

# Differences in Healthcare Resource Use and Cost by Treatment Choice Among Patients with Symptomatic Obstructive Hypertrophic Cardiomyopathy: Real-World Analysis of 2016–2021 Claims Data

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## BACKGROUND

- For symptomatic obstructive hypertrophic cardiomyopathy (soHCM), standard treatment consists of pharmacotherapy with beta-blockers (BB) or calcium channel blockers (CCB) as first-line; BB+CCB combination therapy as second-line; and septal reduction therapy (SRT) for patients refractory to pharmacotherapy. In addition, patients may require a pacemaker, implantable cardioverter-defibrillator (ICD), or heart transplant.

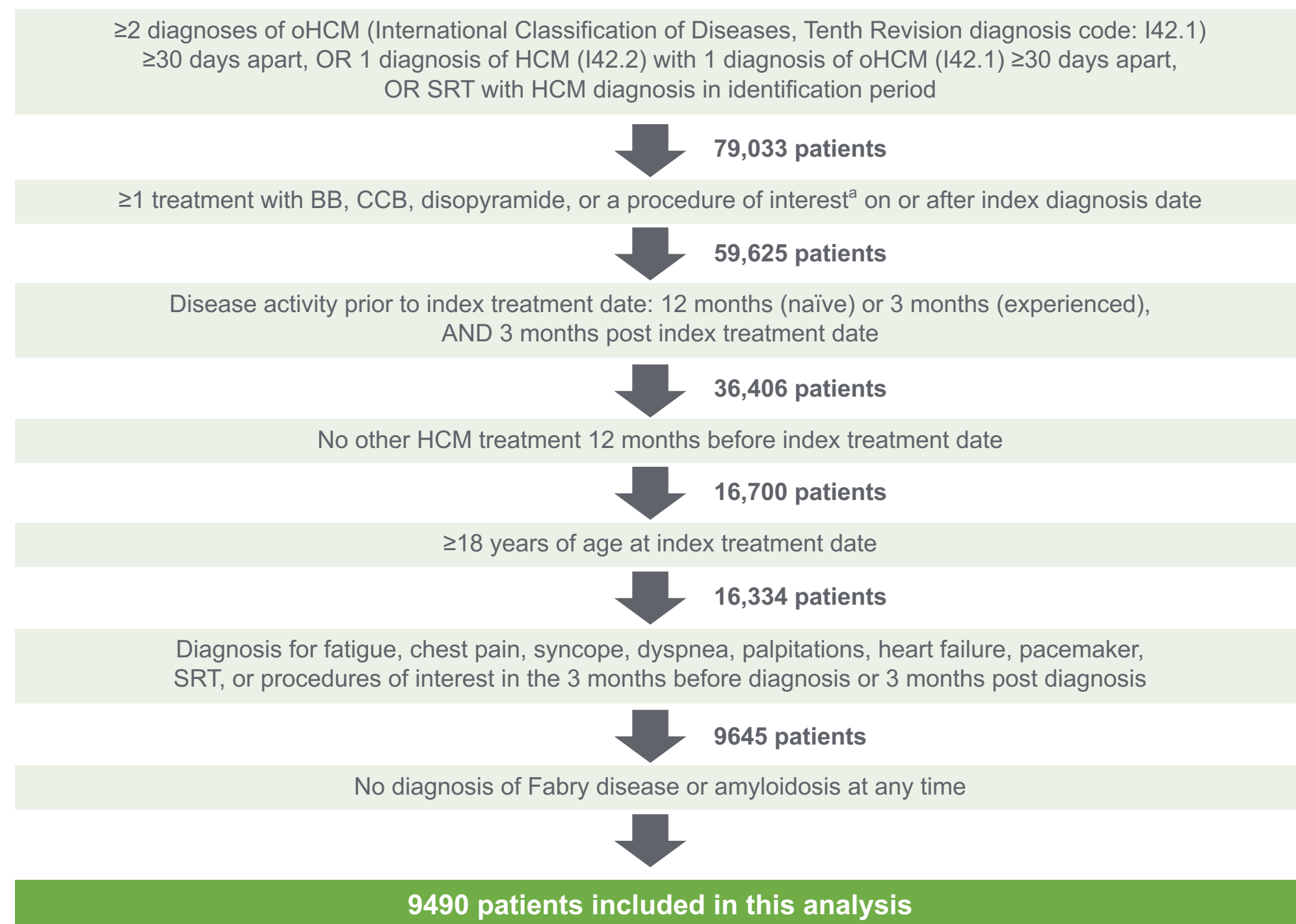
### Objective

- To determine whether healthcare resource utilization (HCRU) and costs vary by initial treatment in soHCM, and whether BB+CCB combination therapy and invasive procedures are associated with higher HCRU and costs than monotherapy with BB or CCB.

## METHODS

- We analyzed Symphony medical and pharmacy claims from 2016 to 2021 and associated International Classification of Diseases, Tenth Revision codes to identify adult patients in the USA with soHCM.
- Patients included in the study cohort were required to be treatment-naïve and symptomatic (Figure 1).
- We grouped patients by first index treatment: BB, CCB, disopyramide, BB+CCB combination therapy, SRT, ICD, pacemaker, or heart transplant.
