Comprehensive Biomarker Testing and Lung Cancer Frequently Asked Questions

[Lorren] Thank you so much for joining us for the Caring Ambassadors Program video series, Learn from the Experts. Our main goal is to empower and educate patients and communities to be advocates for their health and to improve their lives.

Today's video is dedicated to living with lung cancer and it highlights one chapter from our book, Lung Cancer Choices. The video series is broken down into short segments, so it's easy to watch and navigate. You can watch the videos in any order, so feel free to choose what interests you the most.

I'm Lorren Sandt, the Executive Director at Caring Ambassadors Program, and I'm excited to be joined today a panel of people living with lung cancer and caregiver(s). We're very excited to welcome nurse practitioner, Elizabeth Krueger. Liz will be discussing the chapter, Comprehensive Biomarker Testing, written by her colleague, Kelly Goodwin.

Elizabeth Krueger is a family nurse practitioner who specializes in the care of thoracic oncology patients at Massachusetts General Hospital. She completed her Bachelor of Science degree in Heathcare Policy and Management at Providence College and then went on to receive a Bachelor of Science in Nursing and Master of Science in Nursing from Regis College.

More than a dozen new drugs for the treatment of NCSLC have been approved since 2013, marking an exciting and hopeful time in lung cancer research and care. With improved biomarker testing techniques, an expanding list of molecular targets, and more approved and emerging therapies, comprehensive biomarker testing is an essential part of the evaluation and management of all patients

diagnosed with NSCLC. In this video, Liz will discuss frequently asked questions from her patients at Massachusetts General Hospital.
We hope that this video will provide helpful insights and information for patients and caregivers dealing with lung cancer. If you're interested in learning more about the Caring Ambassadors Program and our mission to help patients with lung cancer, please watch the video series.
And please share this information with anyone who might find it useful. Together, we can make a difference in the lives of those affected by lung cancer. Welcome Liz.

[Liz] We'll now move on to a discussion about comprehensive biomarker testing and some questions that are frequently asked.

Question number one: How does gene testing impact my kids and family and did they need to be tested? As we discussed most genetic alterations found from tumor testing and in ctDNA, or circulating tumor DNA, are somatic or only within the tumor material so are not inheritable it can be a big relief to find out that these gene changes are not inheritable and are only gene changes found within the tumor. Occasionally we pick up germ-line or inheritable mutations on tissue or plasma testing and if these are found the patient is typically referred to a genetic counselor to explore this change and its implications for children and other family members.

The next question is, Will this testing be covered by my insurance? The short answer is it should be. Reimbursement is variable but many oncologists, pathology departments, and commercial labs have processes to advocate for reduced out-of-pocket costs for the patient. When working with insurance companies we often site the NCCN guidelines that recommend broad-based NGS testing for individuals. The Medicare and Medicaid coverage Determination Act of 2018 also supports diagnostic NGS testing for patients with lung cancer.

Another question is, Why would I need a tissue biopsy if I can have a blood draw to look for cancer cells? It's a really good question. So blood-based samples can identify gene changes in the tumor but it cannot give you a histologic diagnosis so it couldn't we could find out that you had an EGFR mutation but we wouldn't be able to confirm that this was a non-small cell lung cancer of adenocarcinoma subtype, and that's a really important piece of the puzzle when determining next

steps in your treatment. Additionally, pdl1 testing can't be performed on peripheral blood, PDL-1 testing needs to be done on tumor material with an immunohistochemistry. And although it can be nerve-wracking to go wait and go through a biopsy there are risks of false negatives when it comes to ctDNA, if there aren't circulating tumor cells, or if the tumor is not close to a blood supply, that that result may come back negative but on closer examination of the tissue itself you may find a gene change.

The next question is, what happens when there is disease progression on a Tyrosine kinase inhibitors or (TKI)? We often think about repeating biopsies, when possible, at the time of progression whether it be blood-based or tissue-based testing to look for resistance mutations. I touched on that briefly but sometimes we see met amplification develop in the setting of exposure to tyrosine kinase inhibitors, or targeted therapy, and with this specific mutation we can add another targeted therapy, or a Met directed therapy, to your regimen so that's always something in the back of our minds at the time of progression we want to know have there been gene changes in the tumor and are these gene changes something that we can Target with another approved drug also it there are many clinical trials going on looking at some of these resistance mechanisms so as we with the more information that we get about tumors and their resistance there are many clinical trials going on that individuals may be able to enroll in with that new information. Other times when there's progression on a Tyrosine kinase inhibitor we add chemotherapy to the pill form of medication. We never add immunotherapy though to Tyrosine kinase inhibitors and lung cancer because of the increased risk of toxicity particularly pneumonitis or inflammation of the lung is one and then other and other types of inflammation in the body.

The last question is, should I go on treatment before my biomarker testing comes back? So, it can be difficult to wait Next Generation sequencing testing can sometimes take two to three weeks so that's a long time when you've learned that you have cancer and that you have are waiting your treatment plan and the this is often decided on a case-by case basis it depends on symptoms it depends on the disease burden and associated symptoms, and the investigator or doctor's suspicion that you may or may not have a mutation whether it be based on smoking history or not and other risk factors. Occasionally we start chemotherapy while we wait for next Generation sequencing to come back but we don't add immunotherapy for the reasons I listed above because we wouldn't want to give

immunotherapy and find that you've had a mutation that we could Target with a pill.

Thank you very much for your time today and I look forward to our upcoming patient panel to answer some more questions.