EE173

A Retrospective Real-World Data (RWD) Study Comparing Healthcare Resource Utilization (HCRU) and Costs Associated With Intravenous and Subcutaneous Administered Oncology Biologics Using Administrative Claims Data

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Objective

- To assess and compare the HCRU and medical costs for 3 oncology biologics (rituximab, trastuzumab, and daratumumab) available by both subcutaneous (SC) and intravenous (IV) routes of administration

Conclusions

- HCRU and medical costs were lower for SC compared with IV administration for rituximab and trastuzumab
- The use of SC compared with IV administration may contribute to lower costs or HCRU, including reducing the number of patient visits in inpatient, outpatient, or emergency department settings, and these savings may be particularly important in early-stage cancers
- Since only medical costs and HCRU were examined, there may be additional benefits of SC administration not captured in this analysis, such as decreases in active healthcare providers' time, reductions in patient chair time, and other conveniences
- For daratumumab, HCRU and medical costs were higher for SC vs IV administration
  - The complexities of multiple myeloma and of treating hematologic malignancies vs solid tumors may have contributed to the different pattern seen for daratumumab vs rituximab and trastuzumab
- Depending on the complexity of the cancer and treatment pattern, SC administration may offer advantages compared with IV administration

Background

- An increasing number of oncology biologics are being investigated or approved as SC formulations, with positive implications for patients and healthcare providers, such as ease of use and convenience of treatment[1-7]
- At the time of this analysis, rituximab, trastuzumab, and daratumumab were the only 3 oncology biologics available in both SC and IV formulations that were approved for the treatment of hematologic and solid tumors and had substantial claims data available[8-13]

References

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Conflicts of interest

Anthony Eccleston, Anna Vlahiotis, and Julia Brinkmann: employment with Pfizer; Abin Koshy: employment through St John's University post-doctoral fellowship program funded by Pfizer.

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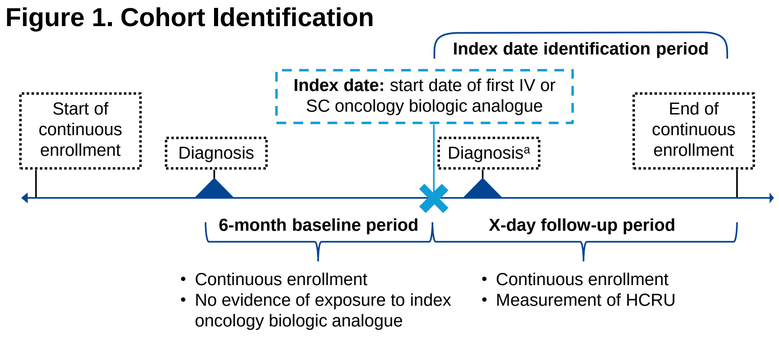
Methods

- This retrospective, longitudinal cohort analysis used de-identified real-world administrative, medical, and pharmacy claims from the PharMetrics® Plus database dated between January 2019 and June 2022 (**Figure 1**)
- Based on available claims data, the analysis included rituximab, trastuzumab, and daratumumab
- The index date was defined as the first date of exposure to the first of the selected biologic treatment on or after the start of the study period, with no evidence of the same biologic in the 6-month baseline period prior to the index date
- There was a minimum 1-year follow-up period after a patient's index date until the end of the enrollment period, assuming the end of the follow-up period occurred on or before June 30, 2023
- Baseline characteristics included patient clinical and demographic characteristics, treatment regimens, and route of administration
- Key patient inclusion and exclusion criteria are shown in **Table 1**
- Data are reported descriptively for the 1-year post-index period for the following outcomes:
  - All-cause HCRU: mean number of visits (including inpatient, outpatient, and emergency department) and inpatient length of stay (LOS)
  - Disease-specific HCRU: mean number of cancer-related visits and inpatient LOS
  - All-cause healthcare costs: total inpatient, outpatient, pharmacy, and emergency department per-patient-per-month (PPPM) medical costs
  - Disease-specific healthcare costs: cancer-related inpatient, outpatient, and emergency department PPPM medical costs

Figure 1. Cohort Identification



[a]Part of the inclusion criteria required ≥2 medical claims with the same cancer diagnosis ≥30 days apart, at any time during the 6-month baseline period through 31 days post-index date.

