Treatment patterns, Health Care Resource Utilization (HCRU), and Direct Medical Costs Among Patients With Locally Advanced or Metastatic HER2 Negative Gastric Cancer (GC) in the United States

RWD71

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Background

- Gastric cancer (GC) is the fourth leading cause of cancer-related deaths worldwide.[1,2]
- Most patients with GC are diagnosed at advanced or metastatic stage.[3]
- The most common subtype is the HER2 negative GC, i.e., without the HER2 receptor expression[4]
- HER2 negative makes up 79% of GC cases.[4]
- Recent advances in treatment of locally advanced or metastatic HER2 negative GC include the approval of 1L immunotherapies (IO).[5]
- There is limited published data on treatment patterns, HCRU, and direct medical costs post-IO approval.

Objective

This study examined treatment patterns, HCRU, and direct health costs among patients with locally advanced or metastatic HER2 negative GC post-IO approval.

Methods

This retrospective observational study utilized Carelon Research's Healthcare Integrated Research Database (HIRD®, administrative claims) and data from Anthem Cancer Care Quality Program (includes biomarker and cancer stage data).

The patient identification period was from May 1, 2021, to June 30, 2023.

Individuals were included in the study if they had stage IIIB/IIIC/IV gastric cancer, initiated first-line (1L) chemo-/targeted-/immuno-therapy treatment (index date), ≥ 18 years old, had continuous enrollment for 6 months pre-index, and ≥ 3 months post-index (except those who died within 3 months).

HER2 negative status was identified by excluding patients who used trastuzumab between 2012 and 2023.

HCRU and costs were assessed during pre-progression (from 1L treatment initiation), post-progression (from 2L treatment initiation), and terminal care (the last 30 days before death) periods which were mutually exclusive.

Two subgroups were identified for descriptive analyses based on first line (1L) regimens.

SubGroup1 - 1L IO-based regimens comprised of immunotherapy ± chemotherapy
- IO-based regimens
- IO + doublet chemotherapy (FOLFOX/CAPOX/FOLFIRI/Other)
- IO + triplet chemotherapy (FLOT/FOLFOXIRI/Other)
- IO + chemo monotherapy
- IO monotherapy

SubGroup2 - 1L non-IO-based regimens comprised of mainly chemotherapy
- Doublet chemotherapy (FOLFOX/CAPOX/FOLFIRI/Other)
- Triplet chemotherapy (FLOT/FOLFOXIRI/Other)
- Chemo monotherapy
- Targeted therapies with or without chemotherapy

Results

Patient Characteristics

A total of 107 patients were identified, with a mean follow-up of 9.0 (SD: 6.1) months.

Overall, median age was 61 years (IQR 52 - 68), 65% (70 of 107) were male, and 73% (78 of 107) were commercially insured. Patient characteristics were similar between IO-based and non-IO sub-groups, **(Table 1).**

A majority of patients were diagnosed with stage IV metastatic gastric cancer, and had an ECOG score of 0-1, and 29% had a history of tobacco use.

Table 1. Baseline demographic and clinical characteristics

	Overall N=107	Subgroup 1 - 1L IO-based regimens n=64	Subgroup 2 - 1L non-IO-based regimens n=43
Age in years at index, Median (IQR)	61 (52-68)	61 (52-68)	63 (52-67)
Male Sex, n (%)	70 (65%)	43 (67%)	27 (63%)
Quan Charlson Comorbidity index, mean (SD)	6.8 (2.27)	7.0 (2.30)	6.4 (2.22)
BMI Median (IQR)	25 (21-29)	25 (22-29)	25 (21-29)
History of tobacco use, n (%)	31 (29%)	18 (28%)	13 (30%)
Eastern Cooperative Oncology Group (ECOG) performance score (0-1), n (%)			
0	40 (38%)	27 (43%)	13 (31%)
1	53 (50%)	28 (44%)	25 (60%)
2+	12 (11%)	8 (13%)	<5
Payer type, n (%)			
Commercial	78 (73%)	50 (78%)	28 (65%)
Medicare Advantage	29 (27%)	14 (22%)	15 (35%)

BMI was available for 106 while ECOG was available for 105 individuals in the study sample.

Treatment Patterns

The sub-groups comprised of 60% (64 of 107) treated with 1L IO-based regimens and 40% (43 of 107) treated with 1L non-IO based regimens. 1L treatments included IO + chemotherapy (55%), IO monotherapy (5%), and non-IO therapies (40%), **(Table 2).**

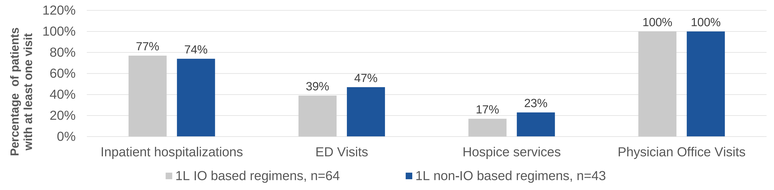
Table 2. Distribution of 1L regimens

First Line Regimens, N (%)	Total Patients (N=107)
1L IO-based regimens	
IO + doublet chemotherapy (FOLFOX/CAPOX/FOLFIRI/Other)	54 (50%)
IO + triplet chemotherapy (FLOT/FOLFOXIRI/Other)	< 5**
IO + chemo monotherapy	< 5**
IO monotherapy	5 (5%)
1L Non-IO based regimens	
Doublet chemotherapy (FOLFOX/CAPOX/FOLFIRI/Other)	33 (31%)
Triplet chemotherapy (FLOT/FOLFOXIRI/Other)	< 5**
Chemo monotherapy	< 5**
Targeted therapies with or without chemotherapy	< 5**

HCRU

During the follow-up period, all (100%) patients had outpatient visits, 76% had ≥1 inpatient hospitalization, 42% had ≥1 emergency department (ED) visits, and 20% received hospice services.

