# **Real-world Treatment Patterns and Economic Burden of Patients with** Marginal Zone Lymphoma

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# BACKGROUND

- Marginal zone lymphoma (MZL) is an indolent non-Hodgkin lymphoma that is treatable, yet incurable with remitting and relapsing course
- Given its disease rarity and underlying heterogeneity, MZL remains understudied with limited real-world evidence on how current treatment patterns conform to clinical guidelines, and the economic outcomes associated with current treatments

# OBJECTIVE

This study aimed to assess real-world treatment patterns, costs, and healthcare resource utilization in MZL patients in the United States (US)

# METHODS

- Study Design: Retrospective, observational study
- Data Source: IBM MarketScan<sup>®</sup> commercial and Medicare supplemental claims dataset, de-identified claims dataset containing the inpatient, outpatient, and prescription files (2017-2020)
- Study Population:
- Adults newly diagnosed with MZL
- Index date: the first MZL diagnosis date
- Aged ≥18 years at index date
- Continuous enrollment of 6 months preand 3 months post-index date
- Treatment Regimen:
- Classified according to NCCN guidelines and identified using HCPCS and NDC codes
- Treatment regimens for a given line of therapy were categorized based on the combination of all agents used within the first 60 days of MZL treatment initiation
- 5 mutually exclusive categories of MZL treatment regimen:
- Rituximab monotherapy (R-mono)
- Bendamustine + rituximab (BR)

- CHOP/R-CHOP (cyclophosphamide, doxorubicin hydrochloride, vincristine sulfate, and prednisone/rituximab-CHOP)
- Ibrutinib
- Other regimens
- Treatment Patterns:
- by frequency and duration of treatment regimens
- by first-line (1L), second-line (2L), or third-line (3L) of therapies
- Economic Outcomes:
- Healthcare resource utilization: Frequency and duration of inpatient hospital admissions, outpatient visits, and pharmacy visits
- Total costs: Calculated as the sum of inpatient, outpatient, and pharmacy costs per-patient-per-month (PPPM)
- Statistical analysis:
- Descriptive analyses: assess patient characteristics and treatment utilization patterns (frequency, duration, discontinuation)
- Multivariable logistic regression: examine predictors of healthcare resource utilization and costs

# RESULTS

#### **Demographic Characteristics of MZL Patient Population**

Among the 2491 newly-diagnosed MZL patients (median age = 63 years), 59% were commercially insured (median age = 57 years) and 41% in Medicare (median age = 76 years) (**Table 1**)

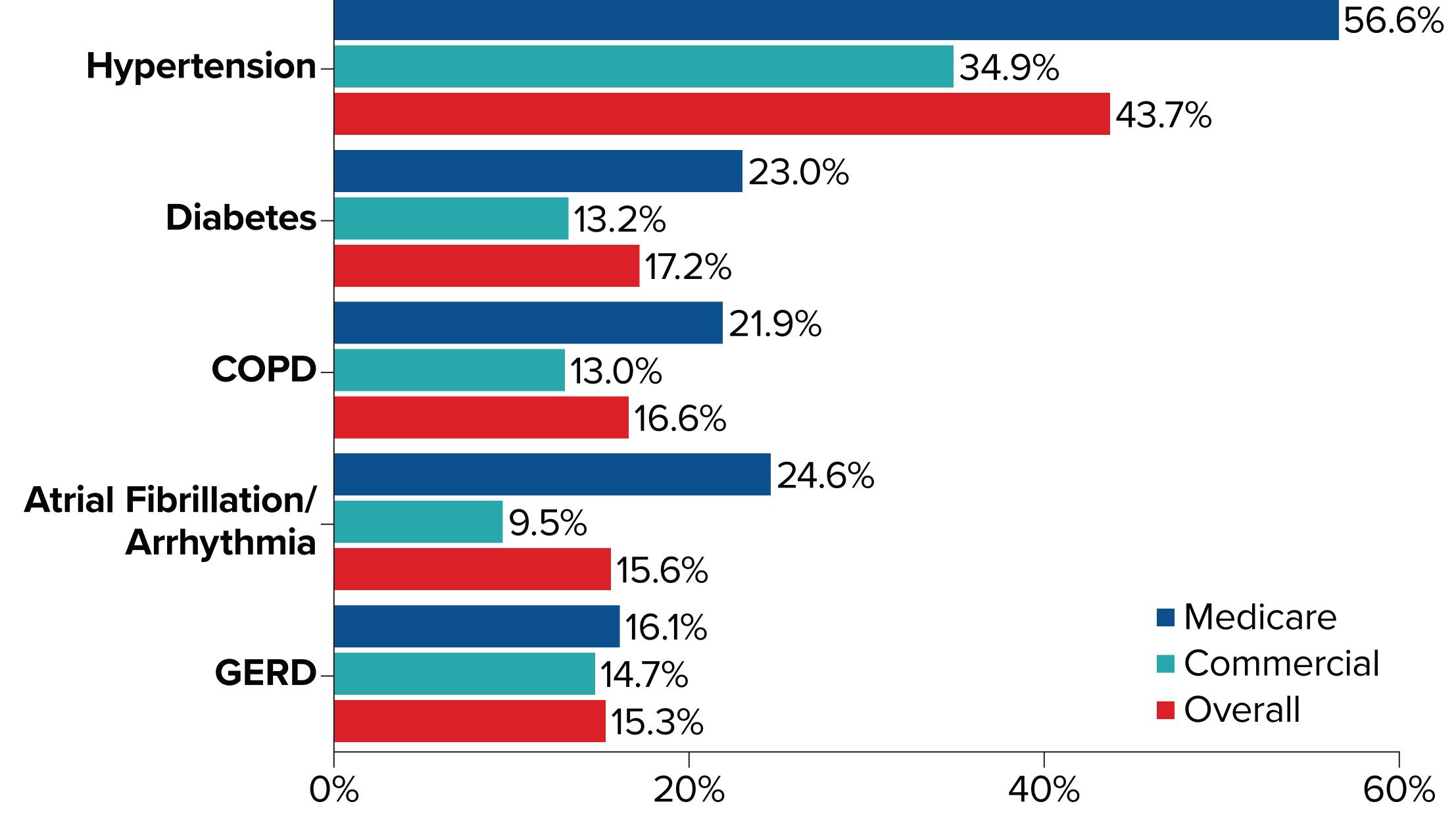
Table 1. Demographic Characteristics of MZL Patient Population