Table 1. Patient inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
≥18 years of age	Evidence of treatment with the same biologic agent in the 6-month baseline period prior to the index date
Initiation of SC or IV oncology biologic treatment between January 2019 and June 2022	Both IV and SC use of the same biologic agent during the follow-up period
≥2 medical claims with the same cancer diagnosis ≥30 days apart	

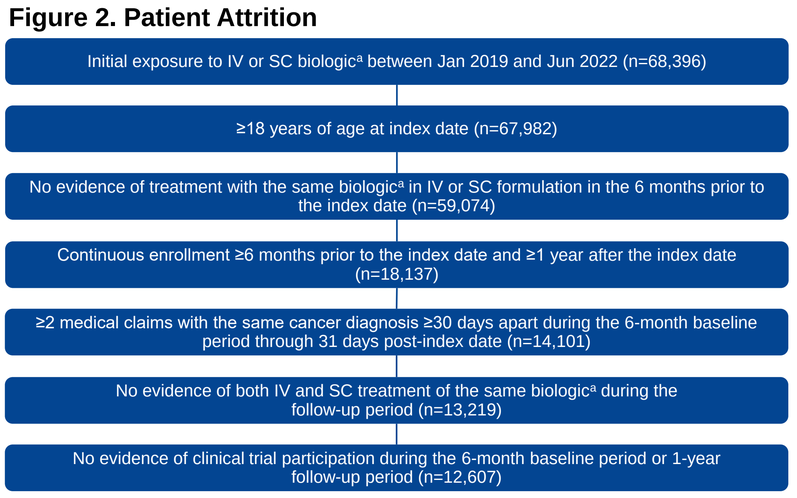
Results

- The study included 12,607 patients, 89% (n=11,178) of whom received IV treatment (**Figure 2**)
- Clinical and demographic characteristics are shown in **Table 2**
  - The median follow-up period was 24.9 months for patients receiving IV treatment and 21.4 months for patients receiving SC treatment
  - Within each oncology biologic, age, sex, cancer type, and Charlson Comorbidity Index were generally well-balanced between IV and SC cohorts
  - The most common cancer diagnoses among all patients were breast (IV 42.8% and SC 13.0%), hematologic (IV 27.8% and SC 65.9%), and other (IV 22.6% and SC 16.0%)
- For both rituximab and trastuzumab, all-cause (**Figure 3**) and disease-specific (**Figure 4**) HCRU for inpatient, emergency department, and outpatient visits were lower for SC vs IV administration
- All-cause HCRU for inpatient LOS was lower for SC vs IV for rituximab and similar between administration routes for trastuzumab (**Figure 3**)
- For SC vs IV daratumumab, all-cause (**Figure 3**) and disease-specific HCRU (**Figure 4**) were lower for emergency department and inpatient visits, similar for outpatient visits, and higher for inpatient LOS
- Total all-cause (**Figure 5**) and disease-specific (**Figure 6**) PPPM costs were lower for SC vs IV for rituximab and trastuzumab but higher for daratumumab

Study Limitations

- A limitation of the study was that a higher proportion of patients received the IV vs the SC route of administration for each of the 3 drugs examined
- The study did not control for comorbidity; propensity matching and sensitivity analyses were not conducted, and therefore, further analyses are needed to validate findings

Figure 2. Patient Attrition



[a]Rituximab, trastuzumab, or daratumumab.