- We report HCRU and costs (per-person per-year [PPPY], in US\$) by initial treatment.

Figure 1. Patient selection criteria



<sup>a</sup> Procedures of interest include alcohol septal ablation, septal myectomy, pacemaker etc.

## RESULTS

- Among 9490 patients with soHCM, the median age was 64 years and 55.9% were female (Table 1).
- For initial therapy, patients received BB (50.9%), CCB (16.3%), disopyramide (0.9%), BB+CCB combination therapy (9.2%), SRT (8.7%), ICD (10.7%), pacemaker (2.4%), or heart transplant (0.2%) (Table 1).
- Among patients treated with pharmacotherapy, 87.4% were prescribed monotherapy.
- All-cause incurred healthcare costs were \$51,835 PPPY overall and varied by treatment: BB: \$45,995; CCB: \$41,283; disopyramide: \$27,015; BB+CCB combination therapy: \$53,229; SRT: \$48,778; ICD: \$80,725; pacemaker: \$74,856; heart transplant: \$212,580 (Figure 2).
- Irrespective of treatment, outpatient visits contributed the most to overall costs.
- Outpatient visits were the main driver of HCRU (mean: 11.5 PPPY) and varied by initial treatment: BB: 11.0; CCB: 10.5; disopyramide: 7.2; BB+CCB combination therapy: 12.1; SRT: 12.9; ICD: 12.0; pacemaker: 16.5; heart transplant: 24.9 (Figure 3).
- Urgent care visits were more frequent than inpatient visits (mean: 5.2 and <1 PPPY, respectively).

### Limitations

- These results were not adjusted for age, sex, or comorbidities.

