Real-World Analysis of Treatment Delays in Metastatic Non-Small Cell Lung Cancer: Demographic, Clinical, and Payer Drivers

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Background

Delays in initiating systemic therapy for metastatic non-small cell lung cancer (mNSCLC) may reflect access barriers and inefficiencies in healthcare delivery, potentially impacting outcomes.

Objectives

To identify demographic, clinical, and payer-related factors associated with time-to-treatment initiation among patients with mNSCLC using real-world data.

Methods

Data Source

NorstellaLinQ, a linked closed claims and electronic medical record dataset covering **225+ million patients** across Commercial, Medicare Advantage and Medicaid payers.

Study Period

January 1, 2013, to September 06, 2025.

Design

A retrospective cohort study identifying adults (≥18 years) newly diagnosed with mNSCLC during the study period. Patients were required to have ≥ 6 months of continuous enrollment prior to diagnosis and ≥ 3 months of enrollment following diagnosis. Patients undergoing surgical treatment were excluded.

Treatment delay was defined as months from mNSCLC diagnosis to treatment initiation. Eligible treatments included all FDA-approved therapies for mNSCLC, excluding Cabozantinib.

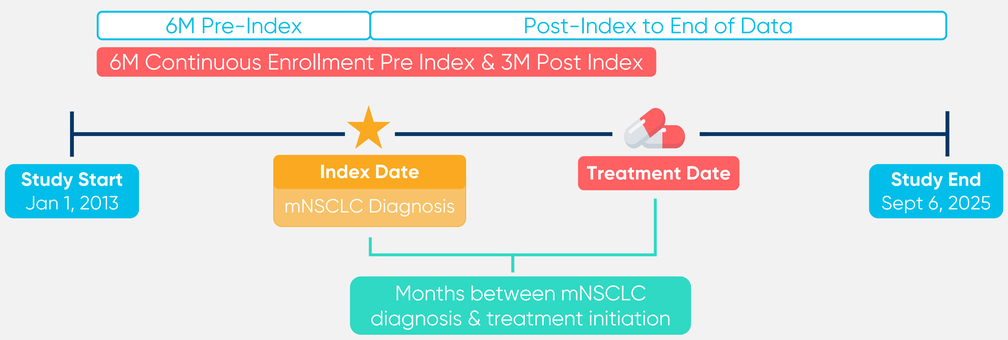
Outcomes

Time from mNSCLC diagnosis to treatment initiation.

Statistical Analysis

Time to treatment initiation was evaluated using the **Cox Proportional Hazard** and **Accelerated Failure Time (AFT)** models to assess associations between treatment delay and patient characteristics, including age, sex, Charlson Comorbidity Index, and payer type at index treatment.

Figure 1: Study Schematic



Results

Table 1: Demographic & Clinical Characteristics

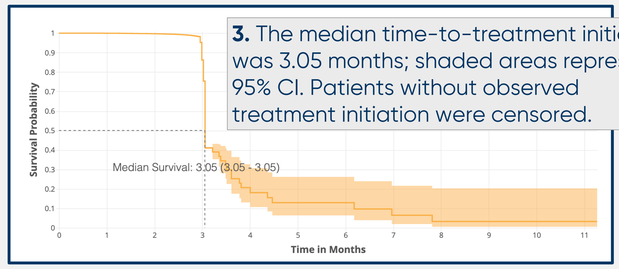
mNSCLC Patients (N = 57,665)	
Age at Index	
Mean (SD)	64.15 (10.69)
Median (IQR)	64 (58-72)
Sex, n (%)	
Female	29,923 (51.89)
Male	27,742 (48.11)
Region, n (%)	
Midwest	15,126 (26.23)
Northeast	11,743 (20.36)
South	18,814(32.63)
West	11,774 (20.42)
Missing	202 (0.36)
Payer, n (%)	
Commercial	17,023 (29.52)
Medicaid	19,142 (33.20)
Medicare Advantage	21,469 (37.23)
Missing	31 (0.05)
Charlson Comorbidity Index (CCI)	
Mean (SD)	1.11 (1.43)
Median (IQR)	1 (0-2)

1. Cohort number represents the total number of patients that both initiated and did not initiate treatment. CCI excludes any primary malignancy or metastatic solid tumor.

Figure 2: Mean Time-to-Treatment in Months

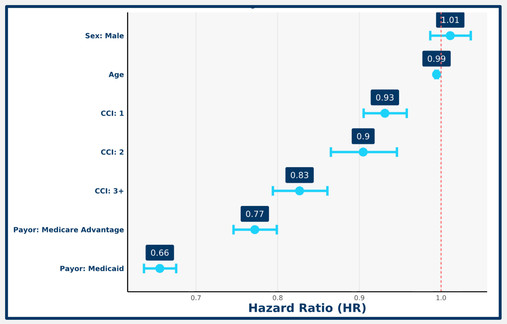
2. Among patients who initiated treatment (N = 32,692), the mean time from diagnosis to treatment initiation was 3.83 months.

Figure 3: KM estimates of Time-to-Treatment Initiation from Diagnosis



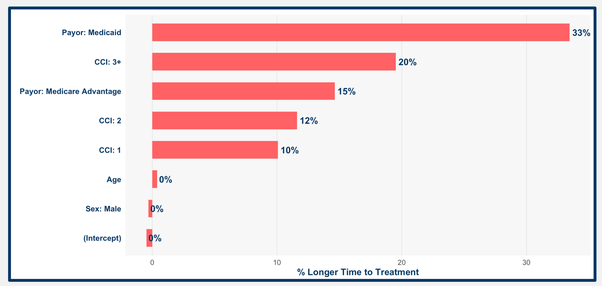
3. The median time-to-treatment initiation was 3.05 months; shaded areas represent 95% CI. Patients without observed treatment initiation were censored.

Figure 4: Drivers of Delay (Cox Model)



4. Patients with **CCI ≥3** (HR = 0.83; p<0.001) and **enrolled in Medicaid** (HR = 0.66; p < 0.0001), **and Medicare Advantage patients** (HR = 0.77; p < 0.0001) experienced slower initiation.

Figure 5: Relative Increase in Time-to-Treatment (AFT Model)



5. Medicaid coverage was associated with the largest increase in time-to-treatment initiation (+33%), followed by **high comorbidity burden** (CCI ≥3; +20%).

Conclusion

Treatment delays were **longest for patients with high comorbidity (CCI ≥3) and for those covered by Medicaid or Medicare Advantage**. These findings highlight the independent impact of clinical complexity and insurance type on timely cancer care and underscore the need for targeted interventions **to reduce administrative and coordination barriers.**

Sponsorship

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