ASSOCIATION OF COMMUNITY
CANCER CENTERS

OPERATIONAL PATHWAYS FOR BIOMARKER TESTING IN NSCLC

ENVIRONMENTAL SCAN

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INTRODUCTION

A crucial component of care for all patients with advanced stage non-small cell lung cancer (NSCLC) is timely, high-quality comprehensive biomarker testing at diagnosis, progression, and recurrence of disease. Completing comprehensive biomarker testing ensures that patients will be given access to therapies and clinical trials targeted at their cancer's mutation, and that they will have the information needed to participate in their healthcare decision-making.

While actionable biomarkers increasingly guide clinical treatment plans, studies show that several barriers exist to successfully implementing biomarker testing in both the academic and community cancer settings. The Association of Community Cancer Centers (ACCC) has partnered with the Association for Molecular Pathology and LUNGevity in a two-year multiphase effort to aid cancer programs in implementing clinical practice guidelines for biomarker testing for all patients being treated for advanced non-small cell lung cancer.

This education project aims to bridge the knowledge gap between the rapidly evolving landscape in actionable biomarkers for patients with advanced NSCLC and integration of biomarker testing into practice through "operational pathways" to implement testing recommendations in every care setting.

Operational pathways for biomarker testing in NSCLC is a potential avenue to improve standardization of processes for biomarker testing to increase timeliness of care, reduce overall costs, improve consistency in utilizing testing results to inform treatment planning and shared decision-making, and develop processes for ongoing evaluation of testing protocols.

This environmental scan provides an overview of the current landscape of biomarker testing at cancer programs, challenges or barriers to implementing testing recommendations, efforts by ACCC and others to-date, and possible solutions toward creating operational efficiencies in testing.

CURRENT RECOMMENDATIONS FOR BIOMARKER TESTING IN ADVANCED NSCLC

Over the last decade, the treatment of patients with advanced NSCLC has increasingly relied on tissue and/or plasma ("liquid") biomarker testing to help guide treatment decisions. There are now multiple biomarker-defined patient subgroups, with evidence showing that treatment with targeted therapies and immunotherapies has superior clinical outcomes when compared to traditional cytotoxic chemotherapy. However, rapid change in the field of precision oncology brings with it the challenge of translating and operationalizing recommendations into clinical practice.

NCCN Clinical Practice Guidelines now recommend molecular testing, as part of broad molecular profiling, including: EGFR mutation, ALK, ROS1, BRAF, NTRK1/2/3, METex14 skipping, and RET—along with PD-L1 testing—for all patients with advanced or metastatic non-squamous cell disease. Emerging biomarkers to be considered for additional testing include high-level MET amplification and ERBB2 mutations. The guidelines also suggest the same testing schema be considered for all patients with advanced or metastatic squamous cell disease who have small biopsy specimens or mixed histology with the goal of identifying rare driver mutations for which effective therapies may be available.[1]

In the latest recommendations from the National Comprehensive Cancer Network, the NSCLC Panel recommends that clinicians should obtain molecular testing results for actionable biomarkers before administering first-line therapy, if clinically feasible. In the event that comprehensive biomarker testing cannot be accomplished prior to therapy initiation, repeat testing should be considered at time of progression on first-line therapy if a lesion can be successfully accessed.[2]

Yet, in spite of current guidelines, not all patients are tested prior to or during their course of treatment. It should be noted that these recommendations are rapidly changing. It is important that providers and care teams stay abreast of new developments.

Although there are FDA-approved therapies for multiple specific sub-types of NSCLC, recent data indicates that only 7% of patients receiving care in community oncology practices/programs, where the vast majority of patients with cancer are treated, received comprehensive testing for all biomarkers recommended in the NCCN guidelines at the time of publication.[3]

BARRIERS TO TESTING

Gutierrez et al.[4] conducted a retrospective, multisite, observational study of 814 patients with stage IIIB and IV NSCLC receiving care from January 2013 through December 2015 through the Regional Cancer Care Associates network that consisted of 15 community oncology sites. The study found that of the 814 patients, 335 (41%) did not undergo EGFR or ALK mutation testing, and 751 (92%) did not undergo broad molecular profiling recommended at that time by the NCCN guidelines.