Table 1. Patient baseline characteristics

	Total	BB	CCB	BB+CCB	Disopyramide	SRT	ICD	Pacemaker	Heart transplant
<b>Total, n (%)</b>	9490 (100)	4826 (50.9)	1544 (16.3)	875 (9.2)	89 (0.9)	826 (8.7)	1,019 (10.7)	231 (2.4)	20 (0.2)
<b>Age</b>									
Median (SD)	64.0 (20.0)	63.0 (21.0)	67.0 (18.0)	65.0 (20.0)	66.0 (15.0)	65.0 (16.0)	60.0 (20.0)	74.0 (11.0)	48.5 (13.0)
<b>Female, n (%)</b>	5309 (55.9)	2695 (55.8)	953 (61.7)	527 (60.2)	61 (68.5)	478 (57.9)	419 (41.1)	128 (55.4)	6 (30.0)
<b>US region, n (%)</b>									
Northeast	2298 (24.2)	1193 (24.7)	344 (22.3)	241 (27.5)	27 (30.3)	163 (19.7)	252 (24.7)	46 (19.9)	8 (40.0)
Central	2474 (26.1)	1323 (27.4)	378 (24.5)	206 (23.5)	18 (20.2)	232 (28.1)	239 (23.5)	59 (25.5)	6 (30.0)
South	3411 (35.9)	1659 (34.4)	578 (37.4)	313 (35.8)	27 (30.3)	330 (40.0)	396 (38.9)	89 (38.5)	2 (10.0)
West	1273 (13.4)	635 (13.2)	242 (15.7)	114 (13.0)	16 (18.0)	96 (11.6)	125 (12.3)	35 (15.2)	4 (20.0)
Unknown	34 (0.4)	16 (0.3)	2 (0.1)	1 (0.1)	1 (1.1)	5 (0.6)	7 (0.7)	2 (0.9)	0 (0.0)
<b>Insurance type, n (%)</b>									
Cash	439 (4.6)	266 (5.5)	104 (6.7)	46 (5.3)	14 (15.7)	1 (0.1)	6 (0.6)	0 (0.0)	0 (0.0)
Commercial	1806 (19.0)	286 (5.9)	80 (5.2)	45 (5.1)	7 (7.9)	544 (65.9)	697 (68.4)	128 (55.4)	17 (85.0)
Employer group	701 (7.4)	477 (9.9)	130 (8.4)	62 (7.1)	11 (12.4)	6 (0.7)	9 (0.9)	2 (0.9)	0 (0.0)
Medicaid	1138 (12.0)	662 (13.7)	196 (12.7)	139 (15.9)	8 (9.0)	33 (4.0)	77 (7.6)	9 (3.9)	1 (5.0)
Medicare	3668 (38.7)	1988 (41.2)	721 (46.7)	424 (48.5)	24 (27.0)	215 (26.0)	182 (17.9)	89 (38.5)	1 (5.0)
PBM	679 (7.2)	460 (9.5)	129 (8.4)	69 (7.9)	6 (6.7)	2 (0.2)	6 (0.6)	0 (0.0)	0 (0.0)
Unspecified	973 (10.3)	652 (13.5)	180 (11.7)	80 (9.1)	17 (19.1)	12 (1.5)	22 (2.2)	2 (0.9)	1 (5.0)

PBM, Pharmacy Benefit Manager.

Figure 2. All-cause healthcare costs among patients with soHCM by index treatment choice

