Utilization of Tarlatamab and Associated Healthcare Resource Use, Costs, and Adverse Events: A Retrospective Cohort Study Using a Large U.S. Hospital Database

Chendi Cui, PhD, MS, MBBS; Laura A. Curry, MS, PhD; Ning A. Rosenthal, MD, MPH, PhD
Premier Applied Sciences, Premier Inc., Charlotte, NC, USA

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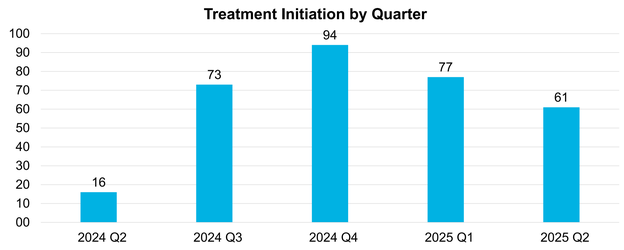
Introduction

- Tarlatamab, a bispecific T-cell engager, received accelerated approval by the U.S. FDA on May 16, 2024 for treating adults with extensive-stage small cell lung cancer who have disease progression on or after platinum-based chemotherapy.
- Following approval, understanding real-world patterns of tarlatamab use and associated outcomes is important to inform clinical and health system decision-making.
- This study assessed real-world utilization of tarlatamab since its approval and associated healthcare resource use (HCRU), costs, and adverse events.

