Impact of Rifaximin Use on Overt Hepatic Encephalopathy (OHE) Rehospitalizations Post Discharge from an OHE Hospitalization in Commercially, Medicare, and Medicaid Insured Patients

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Background

- Overt hepatic encephalopathy (OHE) is a severe neurologic complication of cirrhosis, which manifests with various symptoms related to reduced brain function, altered consciousness, and confusion[1]; and is characterized by recurring episodes that require rehospitalization[2]
- Better understanding the impact of post-discharge rifaximin use on OHE rehospitalizations in patients with OHE in real-world practice may inform management and improve patient outcomes

Objectives

To describe and compare rates of OHE rehospitalization following an initial OHE hospitalization among commercial, Medicare, and Medicaid patients treated with rifaximin (± lactulose) versus those who are not

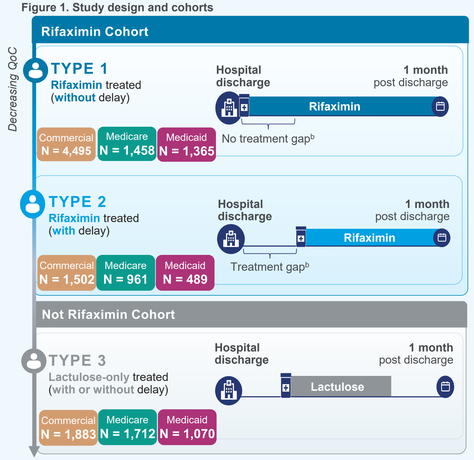
Methods

Data source: Komodo Research Dataset (KRD+) from 01/2016 - 09/2023

Retrospective cohort study

- **Study population:** Adults with an OHE hospitalization[a] (*index hospitalization*), stratified by insurance type at index date (*day after discharge from the index hospitalization*)
- **Cohort classification:** Patients in each insurance sample were classified into two mutually exclusive cohorts based on treatment received within 30 days of index hospitalization
  - Cohorts were further stratified into three subgroups representing decreasing quality of care (QoC) based on medical expert input

Figure 1. Study design and cohorts



Measures, outcomes, and statistical analyses

- Among each cohort, baseline (i.e., 6-month period prior to the index hospitalization) characteristics, characteristics of the index hospitalization, proportion of 30-day OHE rehospitalizations, and number of subsequent OHE hospitalizations were reported
- The impact of rifaximin use on the risk of 30-day OHE rehospitalization and annual rates of subsequent OHE hospitalizations were described and compared by cohort and by QoC subgroups, separately:
  - 30-day OHE rehospitalization rates: Logistic regressions adjusted for characteristics, reported as odds ratios (ORs) and point estimates
  - Annual rates of OHE rehospitalizations: Negative binomial regressions adjusted for characteristics, reported as incidence rate ratios (IRRs) and point estimates

Notes:
[a]OHE hospitalization was defined as either (1) a primary diagnosis for OHE (ICD-10-CM: K72.90, K72.91, K70.41, K71.11, K72.01, K72.11, K76.82) AND a diagnosis-related group (DRG) code of 441, 442, 443, or (2) a prescription of rifaximin 550mg twice daily with ≥30 days supply during the hospital stay
[b]Treatment gap was defined as a period of ≥ 1 day following discharge from the index OHE hospitalization without a prescription fill for rifaximin (Rifaximin Cohort) or lactulose (Not Rifaximin Cohort)

Results

Table 1. Demographics and clinical characteristics

	COMMERCIAL		MEDICARE		MEDICAID	
	Rifaximin Cohort N=5,997	Not Rifaximin Cohort N=1,883	Rifaximin Cohort N=2,419	Not Rifaximin Cohort N=1,712	Rifaximin Cohort N=1,854	Not Rifaximin Cohort N=1,070
Demographic characteristics						
Age (years), mean ± SD [median]	54.7 ± 8.7 [57.0]	55.8 ± 8.3 [58.0]	67.5 ± 9.5 [68.0]	69.3 ± 8.7 [70.0]	51.1 ± 9.8 [53.0]	52.7 ± 9.3 [55.0]
Female, N (%)	2,348 (39.2%)	796 (42.3%)	1,181 (48.8%)	835 (48.8%)	831 (44.8%)	496 (46.4%)
Medicare Advantage, N (%)			2,187 (90.4%)	1,607 (93.9%)		
Clinical characteristics						
CirCom score, N (%)						
0	2,936 (49.0%)	894 (47.5%)	607 (25.1%)	486 (28.4%)	507 (27.3%)	309 (28.9%)
1 - 3	1,916 (31.9%)	626 (33.2%)	813 (33.6%)	542 (31.7%)	935 (50.4%)	556 (52.0%)
≥ 4	1,145 (19.1%)	363 (19.3%)	999 (41.3%)	684 (40.0%)	412 (22.2%)	205 (19.2%)
Patients with a MELD-Na score, N (%)	406 (6.8%)	107 (5.7%)	248 (10.3%)	128 (7.5%)	194 (10.5%)	64 (6.0%)
MELD-Na score, mean ± SD [median]	20.0 ± 7.5 [20.0]	19.0 ± 6.8 [20.0]	16.9 ± 6.9 [17.0]	15.8 ± 6.6 [15.0]	19.0 ± 7.6 [18.0]	17.7 ± 6.4 [18.0]
Frailty index (%), mean ± SD [median]	17.7 ± 6.0 [16.8]	17.9 ± 6.2 [16.9]	23.0 ± 8.1 [21.7]	22.4 ± 7.8 [21.4]	21.4 ± 7.4 [21.0]	20.7 ± 7.0 [20.1]
Length of index OHE hospitalization (days), mean ± SD [median]	11.0 ± 13.3 [6.0]	7.2 ± 9.4 [4.0]	9.7 ± 14.8 [6.0]	6.2 ± 7.6 [4.0]	11.5 ± 13.5 [7.0]	7.3 ± 7.7 [5.0]
Duration of follow-up period (months), mean ± SD [median]	4.9 ± 6.6 [2.5]	2.6 ± 3.4 [1.6]	5.5 ± 7.5 [2.6]	3.3 ± 4.2 [2.0]	4.9 ± 6.9 [2.2]	3.0 ± 3.3 [1.9]

