

Treatment patterns, healthcare resource use and costs among US patients with epidermal growth factor receptor mutated metastatic non-small cell lung cancer after discontinuation of osimertinib

#EE371

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PURPOSE

- Among US patients with metastatic non-small call lung cancer (mNSCLC), approximately 17% harbor a common (exon 19 or exon 21/L858R) EGFR mutation (EGFRm)¹
- Osimertinib, an EGFR TKI inhibitor, is an established first-line treatment for these patients²
- Upon EGFR TKI resistance, platinum-based chemotherapy use is common, although there is variability in prescribing patterns²
- Further, treatment of mNSCLC requires considerable healthcare resource use and costs:^{3,4}
 - Total mean costs were estimated to be \$250,942 per-patient per-year between 2010-2019
- This study aimed to characterize real-world treatment patterns, healthcare resource use, and costs in the line of therapy following osimertinib among patients with EGFRm mNSCLC

CONCLUSION

- After osimertinib, patients with EGFRm mNSCLC received a range of therapies suggesting no established standard of care, and the duration of treatment was short
- Most costs in the line of therapy after osimertinib were lung cancer-related, inpatient admissions were common, and patients treated with multi-drug EGFR TKI combination or IO combination regimens incurred the highest total healthcare costs
- These data highlight the need for more effective treatments to improve disease clinical outcomes, support an optimal risk-benefit profile, and provide value for these patients

STUDY DESIGN AND ANALYSIS

Study Design

- A descriptive, retrospective study of administrative claims from Medicare Fee-for-Service (FFS) and the Inovalon MORE² Registry® databases (inclusive of commercial and Medicare Advantage plans, collectively referred to as “Commercial”)

Patient Selection

- Patients with medical claims for lung cancer and a secondary neoplasm (proxy for metastasis) were identified. Either 1 or 2 lines of therapy (LOT) with EGFR TKI monotherapy were required (proxy for non-small cell histology and a common EGFR mutation) on or following the metastatic diagnosis date:
 - If 1 prior LOT, osimertinib required; If 2 prior LOTs, osimertinib must be most recent
- A subsequent treatment (**index LOT**) after osimertinib discontinuation was also required

Lines of Therapy

- Combination regimens were defined as all drugs filled/administered within 45 days. LOT discontinuation occurred when all drugs in a regimen were discontinued for ≥60 days, or when a new agent was added (new LOT)
- The index LOT was assigned to 7 mutually exclusive categories: EGFR TKI only; EGFR TKI combination*; Immunotherapy (IO) only; IO combination**; platinum-based chemotherapy; non-platinum chemotherapy; other

* EGFR TKI combo = any regimen with an EGFR TKI; **IO combo = any agent in combination with IO except EGFR TKI

Descriptive Analysis

- Lung cancer-related healthcare resource use and costs were identified based on medical claims with an ICD-10 code for lung cancer in any position
- Kaplan-Meier analysis to assess time to treatment discontinuation (TTD) of the Index LOT
- HCRU and costs were reported as per-patient per-month (PPPM) during the index LOT
 - Medicare FFS costs were based on actual provider payments of allowed amounts
 - Commercial costs were evaluated by applying standardized Medicare allowed payment amounts based on published rates. Standardized pricing was also applied at the National Drug Codes for pharmacy claims using a standard discount from the average wholesale price of 85% for brand name drugs and 35% for generic drugs
 - All costs adjusted to 2022 USD using the medical care component of the Consumer Price Index

