A United States study focused on patients’ understanding of, attitudes toward, and barriers to the use of biomarker testing for NSCLC

**Introduction and purpose**

Advances in precision medicine using biomarker testing for determining somatic mutations and protein levels in lung cancer to determine therapy targeted specifically for an individual patient have been attributed to helping to optimize cancer treatment. However, rates for biomarker testing in non-small cell lung cancer (NSCLC), where there are more than 20 approved targeted therapies for different biomarkers, remain suboptimal. Little research exists on the context of genetic counseling for inherited cancer risk has explored patient perceptions of communication regarding use of precision medicine and biomarker testing. Fewer studies have been taken into account the perspectives of patients.

The purpose of this study was to understand the patient perspective regarding current use, awareness, barriers to access, and educational needs regarding biomarker testing. Additionally, a cohort of patients contacted to the LUNGevity Foundation’s patient advocacy network was compared to a general patient sample in order to determine specific challenges faced by patients who may not be as connected to advocacy groups.

**Methodology of study**

An online survey was created to understand key patient perceptions in the biomarker testing process, including awareness, barriers to access, and educational needs regarding biomarker testing. The survey was distributed through two patient advocacy networks (LUNGevity Foundation and Patient Advocate Foundation) and a national research panel to identify patients with NSCLC from April to June 2020.

Demographic analyses and sub-analyses were used to control overall trends and compare patient subgroups. Registers were included in the analysis weighted toward the patient sample.

Significant demographic differences were found in the two cohorts: the general panel included patients more racially diverse, with lower income and on Medicaid/uninsured.

**Patients in the general cohort were more likely to request testing from 2 or more doctors.**

**What would have made the testing process more considerate to you?**

- A written explanation of what the test is and what it means for your treatment plan.
- Pictures, charts, or other visual aids.
- Considerate responses to the survey questions.
- Professional medical writing and considerate responses to the survey questions.

Please indicate your level of confidence in asking your doctor why biomarker testing was not performed.

- Very confident
- Somewhat confident
- Neither/nor
- Not too confident
- Don’t know
- Prefer not to answer

**Reasons for lack of confidence**

- Do not understand medical language
- Feel rushed during appointment
- Asking questions may affect my treatment
- Other

**Testing is happening at very different rates between the general patient population and those engaged with patient advocacy. More than a quarter of general patients who have been tested do not know their results.**

As far as you know, has biomarker testing been done on your lung cancer?

- Yes, confirmed
- Yes, no biomarker
- No, I don’t know the results
- No testing done
- Don’t know if tested

The general patient group was less confident asking their oncologist why testing was not performed. This finding was confirmed during further focus group discussions.

**More patients in the LUNGevity group knew about the results of their testing and understood the terms being used in discussions.**

- What would have made understanding easier?
  - A written explanation of what the test is and what it means for your treatment plan.
  - Considerate responses to the survey questions.
  - Professional medical writing and considerate responses to the survey questions.

**Discussion**

Expanded and enhanced education on biomarker testing designed for patients and patient-provider communication is needed.

There is a significant divide in awareness of testing and rates of experience with biomarker testing between the general patient population and those connected to resources of patient advocacy organizations.