Payer Differences on Costs of Care in Obstructive Hypertrophic Cardiomyopathy

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INTRODUCTION

- There are limited data available to understand the variability in healthcare resource utilization (HRU) and costs for patients with obstructive hypertrophic cardiomyopathy (oHCM) across major US payers.

OBJECTIVE

- To evaluate 5-year cumulative costs by insurance coverage using Optum medical and pharmacy claims and electronic medical record data.

METHODS

Study Design

- Retrospective cohort study of adult patients with oHCM in Optum's Market Clarity database from 1/1/2013 through 12/31/2021 (index date = first HCM diagnosis).
- Eligible patients met the following inclusion criteria:
  1. Evidence of oHCM: ≥2 medical claims with a diagnosis code for HCM (ICD-9: 425.1, 425.11, or 425.18; ICD-10: I42.1 or I42.2) in any position on different dates of service ≥30 days apart during the patient identification period.
     - ≥1 medical or pharmacy claim with beta-blockers, calcium channel blockers, or disopyramide anytime during the follow-up period *or*
     - ≥1 medical claim for septal reduction therapy (alcohol septal ablation and septal myectomy) during the study period.
  2. ≥18 years of age as of the index date.
  3. Baseline enrollment – Continuous enrollment (CE) with medical and pharmacy benefits for 6 months before the index date.
  4. Follow-up enrollment – CE with medical and pharmacy benefits for ≥5 years after (and including) the index date.
- Patients who met any of the following criteria were excluded:
  1. Evidence of Fabry disease or amyloidosis during the study period.
  2. Missing age or gender, and unknown or "other" geographic region.
- Outcomes:
  - HCM-related HRU and costs (Consumer Price Index adjusted to 2022) were reported as the mean (SD), including:
    - Medical (ambulatory: office visits, outpatient visits; emergency room visits; inpatient admissions; length of stay; other medical costs) *and*
    - Pharmacy.
  - Outcomes were assessed at 5-year follow-up (N=5129).

RESULTS

Patient Demographics

- Among 5129 patients with oHCM (mean age, 63.9 ± 14.3 years), 51% were female, 77.6% were non-Hispanic White, and 40% had Medicare coverage (**Table 1**).

Table 1: Patient Demographics

n (%)[a]	oHCM N=5129
Age (continuous), mean (SD), y	63.9 (14.3)
Age group, y	
18–39	296 (6)
40–54	959 (19)
55–64	1230 (24)
65–74	1193 (23)
75+	1451 (28)
Female	2639 (51)
US region[b]	
Northeast	1524 (30)
Midwest	2084 (41)
South	1107 (22)
West	414 (8)
Race/ethnicity	
White, non-Hispanic	3978 (78)
Black/African American, non-Hispanic	889 (17)
Asian, non-Hispanic	96 (2)
Hispanic	166 (3)
Insurance coverage type	
Commercial	1887 (37)
Medicare	2055 (40)
Medicaid	327 (6)
Other	28 (1)
Unknown/missing	832 (16)

[a] Unless otherwise indicated.
[b] Percentages across regions do not total 100 because of rounding.
oHCM, obstructive hypertrophic cardiomyopathy.

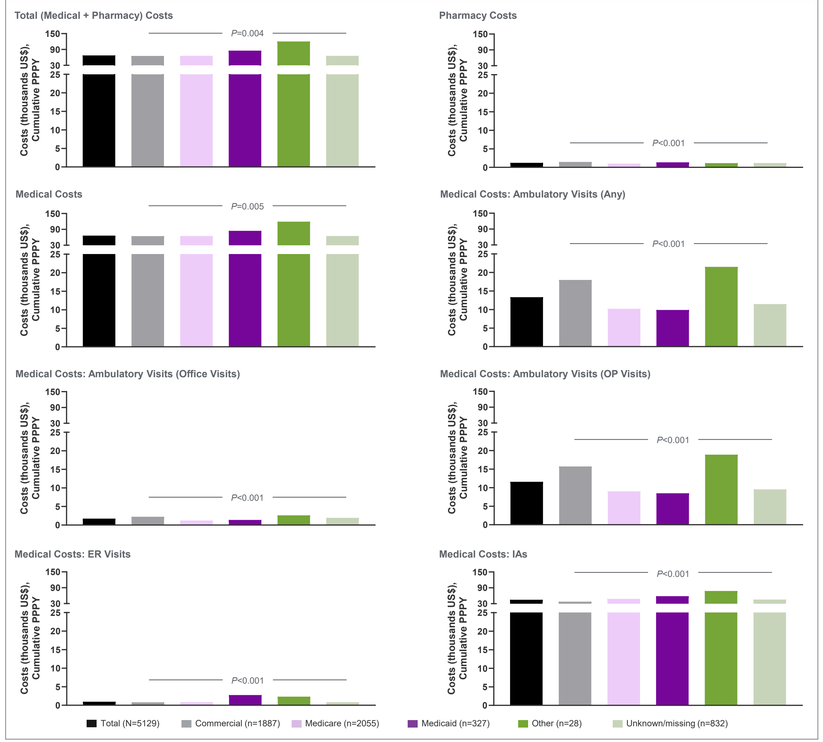
- Significant variations in HCM-related HRU were observed across different insurance coverage types (**Table 2**).

