Below is a synopsis of important, recently published research supporting adoption of comprehensive biomarker testing in non-small cell lung cancer (NSCLC). LUNGevity maintains a website that collates the most high impact papers and provides brief synopses for busy providers and hospital administrators.

View more research on the LUNGevity Clinical Value of Biomarker Testing webpage

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Testing Gaps in mNSCLC: Real-World Biomarker Patterns

Evangelist, et al. *JCO Precis Oncol*. 2026

This prospective, observational study (MYLUNG Protocol 2) from 2020-2022 evaluated real-world biomarker testing practices, treatment patterns, and clinical outcomes among 556 patients with metastatic non–small cell lung cancer (mNSCLC) treated in 18 U.S. community oncology practices. The study assessed testing rates, timing of results relative to first-line (1L) therapy, use of next-generation sequencing (NGS), and alignment between biomarker findings and treatment decisions. Importantly, this prospective design provides more robust, real-world insight compared with prior retrospective analyses and allows for a deeper understanding of how testing is implemented and where breakdowns occur. The analysis also specifically sought to identify barriers contributing to delays or absence of biomarker testing before treatment initiation.

While biomarker testing rates still fall short of guidelines, the study found notable improvements over the earlier retrospective Protocol 1 study, including substantial increases in overall testing and NGS use. Nearly all patients (98.8%) received at least one biomarker test, and 79% had results before starting therapy; however, only 63.5% underwent guideline-compliant testing (which at the time included testing for 8 genes with FDA-approved therapies) and just 44.1% had results prior to 1L treatment. It also identified key barriers to pre-treatment testing: physician decision to initiate therapy before results were available, delays in test ordering, insufficient tissue, and patient clinical deterioration. Among patients with actionable alterations whose results arrived before 1L therapy, almost 80% received first-line targeted therapy. Critically, those treated with

biomarker-driven therapy experienced improved progression-free and overall survival, reinforcing the clinical benefit of precision-guided treatment.

These findings reinforce that the value of biomarker testing lies not only in being performed, but also in being completed in time to inform treatment decisions and followed through with appropriate targeted therapy. The prospective dataset of a community-based population strengthens the evidence base by clearly demonstrating both the clinical impact of biomarker-driven treatment and the real-world barriers preventing optimal care. While progress has been made, gaps in comprehensive and timely testing continue to limit the full realization of precision oncology. The improved survival outcomes among patients who received biomarker-guided therapy highlight the importance of closing the gap between testing and treatment.

Overall, this study underscores why biomarker testing is a critical component of high-quality mNSCLC care and provides actionable insight into workflow, operational, and clinical barriers that must be addressed to ensure patients fully benefit from targeted therapies.

Read the full research study: Biomarker Testing Rates and Patterns in Patients With Metastatic Non–Small Cell Lung Cancer: A Prospective, Observational Study in Community Practice

View more research on the LUNGevity Clinical Value of Biomarker Testing webpage