Table 2. Patient Demographics and Clinical Characteristics

	All patients		Rituximab		Trastuzumab		Daratumumab	
	IV n=11,178	SC n=1,429	IV n=3,810	SC n=585	IV n=6,601	SC n=74	IV n=767	SC n=770
Median follow-up (range), months	24.9 (12.2-54.7)	21.4 (12.2-54.4)	22.3 (12.2-51.7)	32.7 (12.2-54.4)	26.5 (12.2-54.7)	18.8 (12.2-41.6)	28.3 (12.2-51.6)	18.7 (12.2-34.4)
Median age (range), years	58.0 (18.0-84.0)	61.0 (20.0-84.0)	62.0 (18.0-84.0)	59.0 (20.0-82.0)	55.0 (21.0-84.0)	55.0 (29.0-83.0)	62.0 (20.0-84.0)	62.0 (24.0-84.0)
Female, n (%)	8,287 (74.1)	637 (44.6)	1,665 (43.7)	250 (42.7)	6,304 (95.5)	73 (98.7)	318 (41.5)	314 (40.8)
Cancer type, n (%)[a]								
Breast	7,075 (42.8)	267 (13.0)	401 (7.4)	47 (6.0)	6,501 (65.6)	74 (64.9)	173 (14.3)	146 (12.7)
Gastrointestinal	495 (3.0)	29 (1.4)	158 (2.9)	20 (2.6)	325 (3.3)	2 (1.8)	12 (1.0)	7 (0.6)
Genitourinary	205 (1.2)	48 (2.3)	149 (2.8)	19 (2.4)	29 (0.3)	1 (0.9)	27 (2.2)	28 (2.4)
Head/neck	81 (0.5)	4 (0.2)	53 (1.0)	3 (0.4)	24 (0.2)	0	4 (0.3)	1 (0.1)
Hematologic	4,592 (27.8)	1,353 (65.9)	3,749 (69.2)	585 (74.5)	80 (0.8)	1 (0.9)	763 (63.1)	767 (66.5)
Lung	148 (0.9)	10 (0.5)	53 (1.0)	6 (0.8)	92 (0.9)	1 (0.9)	3 (0.3)	3 (0.3)
Melanoma	68 (0.4)	5 (0.2)	41 (0.8)	3 (0.4)	20 (0.2)	0	7 (0.6)	2 (0.2)
Ovarian	147 (0.9)	7 (0.3)	30 (0.6)	5 (0.6)	113 (1.1)	0	4 (0.3)	2 (0.2)
Other	3,729 (22.6)	329 (16.0)	781 (14.4)	97 (12.4)	2,732 (27.6)	35 (30.7)	216 (17.9)	197 (17.1)
Charlson Comorbidity Index, n (%)								
0	6 (0.1)	2 (0.1)	5 (0.1)	0	1 (<0.1)	0	0	2 (0.3)
>0-1	4 (<0.1)	0	3 (0.1)	0	1 (<0.1)	0	0	0
>1-2	4,751 (42.5)	624 (43.7)	1,688 (44.3)	303 (51.8)	2,777 (42.1)	33 (44.6)	286 (37.3)	288 (37.4)
>2-3	1,804 (16.1)	230 (16.1)	815 (21.4)	116 (19.8)	886 (13.4)	4 (5.4)	103 (13.4)	110 (14.3)
3+	4,613 (41.3)	573 (40.1)	1,299 (34.1)	166 (28.4)	2,936 (44.5)	37 (50.0)	378 (49.3)	370 (48.1)

[a] Patients could be counted in ≥ 1 cancer category since metastatic sites were coded as another cancer type.