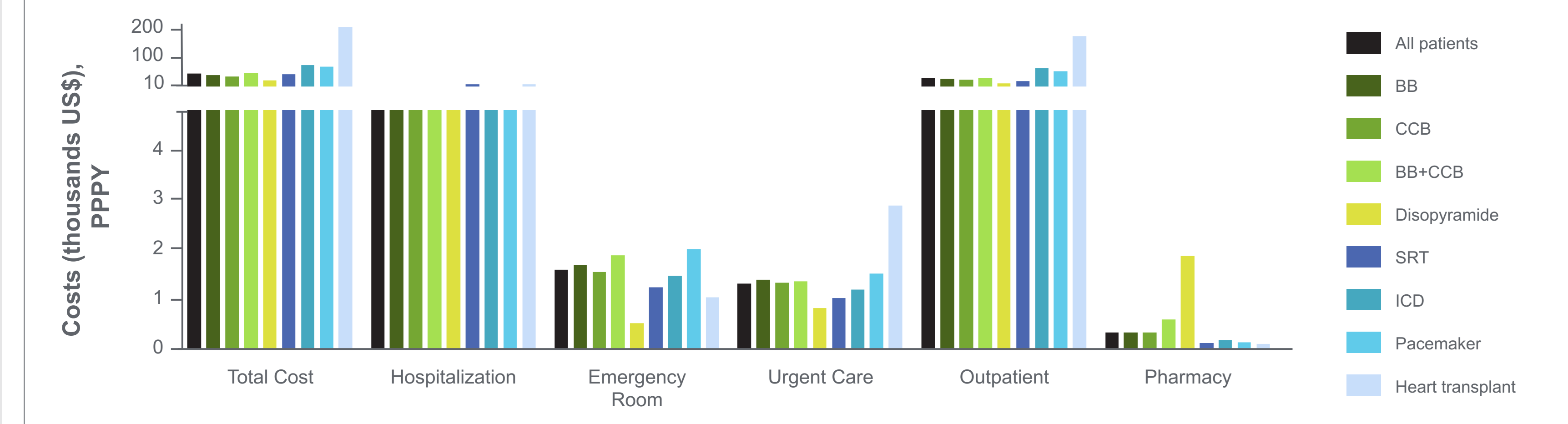
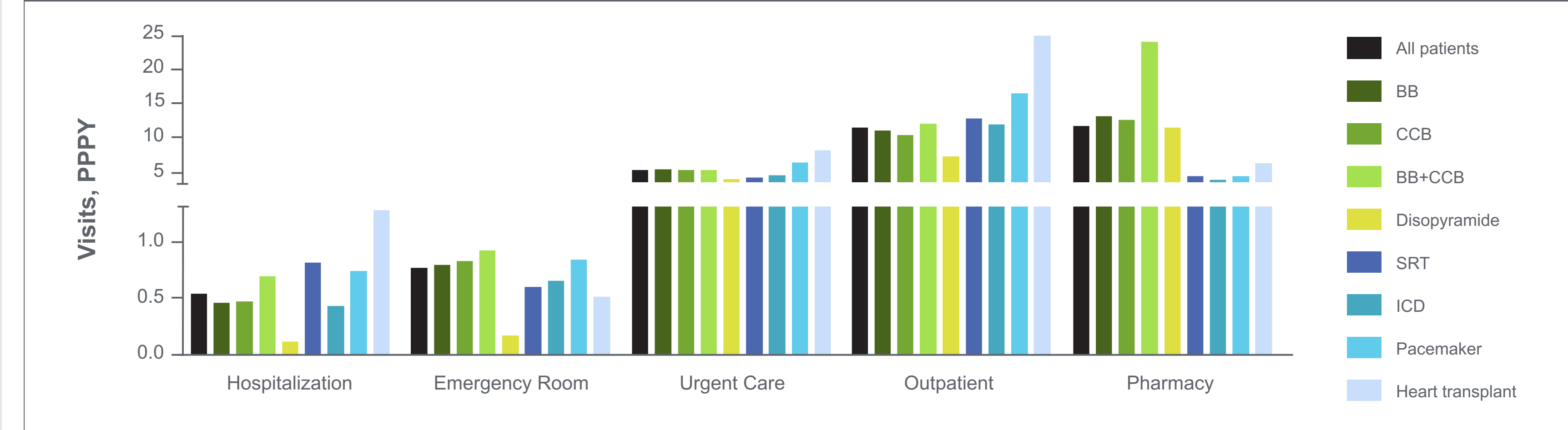


Figure 3. All-cause HCRU among patients with soHCM by index treatment choice



## CONCLUSIONS

- In this large, US-based cohort of treatment-naïve patients with soHCM, initial therapy was most commonly BB or CCB monotherapy, but a substantial minority received BB+CCB combination therapy or invasive procedures.
- Unadjusted HCRU and costs were high for most patients, but greater for those treated initially with BB+CCB combination therapy or invasive procedures.

## References

- Lu DY, et al. *J Am Heart Assoc* 2018;7(5):e006657.

## Disclosures

This study was funded by Cytokinetics, Incorporated. MB, SBH, DJ, SShrey, and RS: Employees of and own stock in Cytokinetics, Incorporated. SSen, JCS, EP, RP, XL, and JVF: No conflicts of interest to declare.

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## Abbreviations

BB, beta-blocker; CCB, calcium channel blocker; HCM, hypertrophic cardiomyopathy; HCRU, healthcare resource utilization; ICD, implantable cardioverter-defibrillator; PPPY, per-person per-year; soHCM, symptomatic obstructive hypertrophic cardiomyopathy; SRT, septal reduction therapy.



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