

Differences in healthcare resource utilization among patients receiving comprehensive GDMT by prior history of worsening heart failure (WHF) events

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Background

- Comprehensive GDMT (ARNI, MRA, β-blocker, SGLT2i) shown to improve outcomes in patients with heart failure with reduced ejection (HFrEF)
- Healthcare resource utilization (HCRU) in patients receiving GDMT has not been well characterized by history of WHF
- WHF event was defined as HF hospitalization or IV diuretic administration

Methods

- Patients with HFrEF on all four drug classes of Comprehensive GDMT between January 2020 and June 2022 in the Optum's de-identified Clinformatics® Data Mart Database were included in the analysis
- Patient characteristics, HCRU, and mean cumulative functions were determined in patients with and without a WHF event
- Cox proportional hazard and negative binomial regressions estimated factors independently associated with HCRU

Results

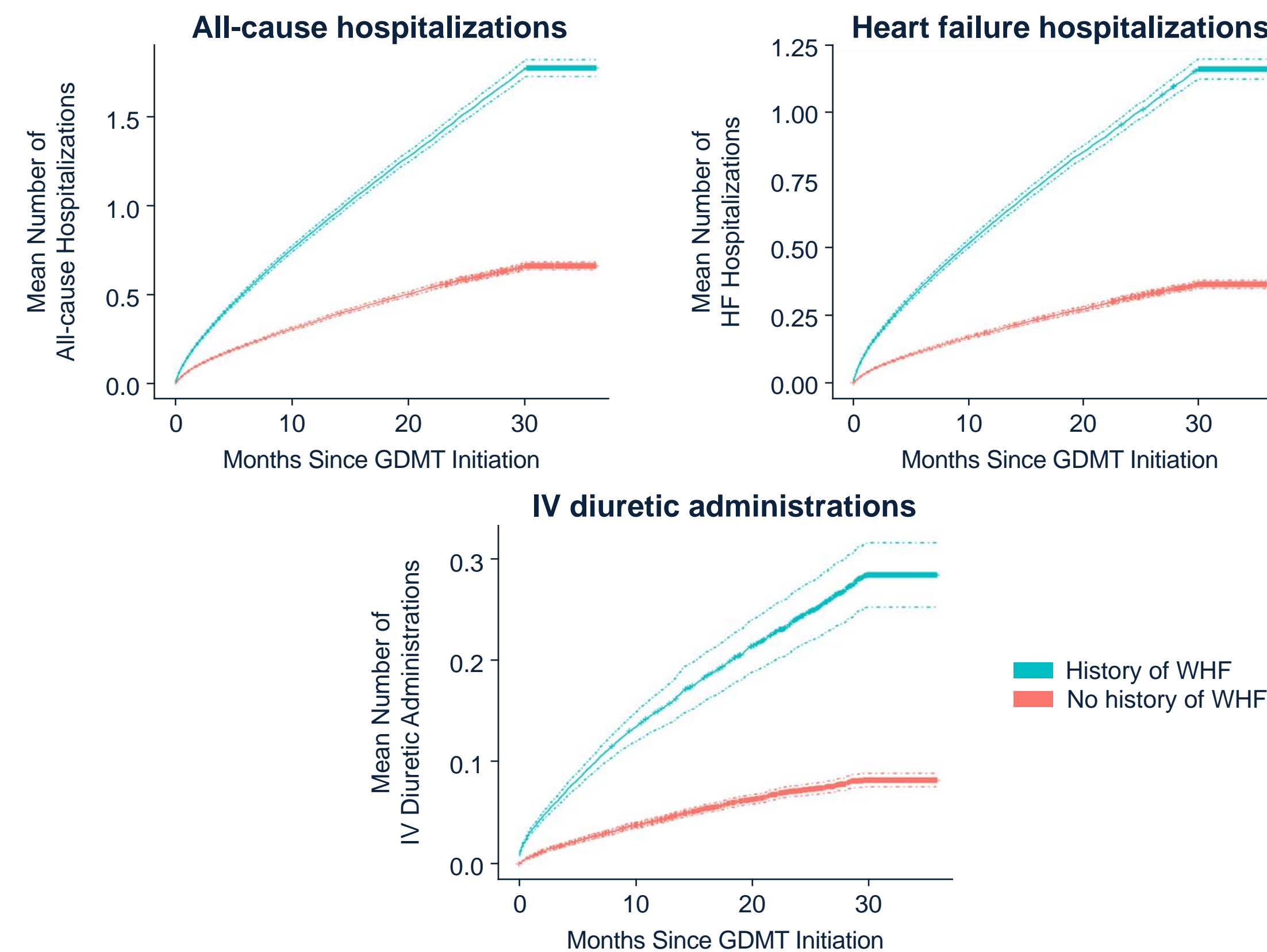
Patient characteristics by history of WHF at GDMT initiation

