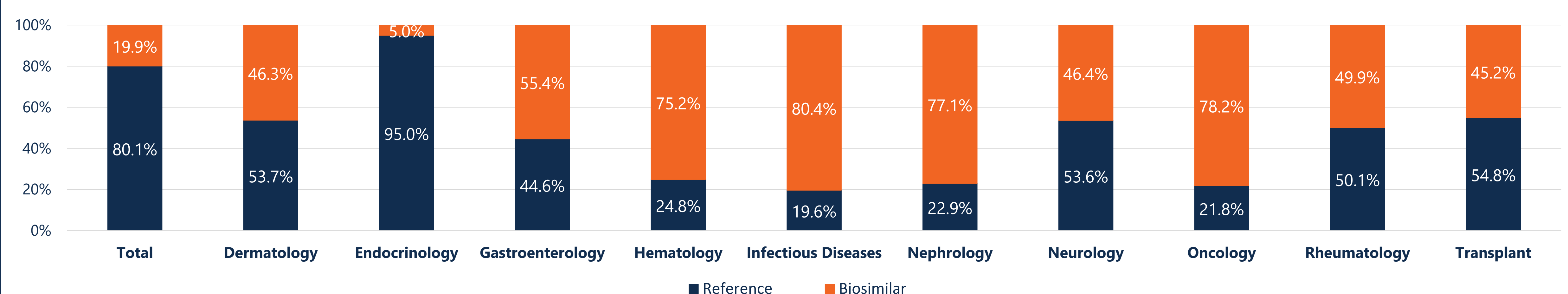
Yearly Biosimilar Use Trend Overall and by Specialty



Biosimilar Adoption Rate by Specialty



Proportion of Inpatient Dispensations of Reference vs Biosimilar Product Overall and by Specialty



Discussion & Conclusions

- The rate of biosimilar use increased annually over the 5-year period
- Biosimilar adoption varied by specialty from 0% to 76.5%
 - Highest adoption specialties: infectious diseases, nephrology, and hematology
 - Lowest adoption specialties: ophthalmology and endocrinology
- Biosimilar adoption across states varied from 7.6% to 61.2%
 - Highest adoption rates: Oregon, Montana, South Dakota, and Michigan
 - Lowest adoption rates: New Hampshire, Alabama, Mississippi
- Increasing biosimilar use in inpatient setting may present cost-savings opportunity
- Limitations
 - Use of ICD-10 codes to infer use of product for specific diagnosis
 - No ability to evaluate formulary, payor, or factors affecting provider choice

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Disclosures

All authors are employees of The Craneware Group, the proprietary owner of the data analytics platform utilized in this study.