RESULTS

Figure 1. Patient Selection and Attrition

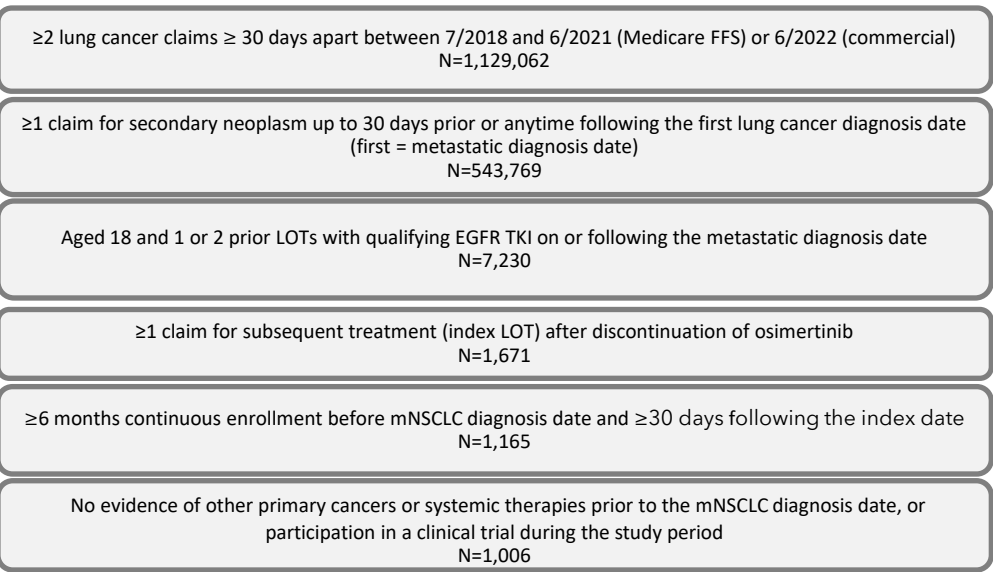


Table 1. Baseline Characteristics

	N=1,006
Age, Mean (SD)	69.5 (10.8)
Male, N (%)	341 (33.9)
Race/Ethnicity, N (%)	
White	523 (51.9)
Asian	155 (15.4)
Other	131 (13.0)
Unknown	197 (19.6)
Medicare FFS (N,%)	624 (62.0)
1 LOT prior to index treatment (N,%)	932 (92.6)
Duration of follow-up, days, Mean (SD)	254.9 (226.0)
National Cancer Institute (NCI) comorbidity score, Mean (SD)	0.62 (0.63)

