For metastatic non-small cell lung cancer (NSCLC), guidelines include molecular testing for actionable mutations and recommend broad profile testing. Yet previous studies indicate that not all patients with NSCLC are receiving testing, even for actionable mutations in EGFR, ALK, ROS, and BRAF.

We hypothesized that rates of molecular testing would be low for patients calling a community HelpLine and that we could potentially increase testing rates with one-time caller education and providing free precision medicine services.

### METHODS

Caller statistics were collected during treatment discussions on the toll-free Lung Cancer Alliance (LCA) HelpLine from September 1, 2016 – July 31, 2017.

Recruitment to the LungMATCH molecular testing program began November 10, 2016.

Patients are recruited through conversations on the LCA HelpLine, then entered into the Perthera Program (PR) through consent into an IRB-approved registry protocol.

The Program includes tissue acquisition, multi-omic molecular profiling, and collection of patient treatment history followed by integration into a computational pipeline with extensive drug and clinical trial databases to provide ranked therapeutic options matched to the patient. Every patient, every real-time medical review board then reviews and approves the PR. PRs are returned to both treatment physicians and patients.

### PATIENT DEMOGRAPHICS

72 patients had been referred for molecular testing through LungMATCH as of July 31, 2017. The group included patients from throughout the United States but tended to be from more urban settings. Most referred patients were receiving care in a non-academic oncology practice.

### RESULTS

As of August 31st, 11 patients have completed the LungMATCH Program and received a PR. A number of barriers to informed consent and biopsy/testing have been identified. Workflows are being continually adjusted in response to identified barriers and process improvements have included additional communication, lung cancer-specific patient coordinators, more information about cost, and revised language explaining the process to physicians.

### CONCLUSIONS

By next generation sequencing, 9/11 patients (82%) had at least one genetic alteration that was actionable including standard of care, off-label, and clinical trial options.

We have demonstrated that this type of program is feasible and there is broad patient interest, particularly from those seen in non-academic settings. A number of barriers were identified and addresses including cost concerns and physician and patient education. Additional barriers such as insufficient amount of biopsy tissue for testing and patient discomfort with advocating for testing remain concerns.

### FUTURE DIRECTIONS

The program continues to enroll with ongoing improvements in:

- Patient educational information at time of referral and additional patient follow-up calls
- Working with community oncology practices/health systems to facilitate patient enrollment

Our goal is to give all patients with lung cancer an opportunity for precise therapy matching based on multi-omic testing, treatment history and drug targeting regardless of where they receive their care. Future research efforts will include updated analysis of molecular alterations as well as decisional and health outcome analyses of those who have received PRs.