Investigators identified a number of barriers to testing, including frailty of some patients precluding biopsy, insufficient tissue obtained during biopsy, the Medicare 14-day rule (delaying the ordering of expensive testing until two weeks after hospital discharge), and death within 30 days of diagnosis. However, the retrospective review revealed that for 78% (261) of the 335 patients who did not undergo EGRF or ALK testing, no reason was reported for why the testing was not performed.

Smeltzer et al.[5] found that the most frequent barriers reported were prohibitive cost(s) to the patient and turnaround time. Other barriers identified include inadequate tissue samples; a lack of understanding of the molecular testing reports; and a lack of awareness of the CAP/IASLC/AMP Molecular Testing Guidelines.

Findings from the National Lung Cancer Roundtable (NLCRT)[6] report that providers need assistance for evaluating and selecting the appropriate tests for their patients, and then executing the order. One other key finding was that a common, consistent language did not exist among those on the multidisciplinary care team, hindering communication among the team members and in educating patients on testing procedures, impact on treatment, and cost.

OPPORTUNITIES FOR OVERCOMING OPERATIONAL BARRIERS

Professional Education

A specialty-specific education program was developed by a multidisciplinary panel of physician experts related to sampling techniques and laboratory processes focused on clinicians in the Ontario, Canada region.[7] The panel made specific recommendations on:

- Selecting patients for biomarker testing
- Sample acquisition
- Sample processing
- Interdisciplinary communication.

Key themes that emerged from the panel included optimizing sample acquisition through feedback to the clinicians obtaining diagnostic specimens, enabling pathologist-initiated reflex biomarker testing, and enhancing interdisciplinary coordination at the local and provincial levels.

The education program was delivered by two to four multidisciplinary speakers through formal lectures at provincial and national specialty meetings and in selected provincial health regions. Participants were invited to interact during the session to provide feedback and to identify barriers to and solutions for implementing guideline recommendations specific to their individual practice, institution, and/or regional area.

The ACCC Advisory Committee discussed the need for provider education related to interdisciplinary communication between medical oncologists and pathologists. One example of an educational program designed to address this challenge was created by the American College of Chest Physicians: EnGAging an Interdisciplinary Team for NSCLC Diagnosis, Personalized Assessment, and Treatment (GAIN), which developed an educational curriculum designed for healthcare providers to improve their knowledge, skills, and competence in the assessment and management of NSCLC.

The GAIN program consists of an e-learning component prior to a live six-hour interactive program that includes hands-on simulations, small group workshops, gamification, and case discussions. Participants included academic and community members of multidisciplinary lung cancer teams, such as pulmonologists, thoracic surgeons, pathologists, medical oncologists, nurse navigators, and case managers.

The goals for the program are to:

- Improve overall knowledge and competence in relation to tumor biomarkers associated with NSCLC and their relevance for personalized care and targeted therapies
- Address identified barriers associated with obtaining adequate tissue samples to support the diagnosis and eventual management of NSCLC
- Improve knowledge, competence, and skills associated with bio-specimen collection and the ability to utilize emerging assays to assess for biomarker targets associated with NSCLC
- Explicate the role of biomarkers, companion diagnostic tests, and immunotherapy

- Improve ineffective communication pathways and systems-driven "silos" that may impede personalized care for patients with NSCLC
- Enhance interdisciplinary collaboration with identification of optimal use of medical and surgical therapies for NSCLC
- Improve clinician knowledge of recent clinical data on current and emerging therapies for NSCLC, including tumor biomarkers, targeted therapy, and immuno-oncology
- Address barriers to treatment, such as patient comorbidities and therapy side effects.

Results from the program showed that the areas with the greatest gains in participant confidence were communication across disciplines, use of a team-based approach, and personalized treatment. Elements of a program like this could be used to develop educational material for the ACCC membership.

Pathology Integration

ACCC joined its partner organizations—the Association for Molecular Pathology (AMP), the American Society for Clinical Pathology (ASCP), and the College of American Pathologists (CAP)—to better understand the current landscape of how pathology is integrated with the cancer care team.[8]

The group assessed levels of integration in the following key areas:

- Communication and coordination between pathology and the specialists performing biopsies or obtaining tissue samples for the diagnosis of cancer
- Level of involvement by pathology at hospital tumor boards, case conferences, and cancer committee meetings
- Communication and coordination between pathology and the multidisciplinary cancer care team when initial treatment plans are discussed and developed, when assessing treatment response, when considering additional lines of therapies, and when exploring potential clinical trial participation
- Access to patient records and imaging studies by pathologists and members of the lab team
- Level of involvement by pathology when developing policies or protocols for new cancer diagnostic testing or treatment
- Communication of testing results to patients.