	Overall (N=2,491)	Commercial (N=1,480)	Medicare (N=1,011)			
Age at index, years						
Mean (SD)	63.4 (13.3)	54.8 (8.9)	76.1 (7.2)			
Median	63.0	63.0 57.0				
Male	47.9%	48.2%	47.4%			
<b>Geographic Region</b>						
Northeast	22.7%	21.9%	23.9%			
North Central	26.6%	23.1%	31.4%			
South	34.2%	38.4%	28.3%			
West and unknown	16.5%	16.6%	16.4%			
Length of follow-up (Days)						
Mean (SD)	942.8 (741.5)	939.9 (758.5)	946.9 (716.3)			
Median	707.0	684.0	731.0			

### **Clinical Characteristics of MZL Patient Population**

The most common comorbidities were hypertension (43.7%), followed by diabetes (17.2%), chronic obstructive pulmonary disease (COPD; 16.6%), atrial fibrillation/ arrhythmia (15.6%), and gastroesophageal reflux disease (GERD; 15.3%) (Figure 1)





Abbreviations: COPD, chronic obstructive pulmonary disease; GERD, gastroesophageal reflux disease

#### **Treatment Pattern**

- Average time from diagnosis to treatment initiation was 223 days
- A total of 1,781 (72%) patients received 1L therapy, 518 (29%) patients received 2L therapy, and 239 (13%) patients received 3L therapy
- R-mono was the most common regimen across both commercial and Medicare patients and all treatment lines (Figure 2)
- R-CHOP and BR were the second most used regimen in 1L therapy, with decreased use in 2L and 3L therapies
- Ibrutinib was used more in 2L+ setting but had the lowest 1L PPPM cost (median \$2958.9) than other regimens