	History of WHF 47% (N=1,835)	No history of WHF 53% (N=2,046)
Median age at GDMT initiation (IQR), years	69 (60, 75)	68 (60, 74)
Gender		
Female	34%	32%
Male	66%	68%
Race/Ethnicity^a		
White	60%	62%
Black	22%	18%
Other	18%	20%
Medicare Insurance	77%	79%
Comorbidity		
Coronary artery disease ^a	83%	78%
Chronic kidney disease ^a	43%	35%
Diabetes ^a	67%	62%
Hypertension ^a	94%	92%
Chronic obstructive pulmonary disease ^a	18%	14%

^aIndicates P<0.05

Results

HCRU events by history of WHF at GDMT initiation

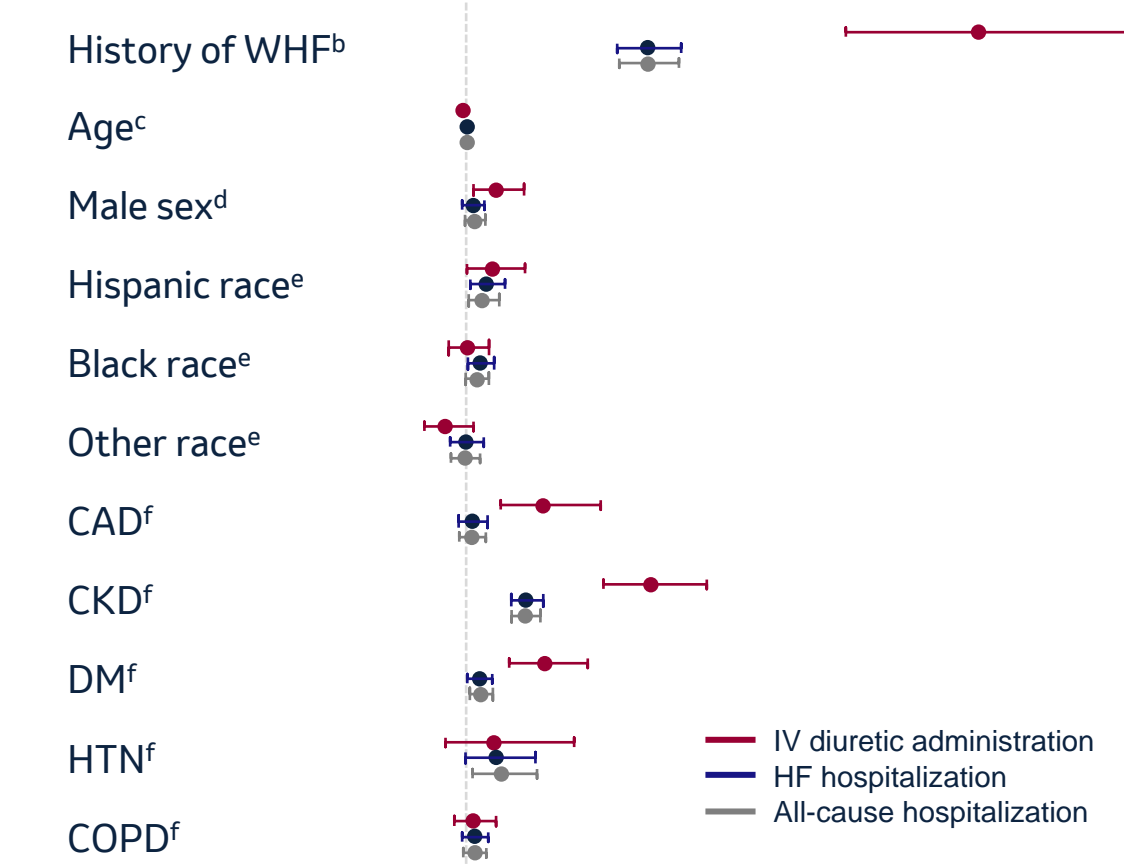


Healthcare resource utilization by history of WHF at GDMT initiation

HCRU outcomes	History of WHF 47% (N=1,835)	No history of WHF 53% (N=2,046)
All-cause hospitalization (ACH)		
Patients experiencing 1 or more ACH ^a	37%	22%
Patients experiencing 2 or more ACH ^a	17%	7%
Time from GDMT initiation to first ACH, days ^{a,b}	126 (47, 232)	176 (72, 340)
Number of ACH during follow-up ^{a,c}	2.0 (1.6)	1.6 (1.0)
Length of stay, days ^{a,b}	6 (4, 10)	5 (3, 8)
Heart failure hospitalization (HFH)		
Patients experiencing 1 or more HFH ^a	32%	19%
Patients experiencing 2 or more HFH ^a	13%	5%
Time from GDMT initiation to first HFH, days ^{a,b}	128 (49, 230)	185 (75, 341)
Number of HFH during follow-up ^{a,c}	1.8 (1.4)	1.5 (0.9)
Length of stay, days ^{a,b}	6 (4, 9)	5 (3, 8)