Advances in cancer research are necessitating greater integration between pathology and the cancer care team. The expansion of biomarker testing, molecular pathology, and targeted therapies have led to increased collaboration between pathology and clinical oncology. Ongoing research in the areas of germline (hereditary) mutations and immunotherapy is continuing to drive the need to have pathology and oncology more closely integrated than in the past. While prognostic and predictive biomarkers continue to grow in clinical use, oncologists and pathologists also need to have a deeper understanding behind the basic science of tumor biology and the micro-environment. There are numerous ways that pathology can become more deeply and tightly integrated with the cancer care team so that patients are receiving appropriate and timely care in the community. Two resources published by ACCC in 2020 provide concepts and ideas for this integrated approach: Considerations for Pathology Reporting and Patient-Centered Care: Reporting and Communicating Pathology and Ancillary Test Results.

Utilizing Lean Methodology

The "lean" methodology, which was developed by Toyota to improve flow and minimize waste, aims to maximize any activity that serves value while minimizing activity that is not valued (i.e., "waste") to provide a streamlined, value-added service through five simple principles:

1. Identify the value
2. Map the value stream and identify waste
3. Create a constant flow of value and eliminate waste
4. Pull patients along their journey
5. Aim to continually improve the patient journey.

An article published by ACCC in 2015[9] discusses a pilot study investigating how lean methodology can be used to evaluate current molecular testing processes, identify waste, and design an improved process for advanced NSCLC in the community setting. During this project, the researchers defined the current state of the molecular testing process at their center. They then employed lean methodology and identified areas of improvement in the areas of patient access, tissue collection, histologic diagnosis, clinical and molecular diagnosis, and treatment. Several areas of waste were identified and an ideal future state of the care process was mapped.

Three actions were proposed to effect change:

- Increase physician outreach and education
- Develop tissue acquisition protocols and minimum tissue requirements
- Develop and implement biomarker testing protocol.

Promotion of Cytology in Biomarker Testing

There is ample evidence on the equivalence and potential superiority of plasma cell-free/circulating tumor DNA ("liquid biopsies" or "blood-based biomarker testing") over tissue biopsies for the biomarker testing of patients with NSCLC. Plasma specimens present unique benefits because they can be acquired through relatively minimal invasive diagnostic techniques, such as bronchoscopy with fine-needle aspiration, ultrasound-guided fine-needle aspiration of lymph nodes, and bronchoalveolar lavage. Samples are acquired more easily, resulting in less risk, fewer complications, and ultimately fewer treatment delays because patients recover more quickly.

Because plasma samples can be acquired by minimally invasive procedures, which generally are safer and more convenient, approximately two-thirds to three-fourths of lung cancers are now diagnosed using cytology. However, the use of liquid biopsy for molecular characterization of tumors is not yet widespread.

Despite current evidence and updated CAP/IASLC/AMP guidelines indicating the suitability of plasma samples for molecular characterization, tissue biopsies are still over-represented in reported series on biomarker testing.

Reasons for this are likely multifactorial and may include:

- Limited awareness of the accuracy of biomarker testing using cytology specimens
- Underestimation of the advantages of the cytology samples

- Limited knowledge of or access to techniques or equipment for effectively optimizing small samples
- Influence of other guidelines and registration trials that require tissue samples.

Removing barriers to implementation will require education and advocacy at many levels. At the clinician level, educational initiatives highlighting the benefits and accuracy of cytology sampling are needed, and registration trial requirements also should be re-examined in the light of new methodologies. At the institutional and policy levels, advocacy is needed for greater investment in next generation sequencing and other, more sensitive, techniques for profiling smaller samples, and institutional policies for cytologic processing need to be re-evaluated.[10]

Early and Automatic Biomarker Testing

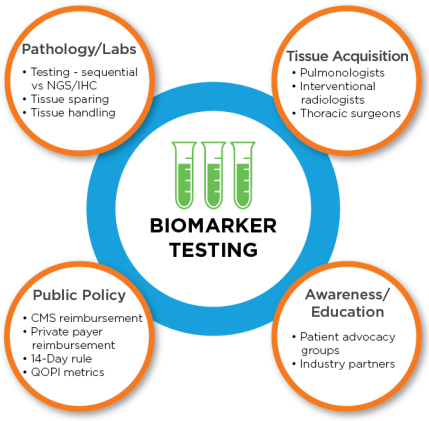
Primary care providers, emergency medicine physicians, and pulmonologists are often the first point of contact for patients. From initial presentation, patients have a long journey that includes referral, clinical work-up, biopsy, biomarker testing, formal diagnosis, and treatment. Gregg et al.[11] propose that there is an unmet need for strategies to improve efficiency in this process.