Table 2: HCM-Related HRU Counts for oHCM Population During the Fixed 5-Year Follow-Up Period[a,b]

Fixed 5-Year Follow-Up	Total N=5129	Commercial n=1887	Medicare n=2055	Medicaid n=327	Other n=28	Unknown/Missing n=832	*P* Value
Ambulatory visits	15.3 (18.7)	18.9 (21.2)	11.9 (15.1)	12.6 (20.5)	21.9 (33.1)	16.1 (17.7)	<0.001
Office visits	9.2 (10.9)	11.5 (12.1)	7.1 (9.3)	6.7 (10.1)	11.7 (12.9)	9.7 (10.5)	<0.001
OP visits	6.3 (13.1)	7.7 (14.7)	4.9 (10.5)	5.9 (16.4)	10.5 (25.7)	6.8 (12.5)	<0.001
ER visits	0.8 (3.2)	0.6 (1.5)	0.7 (3.1)	2.7 (8.6)	1.5 (3.3)	0.7 (1.7)	<0.001
IAs	0.9 (1.6)	0.7 (1.4)	1.0 (1.6)	1.1 (2.4)	1.8 (2.8)	1.0 (1.4)	<0.001
LOS (days)	10.0 (39.6)	5.9 (17.1)	13.6 (54.1)	14.9 (53.9)	15.9 (31.4)	8.4 (23.3)	<0.001
Pharmacy use	27.7 (24.2)	29.8 (25.4)	24.5 (21.2)	38.3 (30.1)	32.4 (26.4)	26.7 (24.2)	<0.001

[a] Data are mean (SD). HCM-related HRU was defined as a diagnosis for HCM in any position, or included treatment for HCM (BB, CCB, disopyramide, SRT, implantable cardioverter defibrillator, heart transplant, or pacemaker).
[b] *P*-values for significant differences in counts across insurance coverage types. A 2-sample *t*-test followed by an F-test/ANOVA were used for continuous measures.
ANOVA, analysis of variance; BB, beta-blocker; CCB, calcium channel blocker; ER, emergency room; HCM, hypertrophic cardiomyopathy; HRU, healthcare resource utilization; IA, inpatient admission; LOS, length of stay; oHCM, obstructive hypertrophic cardiomyopathy; OP, outpatient; SRT, septal reduction therapy.

Figure 1: HCM-Related HRU Standardized Costs During the Fixed 5-Year Follow-Up Period[a,b]



[a] Data are the mean. Costs were adjusted using the annual medical care component of the CPI to reflect inflation to 2022.
[b] *P*-values for significant differences in costs across insurance coverage types. A 2-sample *t*-test followed by an F-test/ANOVA were used for continuous measures.
ANOVA, analysis of variance; CPI, consumer price index; ER, emergency room; HCM, hypertrophic cardiomyopathy; HRU, healthcare resource utilization; IA, inpatient admission; OP, outpatient; PPPY, per-patient, per-year.

HRU Costs (per patient)

- There were significant differences across HCM-related cost categories by coverage type, with costs driven by inpatient and outpatient costs (*P*<0.001) (**Figure 1**).
  - Patients with Medicaid experienced greater HCM-related total (*P*=0.004), medical (*P*=0.005), and inpatient (*P*<0.001) costs vs those with other coverage types.
  - HCM-related emergency room costs were greatest among patients with Medicaid ($2,750) vs those with other insurance coverage types (Medicare: $840; Unknown: $818; Commercial: $789; *P*<0.001).
  - HCM-related pharmacy costs were greatest among commercially insured patients ($1,464) vs those with other insurance coverage types (Medicaid: $1,359; Unknown: $1,159; Medicare: $1,004; *P*<0.001).

Limitations

- Real-world data in this study utilized ICD-9 and ICD-10 coding for disease identification and study outcomes, and may be subject to inconsistencies without patient-level genetic and anatomical confirmation.

CONCLUSIONS

- oHCM, a chronic progressive disease, leads to substantial HRU and costs across all payer types, with Medicaid patients experiencing significantly higher total, medical, and inpatient costs as compared with other payers.
- Future research is needed to understand the root cause of these economic differences.

Disclosures

MB, SS: Employees of and own stock in Cytokinetics, Incorporated. **KB, AA, QA, AB:** Employees of Optum/UHG, who were consultants for Cytokinetics, Incorporated for this study. **QA, AB, AA:** Shareholders of UHG stock. **NR:** Consulting/speaking honoraria from Roche Diagnostics and Zoll Inc., and is supported by the National Heart, Lung, and Blood Institute of the National Institutes of Health under Award Number K23HL166961 (the content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health). **AO:** Consultant/advisor fees from Cytokinetics, Incorporated, Bristol Myers Squibb/MyoKardia, and Pfizer.

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