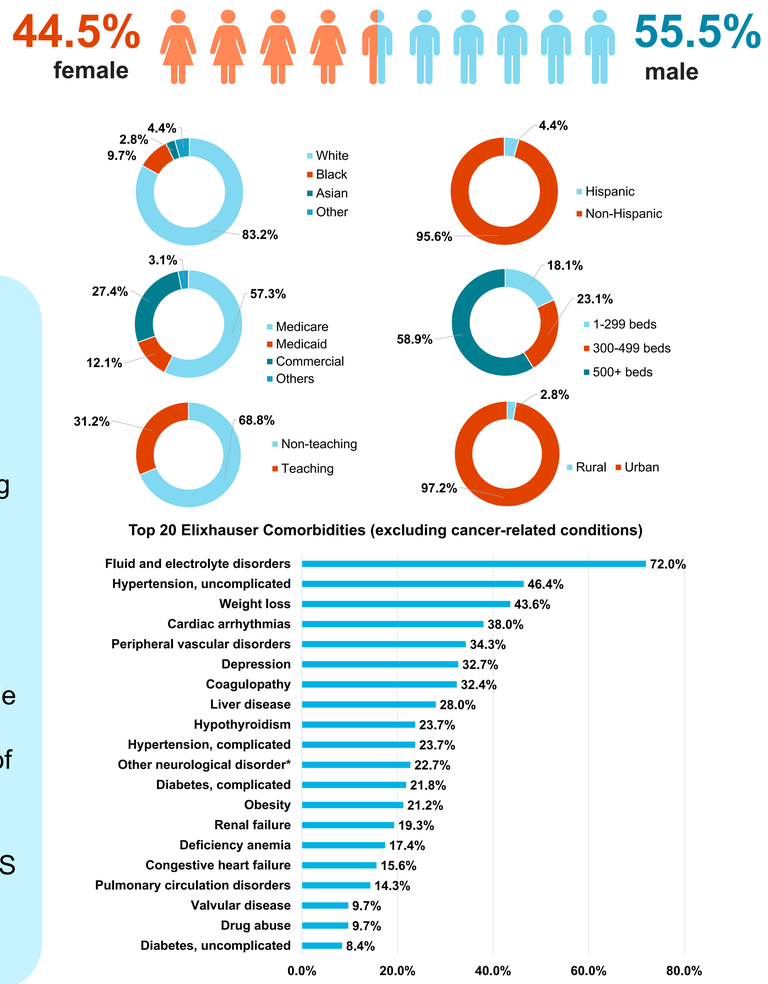
Methods

- **Study design:** Retrospective observational study
- **Data source:** Premier Healthcare Database (PHD), a large, geographically diverse, hospital discharge database that accounts for 25% of all United States inpatient encounters from over 1,320 facilities
- **Study period**: May 16, 2024, through June 30, 2025
- **Study population:**
  - Adult patients (aged ≥18 years) with a diagnosis of lung cancer with no evidence of another primary cancer
  - Received tarlatamab
- **Outcomes:**
  - HCRU, including ICU utilization and length of stay (LOS)
  - Costs
  - Timely second dosing, defined as receipt of a second tarlatamab administration within 14 days of the first dose
  - 30-day in-hospital mortality
  - 30-day risk of cytokine release syndrome (CRS) and immune effector cell–associated neurotoxicity syndrome (ICANS)
- **Statistical analysis:**
  - Summarized descriptively overall and stratified by the care setting of the index encounter
  - Analysis was performed using R 4.3.1

Results



- A total of 321 patients treated with tarlatamab were identified.
- The mean age was 65.0 ± 9.2 years; 55.5% were male, the majority were White and non-Hispanic, and 57.3% were covered by Medicare.
- Most patients received care at large, urban teaching hospitals.
- Tarlatamab was more commonly administered in inpatient settings than in outpatient settings (62.3% vs. 37.7%).
- Median index encounter hospital costs were higher for inpatient compared with outpatient settings, while pharmacy costs were slightly higher in outpatient settings. Timely second dosing occurred in 81.3% of patients and was similar across inpatient and outpatient settings.
- The 30-day in-hospital mortality rate was 4.1%. CRS and ICANS occurred in 33.3% and 20.3% of patients, respectively, during the 30-day follow-up period.



*Elixhauser comorbidity category for chronic neurologic conditions, excluding stroke, psychoses, and cancer-related diagnoses.

Outcomes	Inpatient N = 200	Outpatient N = 121	*p-value*
Total hospital cost*	7,523 (4,613.7-12,726.0)	3,823.5 (2,920.5-10,953.1)	<0.0001
Total pharmacy cost*	2,114.4 (1,641.1-5,216.7)	2,519.9 (1,740.6-11,041.9)	0.0159
Index encounter LOS	2.0 (1.0-4.0)		
ICU utilization			
ICU admission, n (%)	20 (10.0%)		
ICU LOS	3.0 (2.0-5.0)		
Total ICU cost*	14,377 (9,537.8-33,336.5)		
Timely second dose, n (%)	158 (79.0%)	103 (85.1%)	0.1726
30-day in-hospital mortality, n (%)	11 (5.5%)	2 (1.7%)	0.0902
30-day adverse events, n (%)			
CRS	86 (43.0%)	21 (17.4%)	<0.0001
ICANS	54 (27.0%)	11 (9.1%)	0.0001

CRS = cytokine release syndrome
LOS = length of stay
ICANS = immune effector cell–associated neurotoxicity syndrome

*Reported in 2024 U.S. dollars

Conclusions

- In this real-world cohort, tarlatamab was administered in both inpatient and outpatient settings, with a greater proportion occurring in inpatient settings during the study period.
- Inpatient administration was associated with higher hospital costs, whereas pharmacy costs were slightly higher in outpatient settings. Timely second dosing was achieved in most patients and was similar across care settings.
- Short-term safety outcomes, including 30-day in-hospital mortality and 30-day CRS and ICANS, were observed, highlighting the importance of continued monitoring as tarlatamab use expands in real-world practice.

Limitations

- PHD includes a slightly higher proportion of community-based hospitals compared with the American Hospital Association survey data; therefore, findings may not be generalizable to all hospitalized patients in the United States.
- Follow-up outcomes were captured only for events occurring within health systems participating in the PHD, which may result in underestimation of outcomes occurring outside these facilities.
- Misclassification of diagnosis could occur due to coding errors or incomplete clinical detail.

Reference

FDA grants accelerated approval to tarlatamab-dlle for extensive-stage small cell lung cancer. U.S. Food and Drug Administration. May 16, 2024. Available at: https://www.fda.gov/drugs/resources-information-approved-drugs/fda-grants-accelerated-approval-tarlatamab-dlle-extensive-stage-small-cell-lung-cancer

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Disclosures

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