One strategy is to adopt a policy where multidisciplinary team members, such as pulmonologists, interventional radiologists, and thoracic surgeons, can order biomarker testing as soon as there is a strong clinical suspicion of advanced non-squamous NSCLC. This type of strategy has been adopted in surgeon-initiated biomarker testing in breast cancer, reducing time to receipt of test results as well as time to initiation of chemotherapy.

A step further in boosting efficiency and compliance with that policy would be to implement reflex testing, a process where the pathologists automatically order biomarker testing immediately after histological diagnosis of non-squamous advanced NSCLC. Reflex testing is standard practice with other solid tumor types, (i.e., breast cancer), reducing test result times.

Implementing reflex testing can have significant cost barriers for the Medicare population. According to the date of service (DOS) or the "14 Day Rule" set by the Centers for Medicare & Medicaid Services (CMS), any laboratory tests, including molecular testing for advanced NSCLC, ordered within 14 days of patient discharge were considered to overlap with the claim submitted by the hospital or hospital-owned facility and were, therefore, considered part of the payment for inpatients. Consequently, some laboratories and oncologists did not order testing until after 14 days, causing delays in biomarker results.

Figure 1: LUNGevity Access to Biomarker Testing



Comprehensive Precision Medicine Program Development

Community-based practices may find it more challenging to create a precision medicine program compared to traditional academic institutions with extensive resources, but with proper planning and collaborative work it is feasible. Ersek et al.[12] discuss four elements utilized by institutions with successful precision medicine programs that can be applied at community-based practices.

Personnel. Managing the complexities of a precision medicine program is best served by a multidisciplinary team that includes dedicated leadership. A precision medicine program leadership team should be identified to define the overall direction for the program based on current state-of-the-science and treatment developments. It should consist of physicians, molecular biologists, computational biologists, and geneticists. It is the role of the leadership team to recruit and engage all the relevant practice stakeholders. The leadership team should provide continual education and support to providers practicing precision medicine and other program members. Practices may consider hiring a director to guide day-to-day activities early in the development of the precision medicine program. A director with clinical, research, and business experience expedites processes, ensures that the program's depth and breadth is maximized, and engages with vendors.

Biospecimen Repository and Pathology Team. The biospecimen repository team can serve as an additional resource for treating physicians and investigators on many issues such as education, test ordering, and billing and reimbursement. Pathologists are an integral part of the precision medicine program, providing genomic testing outside of commercial vendors.

Biospecimen Acquisition and Biomarker Testing Results Workflows. Processes regarding biospecimen acquisition and reporting of biomarker testing results are important for successful programs. For standard-of-care treatment purposes, the workflows developed by the precision medicine director and program leadership team contribute to the successful acquisition of tissue. Access to the interventional or operative suite and associated provider further drives the feasibility of obtaining enough high-quality tissue in an acceptable timeframe. Ensuring that the team has the appropriate contacts in the scheduling, billing, and preauthorization office dramatically reduces the time from biopsy order to completion. Educating the ancillary teams and collaborating on creating workflows should be a primary task of the precision medicine director at the outset of the project.

Molecular Tumor Boards. A local molecular tumor board (MTB) provides support for developing and initiating a timely treatment plan including precision medicine options for patients. Weekly MTB meetings may be sufficient for a small precision medicine program, with the option of moving to twice a week as volume increases. MTBs also serve as a venue for educating providers about mechanisms for obtaining molecular testing (e.g., research options or low-cost programs), which can help reduce disparities in access to testing.

If local MTBs are not available, websites like Healio's Learn Genomics or the American Society of Clinical Oncology University Molecular Tumor Board can provide static MTB cases for providers to review. MTB cases currently residing on the Learn Genomics website include cases focused on gastric and lung adenocarcinoma. In addition to real-life precision medicine examples, the Learn Genomics website also serves as a genomics educational resource for providers and patients.