Figure 2. 30-day risk of OHE rehospitalization

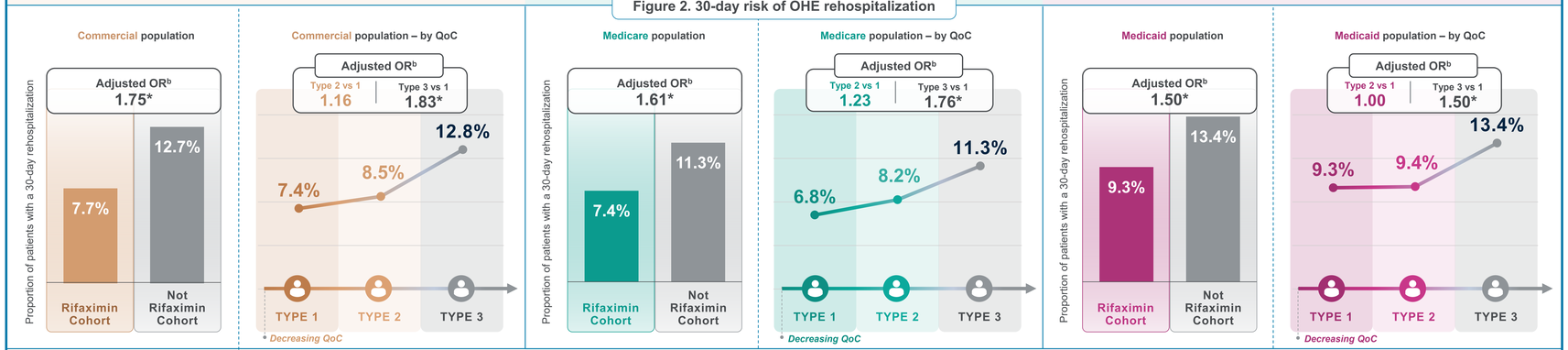
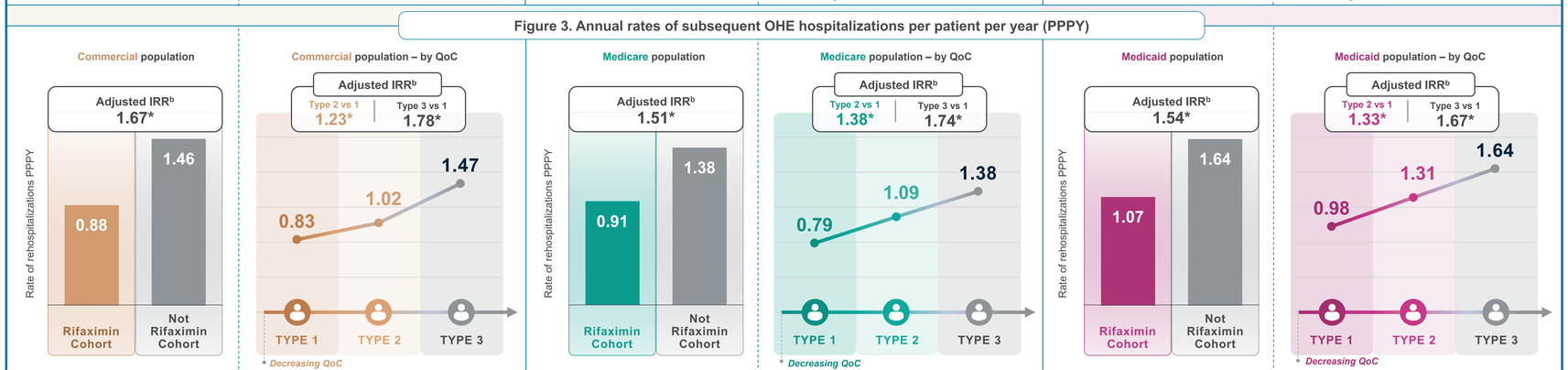


Figure 3. Annual rates of subsequent OHE hospitalizations per patient per year (PPPY)



Note: [b]Models were adjusted for age, sex, region, race/ethnicity, baseline comorbidities, and index characteristics.*Significant at the 5% level.

Conclusions

Among commercial, Medicare, and Medicaid insured patients with an OHE hospitalization:

- **Patients treated with rifaximin post-discharge had a lower risk of 30-day OHE rehospitalization than patients not treated with rifaximin**
- **Patients treated with rifaximin post-discharge had a lower annual rate of subsequent OHE rehospitalizations than patients not treated with rifaximin**
- **Decreasing quality of care resulted in increased risk of 30-day rehospitalizations and annual rates of OHE rehospitalizations post-discharge**

Limitations

- This claims-based study is subject to common limitations including billing inaccuracies and missing data
- Patients with OHE were identified using an algorithm developed in collaboration with medical experts based on real-world clinical practice for coding for OHE
- Results pertain to commercial, Medicare, and Medicaid insured populations and may not be representative of all US adults

References

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Disclosures

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