Economic Burden Related to the Use of Trastuzumab and Its Biosimilars for the Treatment of HER2-Positive Breast Cancer Patients: A Real-World Study in the US

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Background

The treatment landscape for HER2-positive breast cancer has evolved significantly with the advent of trastuzumab, a targeted therapy that has prominently improved patient outcomes. However, the associated economic burden has garnered significant attention due to its financial implications. With the introduction of biosimilars, there is a growing need to understand the economic impact for patients, healthcare providers, and policymakers.

Objective

This study aims to evaluate and compare the standard costs and healthcare resource utilization of trastuzumab and its biosimilars for the treatment of HER2-positive breast cancer patients.

Methodology

- Optum® de-identified Market Clarity database was used for this study, with the first use of trastuzumab or its biosimilars considered as index events.
- An identification period from January 1, 2019, to June 30, 2023, was assessed, with 12 months of pre- and post-index periods.
- Continuous eligibility was implemented, and patients aged ≥18 years were recognized.
- Separate cohorts were built for trastuzumab and its biosimilars for a comparative study.
- Outliers were systematically identified and excluded from the dataset to enhance the precision and robustness of the analysis.
- A total of 12,237 and 8,601 patients were identified who were treated with trastuzumab and its biosimilars, respectively.
- An exploratory analysis was conducted, where the annual standard cost per patient and healthcare resource utilization were examined for a comparison between trastuzumab and its biosimilar counterparts.
- Medication adherence was also assessed for patients who had trastuzumab treatment compared to those with biosimilar treatments.

Results

- Pharmacy cost (per member per year) dropped by around 43% ($p<0.001$) for biosimilars compared to trastuzumab. Breast cancer-specific medical cost was seen to be slightly higher (2%, $p<0.001$) for patients treated with trastuzumab compared to its biosimilars. Similar findings were seen for analysis by geographic locations and age groups (**Figure 1**).
- The percentage of patients with at least one visit to emergency (ER), inpatient, or outpatient visit was consistently higher for patients treated with trastuzumab compared to its biosimilar counterparts (**Figure 2**).

Figure 1. Pharmacy and Medical cost

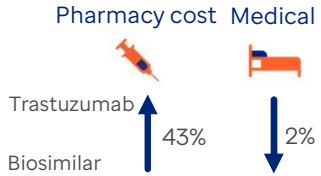
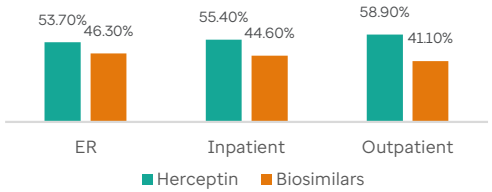


Figure 2. Disease specific HCRU



Medication adherence was slightly higher for the biosimilar group compared to trastuzumab. The t-statistic for the proportion of days covered (PDC) was 8.95 with a p-value <0.0001 (**Table 1**).

Table 1. Adherence (Proportion of days covered)

	Biosimilar	Trastuzumab	Overall
N	4,911	12,191	17,102
Mean (SD)	0.69 (0.31)	0.65 (0.31)	0.66 (0.31)
P25	0.43	0.37	0.38
Median	0.8	0.7	0.73
P75	0.99	0.97	0.97

Conclusions

The cost reduction with the use of biosimilars enhances patient access to essential treatment and alleviates the financial burden. However, to establish the safety and efficacy of biosimilars, further analysis will be done by increasing the follow-up period and including relevant covariates to analyze treatment effectiveness, patient-reported outcomes, and overall survival.

Reference: Muñoz C, Tai X, Arias J, Eisen A, Chaudhry M, Gavura S, Chan KKW. Comparative Effectiveness and Safety of Trastuzumab Biosimilars to Herceptin for Adjuvant Treatment of HER2+ Breast Cancer. *Current Oncology*. 2024; 31(3):1633-1644. https://doi.org/10.3390/curroncol31030124

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