Establishing a high-quality precision medicine program that includes precision medicine clinical trials at community-based practices that are already conducting clinical research is feasible with planning and resources. As large multiplex testing increases and the need for counseling moves from highly resourced large academic

centers to community-based practices where 85% of patients with cancer are treated, continual assessment and sharing of best practices in precision medicine implementation, both in clinical trials and off study, is crucial.

SUMMARY

Although rates are improving, the percentage of patients with advanced NSCLC being treated at community cancer centers who receive comprehensive biomarker testing remains lower than recommended by national guidelines and expert consensus.

In summary, the most common barriers to comprehensive biomarker testing include:

- Lack of awareness of testing guidelines
- Cost
- Turnaround time
- Inadequate tissue samples
- Lack of established diagnostic pathways
- Lack of understanding of testing reports
- Communication among providers, care teams, and patients.

Some of the opportunities that have been identified to standardize or improve operational pathways for biomarker testing in advanced NSCLC include:

- Professional education on sampling techniques, laboratory processes, and interdisciplinary communication
- Integrating pathology into the cancer care team
- Utilizing "lean" or other operational methodologies
- Use of cytology specimens (liquid biopsies) for biomarker testing
- Early and automatic biomarker (reflex) testing
- Building comprehensive precision medicine programs.

Developing operational pathways for biomarker testing in advanced NSCLC is one strategy with many benefits for cancer programs, the multidisciplinary care team, and patients. Some of the benefits include standardization of processes, reduction in overall costs, and consistency in utilizing testing results to inform treatment planning and shared decision-making.

Upcoming Project Components

In phase one, ACCC will develop a survey to garner baseline measurement of knowledge, perceptions, perceived barriers, and other information on biomarker testing. The survey will raise awareness around biomarker testing and lay the groundwork for the implementation of the Operational Pathway. In addition, ACCC will create a resource library on its website with aggregated information on biomarker testing in lung cancer, including slides, tools, and any information resourced that is relevant to testing and optimal care for patients with lung cancer in the community setting.

During phase two, ACCC will develop an Operational Integration Pathway will be designed to address the concerns that providers have expressed about integrating biomarker testing for patients with advanced NSCLC into their care setting.

APPENDIX A: ROLE OF ADVOCACY GROUPS IN COMMUNICATION AND AWARENESS

In 2018, lung cancer advocacy groups joined with experts and thought leaders in the oncology field for a roundtable in New York to align on strategies to increase awareness further cementing the crucial role of advocacy groups in influencing awareness and access for patients.[13]

LungMATCH

One of the two programs highlighted during that roundtable was The Lung Cancer Alliance (now GO2 Foundation) LungMATCH program. The program includes three main parts: 1) personalized educational materials to increase patients' awareness of biomarker testing, including one-page fact sheets and comprehensive pamphlets provided directly to patients upon request as well as being made available to them in the clinic through nurse navigators; 2) clinical trial and treatment navigation assistance through a patient-geared, easy-to-understand clinical trials search engine and a clinical trial matching helpline; and 3) A biomarker testing program in partnership with the company Perthera that provides oncologist-reviewed, comprehensive, and multiomic testing reports to patients and physicians, at no cost to patients. To date, more than 100 patients have received biomarker testing and over 2,000 have received clinical trial search results through the program.