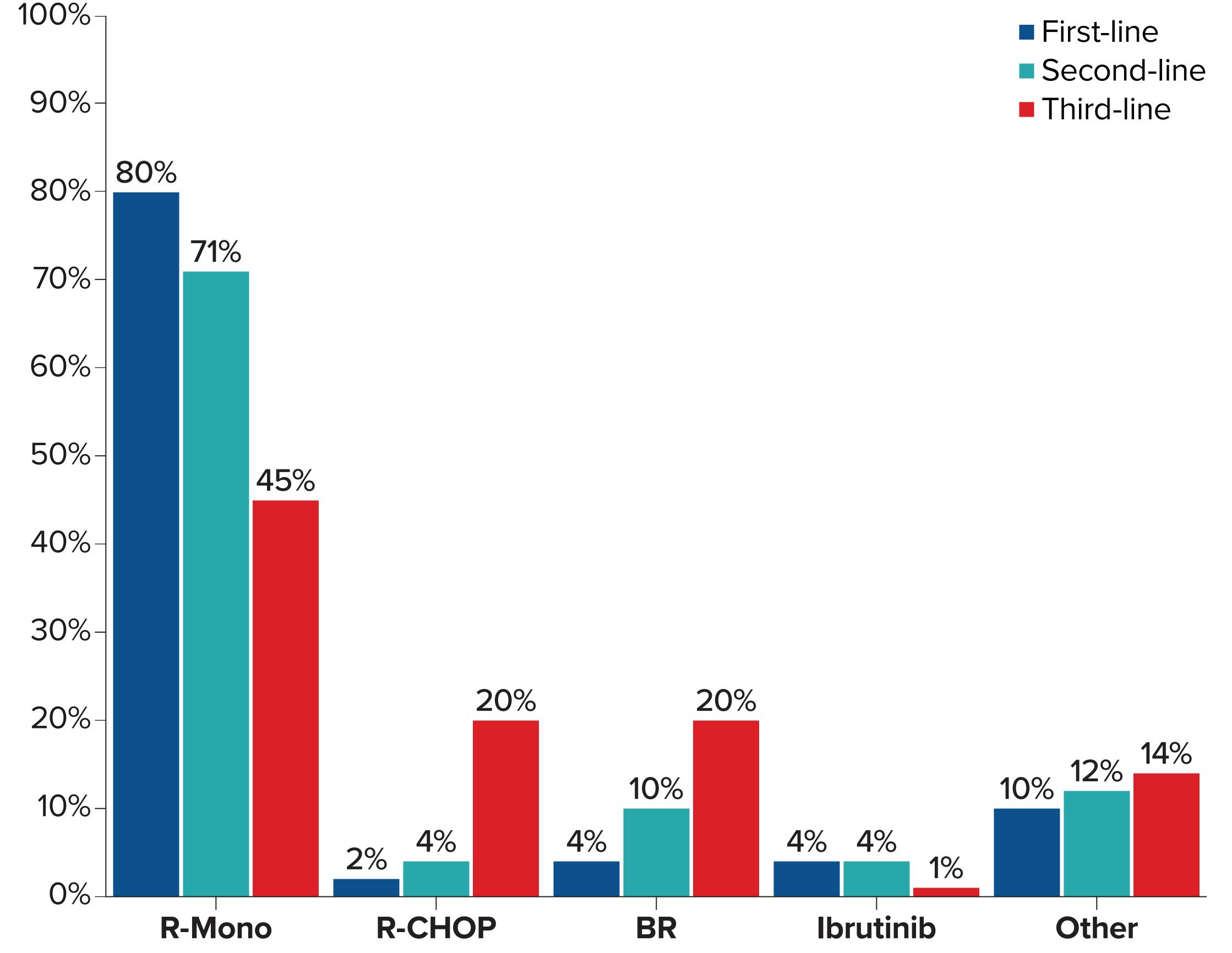


Figure 2. MZL Regimen by Line of Therapy

Abbreviations: MZL, marginal zone lymphoma; R-Mono, rituximab monotherapy; BR, bendamustine + rituximab; CHOP/R-CHOP, cyclophosphamide, doxorubicin hydrochloride, vincristine sulfate, and prednisone/rituximab-CHOP

#### **Healthcare Resource Utilization**

- 17.3% of MZL patients had at least 1 hospitalization, and 17.6% of MZL patients had at least 1 ER visit after the MZL treatment initiation
- Overall, MZL patients had PPPM 4.6 outpatient visits and mean length of stay of 2.6 days (**Table 2**)

#### Table 2. Healthcare Resource Utilization in MZL Patients

Frequency*	<b>Overall</b> (N=2,491)	1L (n=1,781)	2L (n=518)	3L (n=239)
<b>Outpatient visits</b> (Mean ± SD)	4.61 ± 2.86	5.11 ± 2.75	4.75 ± 2.45	4.68 ± 2.32
<b>ER visits</b> (Mean ± SD)	0.09 ± 0.26	0.09 ± 0.28	0.08 ± 0.22	0.08 ± 0.20
<b>Inpatient admissions</b> (Mean ± SD)	0.09 ± 0.24	0.09 ± 0.25	0.07 ± 0.26	0.06 ± 0.22
<b>Length of stay, days</b> (Mean ± SD)	2.64 ± 2.88	2.70 ± 2.82	2.75 ± 3.58	2.43 ± 3.52

\*Per-Patient Per-Month

#### **Total Costs**

- MZL total PPPM healthcare cost was \$19,896
- Majority of the cost came from the outpatient visit (\$16,985)
- Multivariable regression showed that baseline comorbidities (atrial fibrillation, renal disease, neutropenia) and treatment discontinuation were significant predictors of higher costs and healthcare resource utilization

# DISCUSSIONS

- This study evaluated the real-world utilization of treatment regimens by line of therapy in newly diagnosed MZL patients in the US
- Study limitations were inherent to the use of claims databases in an observational study design
- Future studies are needed to evaluate long-term outcomes and the impact of heterogenous MZL subtypes

# CONCLUSIONS

This real-world data suggested that US MZL real-world treatment patterns across lines of therapy follow the regimen recommendations by the National Comprehensive Cancer Network clinical practice guidelines, and that MZL patients incur high economic burden

## CORRESPONDENCE

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