Figure 3. All-Cause HCRU

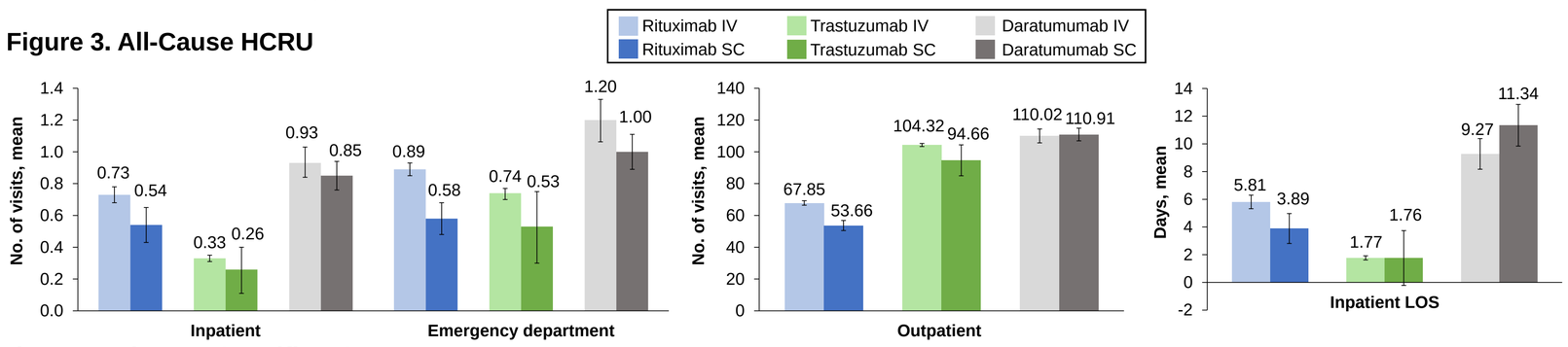


Figure 4. Disease-Specific HCRU

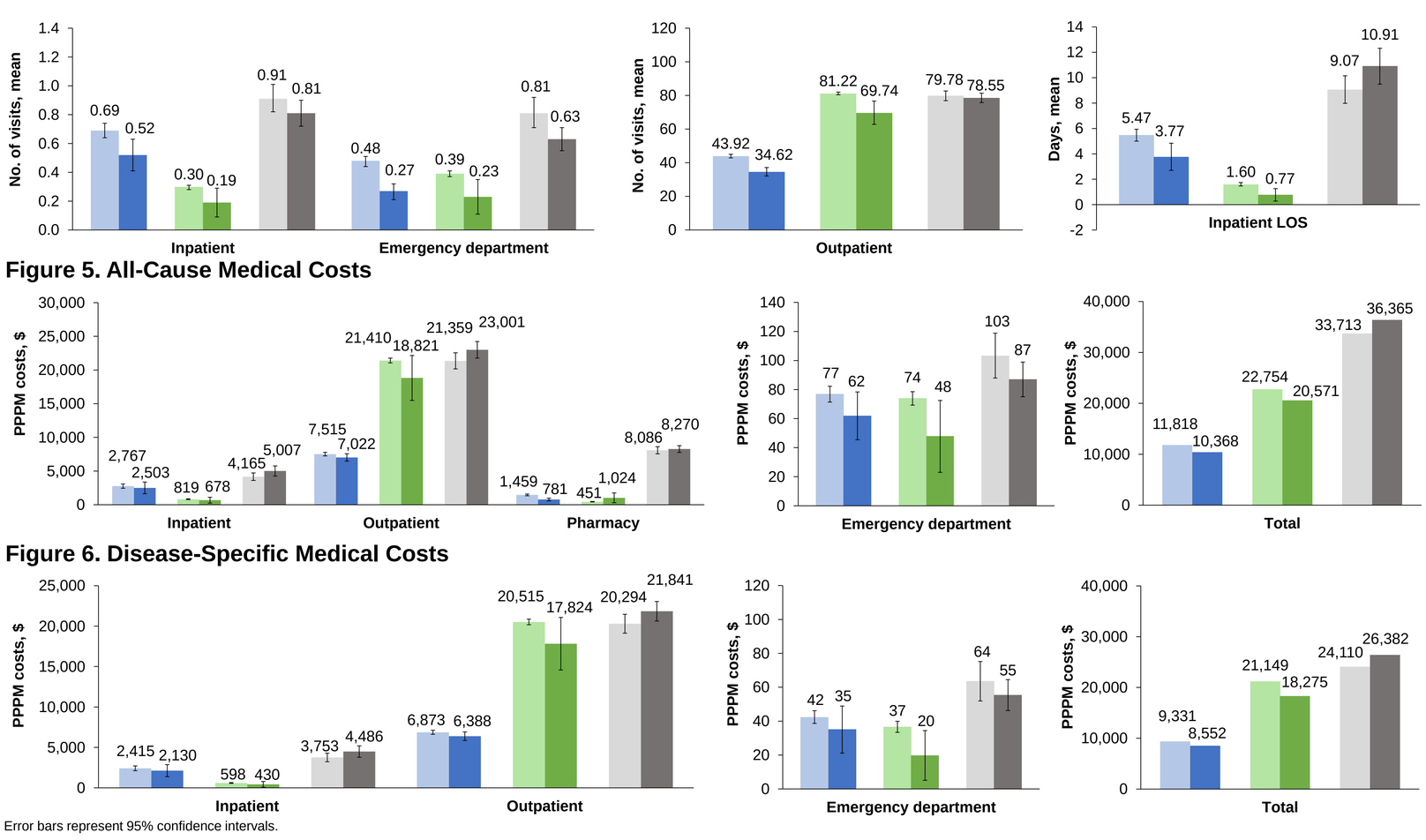


Figure 5. All-Cause Medical Costs

Figure 6. Disease-Specific Medical Costs

Error bars represent 95% confidence intervals.