Figure 2. Index Treatment Distribution

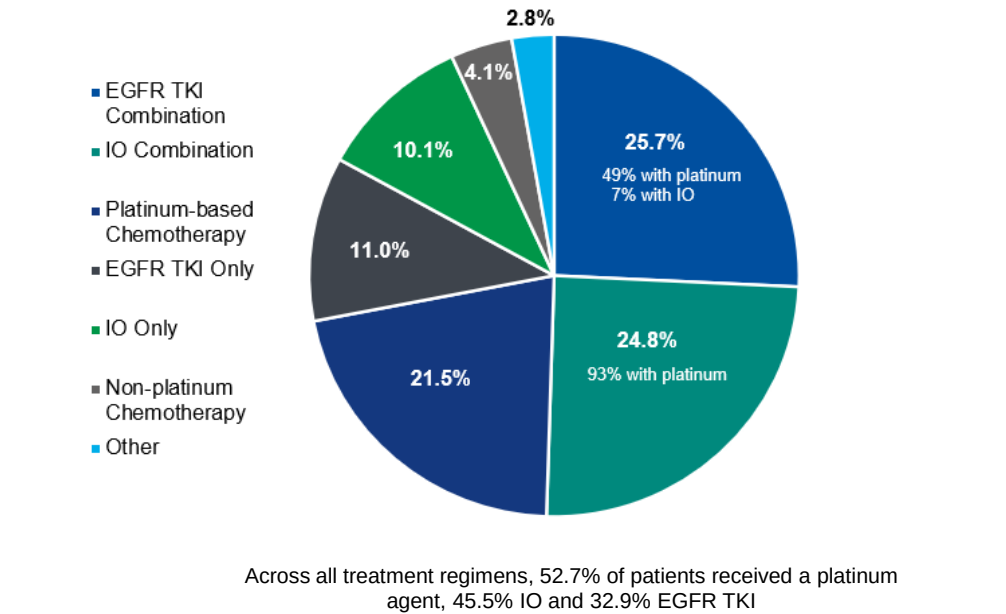


Figure 3. Time to Treatment Discontinuation

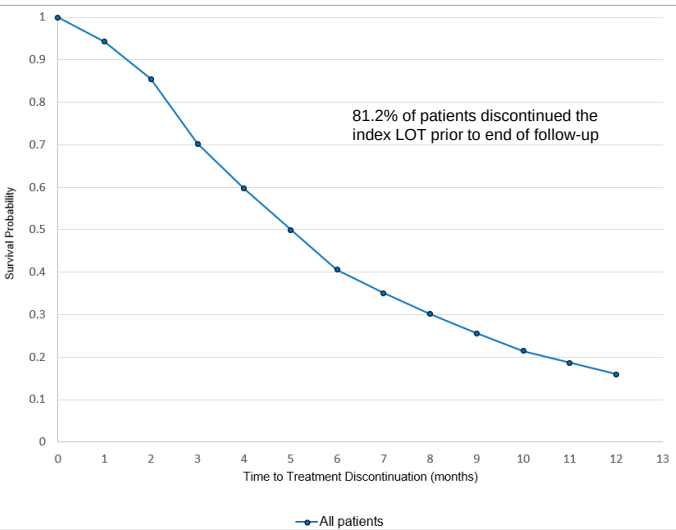


Figure 5. All-cause and Lung Cancer-related Costs

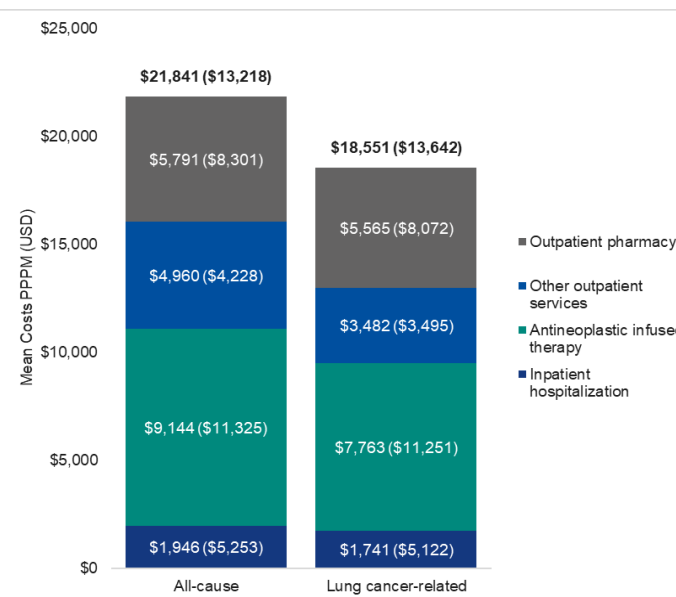


Figure 4. Proportion of Patients with at Least One Inpatient Hospitalization by Index Treatment