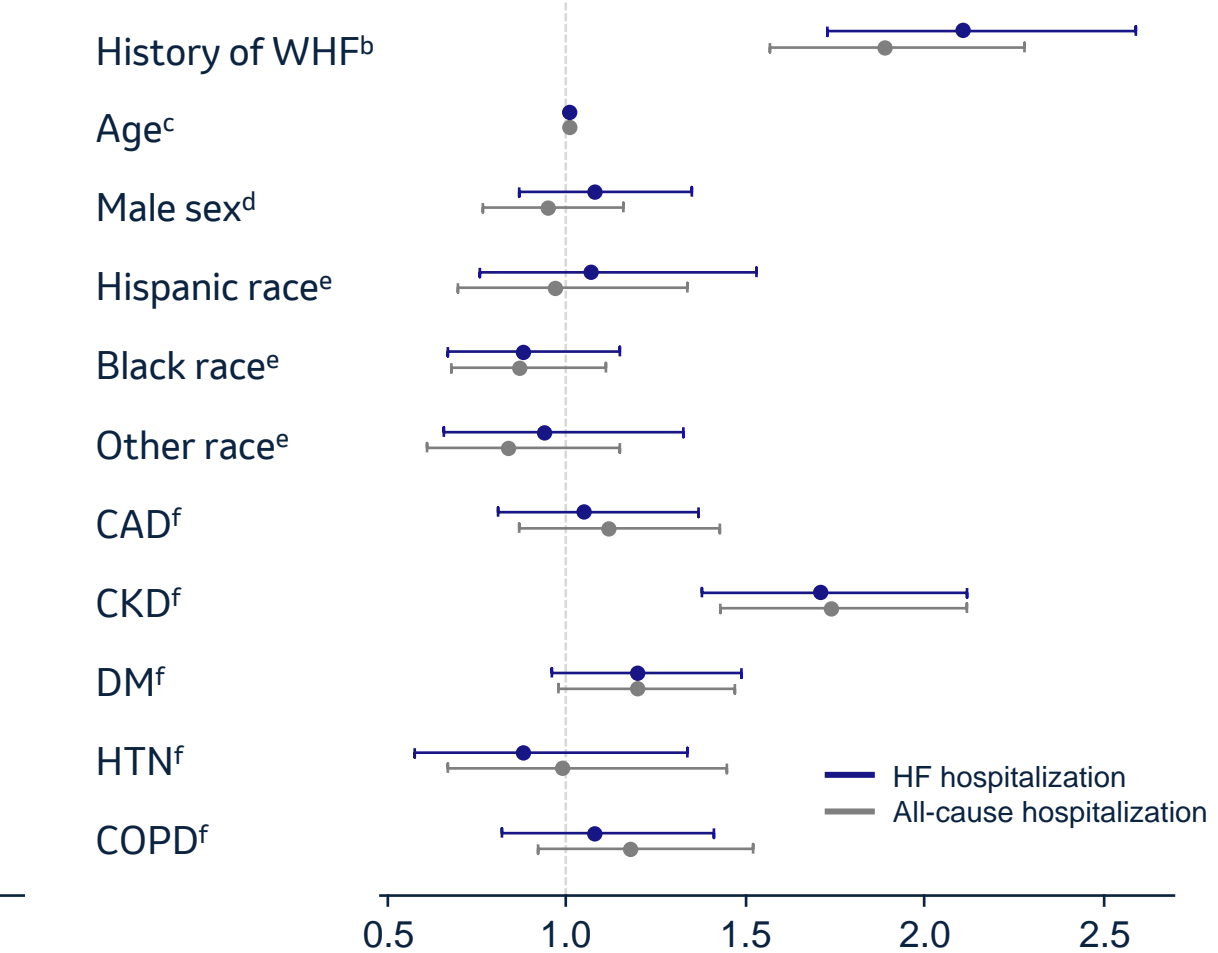
^aIndicates P<0.05; ^bMedian (IQR); ^cMean (SD)

Impact of risk factors on recurrent HCRU^a



^aCoefficients (95% CI) of adjusted Cox regression analyses, ^bWithout history of WHF; ^cContinuous; ^dFemale sex; ^eWhite race; ^fNo history of disease; ^gCoefficients (95% CI) of adjusted negative binomial analyses.

Impact of risk factors on average length of ACH and HFH^a



HCRU outcomes	Adjusted ^a HR for History of WHF
All-cause hospitalization	2.93 (2.64-3.26) ^c
HF hospitalization	2.93 (2.61-3.29) ^c
IV diuretic Use	6.46 (5.05, 8.27) ^c
Length of stay for all-cause hospitalization (days)^b	1.91 (1.59-2.31) ^c
Length of stay for HF hospitalization (days)^b	2.13 (1.74-2.61) ^c

^aAdjusted for: age, sex, race, and history of: CAD, CKD, DM, HTN, COPD; ^bCoefficients from adjusted negative binomial analysis; ^cP<0.001

Limitations

- Medications were assumed to be taken as prescribed
- Patients were required to have ≥1 day of pill overlap for all four Comprehensive GDMT drug classes
- Residual confounding could impact the true association between history of WHF and HCRU

Conclusions

- Among patients receiving Comprehensive GDMT, a history of WHF was independently associated with higher HCRU
- Increase in HCRU was highest in patients with history of WHF relative to other known risk factors
- Patients with a history of WHF may benefit from additional care strategies and novel therapies to further decrease residual risk



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