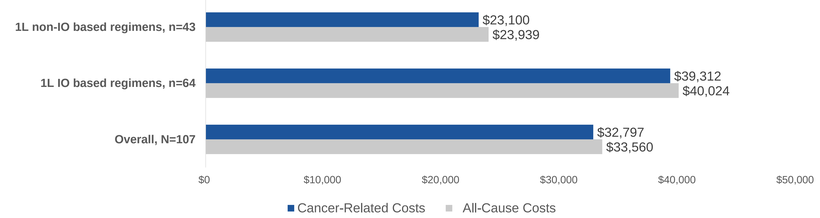
Figure 1. All-cause HCRU measures, N = 107



Healthcare Costs

All-cause health care costs during the entire follow-up period totaled $33,560 (SD: $30,008), driven by outpatient costs, $19,579 (SD: 19,845); inpatient $11,228 (SD: 18,888); and physician office visits, $2,067 (SD: 5,100). **Figure 2** provides the breakdown for 1L IO and non-IO based medical costs.

Figure 2. Total mean medical costs PPPM among subgroups during follow-up



The mean all-cause total medical costs pre-progression were $34,644 (SD: $56,218), post-progression costs were $50,094 (SD: $63,239) and terminal period costs were $47,260 (SD: $73,901), **(Table 3).**

Table 3. All-cause medical costs, per patient per month (PPPM)

	Pre-progression period (from 1L treatment initiation)	Post-progression period (from 2L treatment initiation)	Terminal care period (the last 30 days before death)
Number of patients, N (%)	102 (95%)	33 (31%)	53 (50%)
Median (IQR) duration of follow-up, in months	7 (4-9)	5 (2-8)	1 (1-1)
Inpatient hospitalization costs, PPPM, mean (SD)	$5,864 ($14,568)	$18,034 ($57,210)	$33,353 ($67,173)
Physician office visit costs, PPPM, mean (SD)	$1,871 ($5,038)	$5,579 ($13,982)	$1,129 ($3,571)
Other outpatient costs, PPPM, mean (SD)	$26,609 ($53,695)	$25,987 ($20,095)	$10,653 ($15,847)
ED costs, PPPM, mean (SD)	$199 ($642)	$420 ($1,039)	$1,180 ($3,309)
Skilled Nursing facility costs, PPPM, mean (SD)	$32 ($233)	$0 ($0)	$64 ($433)
Hospice costs, PPPM, mean (SD)	$69 ($417)	$74 ($377)	$880 ($1,980)
Total medical costs, PPPM, mean (SD)	**$34,644 ($56,218)**	**$50,094 ($63,239)**	**$47,260 ($73,901)**

Limitations

- Adjustments for biases and confounding were unnecessary, as the study was a single cohort descriptive analysis without statistical comparisons between subgroups.
- Prior cancer treatment history may be incomplete due to limited health plan enrollment duration beyond the baseline period.
- The study sample, drawn from Anthem's Cancer Care Quality Program for precise clinical characteristics, may limit generalizability to the broader gastric cancer population.
- The study results may not be generalizable to the overall population, since commercial and Medicare Advantage members may differ from those uninsured, under-insured, or those covered by Traditional Medicare and Medicaid.

Discussion

Patient characteristics

- Because of the nature of this dataset (mainly commercial), the median age of the study cohort was 61 years, which was younger when compared to other RWE studies.[6]
- Most patients had an ECOG score of 0 or 1, and >98% had stage IV GC diagnosis
- Higher median Quan Charlson Comorbidity Index score indicates that active treatment was generally pursued among a more highly comorbid population.

HCRU and costs

- To our knowledge, there are limited published studies which evaluate treatment patterns, HCRU, and costs of care for individuals with HER2 negative locally advanced or metastatic GC post-IO approval period.
- Total medical costs were primarily driven by outpatient costs in the pre-progression, and post-progression periods.
- In the terminal care period, total medical costs were primarily driven by inpatient hospitalizations incurred in the last month before death.

Conclusion

Despite advances in therapeutic options, a significant unmet need remains for locally advanced or metastatic HER2-negative GC with only 55% of patients receiving 1L IO + chemotherapy. The study noted rising all-cause medical costs across pre-progression, post-progression, and terminal care periods. Optimizing 1L treatment is crucial to avoid high progression costs.

References

1) Bray, F et al. (2018). CA Cancer J Clin. 2018;68(6):394-424. doi: 10.3322/caac.21492
2) World Health Organization. (2022) Cancer Factsheets. Stomach.
3) Hu, B et al. (2012) J Gastrointest Oncol. 2012;3(3):251-261. doi: 10.3978/j.issn.2078-6891.2012.021
4) Van Cutsem, E et al. (2015). Gastric Cancer. 2015;18(3):476-484. doi: 10.1007/s10120-014-0402-y
5) Joshi S, et al. (2021) CA Cancer J Clin. 2021;71(3):264-279. doi: 10.3322/caac.21657
6) Luna J, et al. (2024). BMC Cancer. 2024;24(1):462. doi:10.1186/s12885-024-12204-x