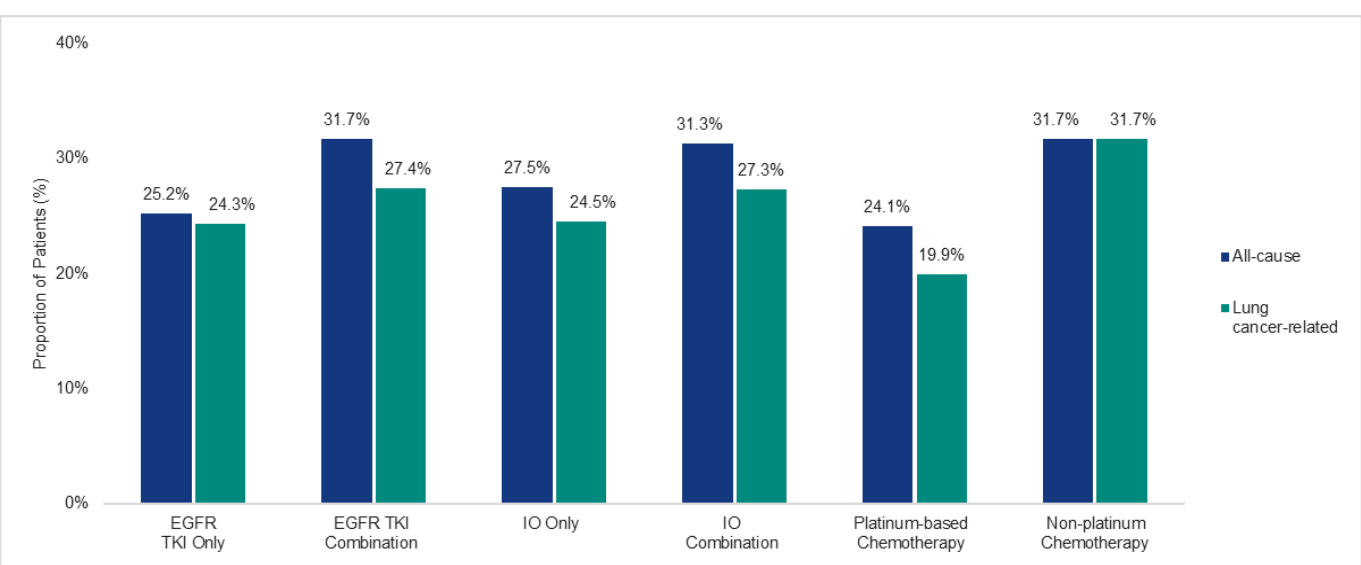


Table 2. Mean (SD) PPPM All-cause Costs by Index Treatment

All Patients (N=1,006)	Total Costs	Inpatient hospitalization	Antineoplastic infused therapy ¹	Other outpatient services	Pharmacy
EGFR TKI Only (N=111)	13,785 (9,234)	1,331 (3,175)	0 (0)	2,782 (2,676)	9,672 (7,735)
EGFR TKI Combination (N=259)	25,216 (9,103)	1,570 (4,321)	4,020 (4,830)	4,045 (3,114)	15,581 (6,420)
IO Only (N=102)	21,347 (10,216)	3,123 (6,983)	12,876 (5,004)	4,846 (4,051)	502 (2,127)
IO Combination (N=249)	26,612 (9,149)	1,467 (3,357)	18,543 (7,499)	5,958 (4,137)	644 (3,659)
Platinum-based Chemotherapy (N=216)	17,729 (19,292)	2,187 (6,468)	8,889 (17,264)	5,844 (4,826)	809 (2,441)
Non-platinum Chemotherapy (N=41)	15,367 (12,840)	3,629 (8,157)	5,328 (4,580)	5,830 (5,903)	580 (2,252)
Other (N=28)	23,135 (14,461)	3,501 (8,518)	3,170 (3,731)	5,500 (6,584)	10,965 (11,572)

¹Inclusive of drug and administration costs

LIMITATIONS

- Administrative claims data are subject to data coding and documentation limitations, there is potential for misclassification of disease status and study outcomes
- Biomarker and histology information were not available in claims, therefore patients treated with an EGFR TKI were assumed to have non-small cell histology and a common EGFR-mutation
- Sample size was small for some treatment groups and therefore these results should be interpreted with caution
- This study was limited to patients with Medicare FFS and Commercial insurance; results may not be generalizable to uninsured patients or those with other insurance types.
- Patient management differences between Medicare FFS and Commercial plans may influence treatment pattern, healthcare resource use and cost results.

REFERENCES

1. Chen R, et al. J Hematol Oncol. 2020;13(1):58. 2. Johnson M, et al. Lung Cancer. Aug 2022;170:41-51. 3. Vanderpoel J, et al. Pharmacoecon Open. 2023 Jul;7(4):617-626. 4. Zhang X, et al. J Manag Care Spec Pharm. Feb 2022;28(2):255-265.

ACKNOWLEDGEMENTS

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SUMMARY

- The average patient age was 69.5 years and two-thirds were female (Table 1).
- After osimertinib discontinuation, nearly three-quarters of patients received either an EGFR TKI combination, an IO combination, or a platinum-based chemotherapy regimen (Figure 2).
 - Across all treatment groups, 57.1% of patients received a platinum agent, 36.8% were re-treated with an EGFR TKI, and 36.7% IO despite emerging evidence suggesting a lack of benefit in those with an EGFR mutation
- Median time to treatment discontinuation of the index LOT was short (4.9 months) (Figure 3)
- Overall, more than one-quarter of patients had ≥1 inpatient admission (not shown); these proportions were marginally higher among those treated with EGFR TKI and IO combinations, or non-platinum chemotherapy versus other treatment groups (Figure 4)
- 85% of PPPM all-cause total healthcare costs were lung cancer-related, and antineoplastic agents (IV infusions and pharmacy) were the largest driver of costs (Figure 5)
- PPPM all-cause total costs were numerically highest for patients treated with EGFR TKI combinations and IO combinations compared to other treatment groups (Table 2)