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Advancing Precision Medicine in NSCLC: Real-World Impact of the PREDICT Initiative

Ryan Quigley:
You're listening to *Project Oncology* on ReachMD, and this is an *AudioAbstract.* I'm Ryan Quigley, and today, we'll be exploring how a real-world precision medicine initiative improved testing and treatment access for patients with advanced non-small cell lung cancer.

Non-small cell lung cancer remains the leading cause of cancer death worldwide. But in recent years, survival has improved thanks to therapies that target specific genetic changes in tumors. The challenge is making sure every patient gets timely and comprehensive testing to find those targets. That's where a 2025 study published in *Chest* comes in.

When a program called PREDICT—short for PREcision meDICine Thoracic—was launched at a large hybrid academic and community practice, the goal was simple but ambitious: boost genetic testing rates, speed up results, and connect more patients to targeted therapies.

The team built a system around four key elements.

- First, they introduced reflex testing, meaning that as soon as stage 4 non-small cell lung cancer was diagnosed, pathologists automatically ordered in-house next-generation sequencing and PD-L1 testing.
- Second, they created a navigator role—a nurse who tracked patients through the system, flagged missing tests, and connected providers with results.
- Third, they convened a molecular tumor board that met twice weekly to review cases and recommend therapies or clinical trials.
- And finally, they developed an online portal called OncoTracker to integrate test results, timelines, and board recommendations in real time.

The results were striking. Looking back at 626 patients diagnosed before PREDICT and comparing them with 290 patients after launch, the team found testing rates jumped from about 61 percent to more than 91 percent. Turnaround time shrank, too, from 18 days to 12 days for genetic testing and from 10 days to just seven for PD-L1 results. That may not sound like much, but in advanced lung cancer, a week can be the difference between starting chemotherapy or waiting for a targeted pill that could work better.

Just as importantly, the proportion of patients with actionable genomic alterations—the kinds of mutations that open doors to targeted drugs—rose from 22 percent to nearly 30 percent. And targeted therapy use in the first-line setting went up by more than 60 percent.

The researchers didn't stop there. They used a decision analysis model to test what would happen if PREDICT were scaled broadly. The model suggested that implementing this system across all patients with stage 4 non-small cell lung cancer would yield the highest rates of actionable findings, the lowest reliance on chemotherapy, and slightly better survival compared with other testing strategies.

So what does this mean in clinical practice? For patients, it means faster access to personalized treatments and more opportunities to enroll in clinical trials. For clinicians, it shows that precision medicine can be embedded into everyday community practice, not just elite academic centers. And for healthcare systems, it demonstrates that building infrastructure around testing with navigation, tumor boards, and integrated data tools pays off in real clinical impact.

Of course, there are caveats. This was an observational study, so it can't prove causation. Broader trends in biomarker testing were rising nationwide, which may have influenced results. And survival data for the prospective cohort aren't yet mature. But the improvements in testing rates, turnaround, and therapy uptake are hard to ignore.

The big takeaway? Implementing a precision medicine service like PREDICT is not only feasible in a large academic-community network—it's effective. It appears to shorten the path from biopsy to treatment, increase the chance of finding actionable targets, and help ensure patients with lung cancer get the right therapy at the right time.

This has been an *AudioAbstract* for *Project Oncology,* and I'm Ryan Quigley. To access this and other episodes in our series, visit *Project Oncology* or *AudioAbstracts* on ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening!

Reference:

Bruno DS, Mirsky MM, Donner AL, et al. Implementing a PREcision meDICine Thoracic (PREDICT) service using in-house reflex testing in a large academic-community practice. *Chest*. Published online September 3, 2025. doi:10.1016/j.chest.2025.07.4095