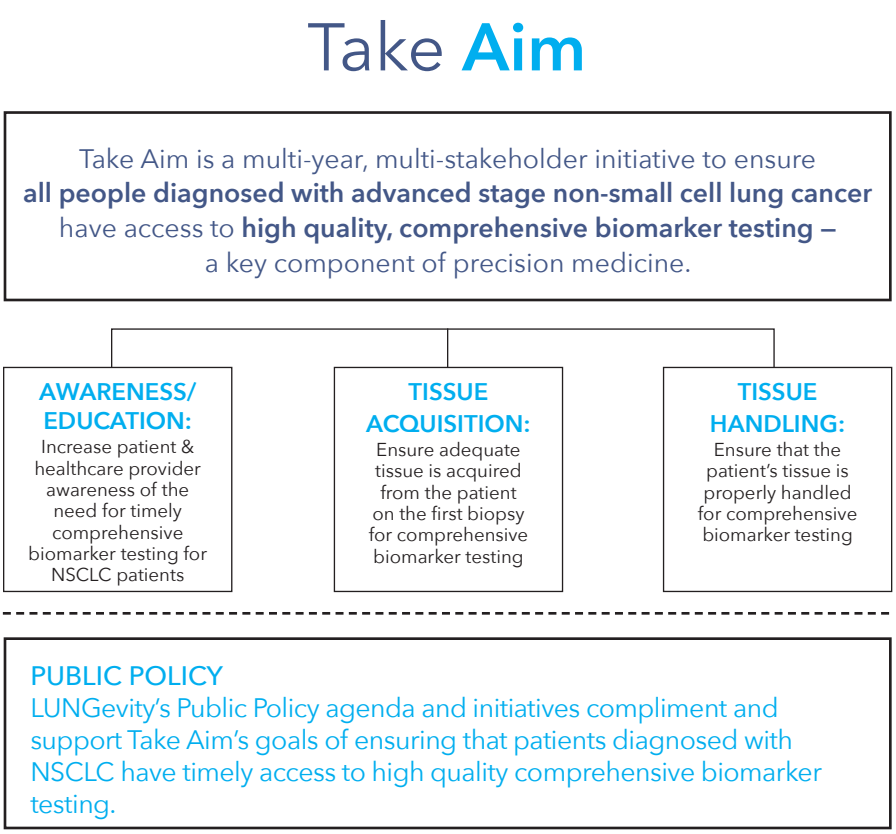
LUNGevity Take Aim Initiative

The second program identified during the roundtable, the LUNGevity Take Aim initiative, works to ensure that all patients with lung cancer have access to precision medicine, defined as biomarker-driven care, which includes both targeted therapies and immunotherapies, as well as treatments in which a biomarker or lack of biomarker indicates another care path, such as chemotherapy or surgery.

LUNGevity defines comprehensive biomarker testing as including at a minimum a multi-plex panel (such as Next Generation Sequencing panel) to detect mutations including EGFR, ALK, ROS-1, BRAF, NTRK, RET, MET, HER-2, KRAS, and an immuno-histochemistry test to measure levels of the protein PD-L1. As science advances and more targetable lung cancer mutations are discovered inside and outside NSCLC, LUNGevity will expand the focus of Take Aim to include those subtypes in biomarker advocacy work.

Take Aim involves four parts: 1) improving patient and provider education and awareness of the importance of comprehensive biomarker testing; 2) increasing pulmonologist and interventional radiologist education regarding sufficient tissue acquisition; 3) collaborating with the pathology community to advance appropriate handling and testing of tumor tissue for speedy testing results to aid in better biomarker-driven treatment decisions by the oncologist; and 4) looking at potential changes needed in public policy. These activities are supported by public policy advocacy at the federal and state levels.

Figure 2: LUNGevity Take Aim Initiative



Patient awareness work includes conducting biomarker testing education campaigns through social media and public service announcements and directing people to a full suite of biomarker testing educational materials. In addition, the Take Aim initiative has identified a need to provide better support to patients so they can comprehend and ask their providers the right questions regarding their biomarker testing results reports. There is a need for biomarker testing in underserved patient with lung cancer communities and for developing the appropriate education programs to support this group of patients, in addition to design interventions to address these gaps. This pilot initiative is just beginning and is in partnership with ACCC. LUNGevity is also studying the biomarker testing patient experience in underserved and vulnerable communities, in partnership with ACCC, to create effective interventions to be tested in ACCC member cancer programs.

A flagship effort under the Take Aim initiative was a 2015 audit that found wide variability in the language used to describe biomarker testing, both in materials from different advocacy organizations and those developed by industry and advocacy groups. Biomarker testing, genetic testing, molecular testing, genetic diagnostics, molecular diagnostics, and molecular pathways (among others) were used to describe biomarker testing in patient education materials from different sources. This finding highlights the need to establish a common, consistent terminology to avoid confusing patients.

To this end, organizations and industry that participated in the audit agreed on the term "biomarker testing" as a standardized, broad term that is inclusive of testing for driver mutations as well as immunohistochemistry-based tests, such as PD-L1. Through its BiomarkerLIVE program, ACCC has created a lexicon to provide a comprehensive guide to biomarker terminology as related to oncology to empower the multidisciplinary

cancer care team, accessible at accc-cancer.org/projects/biomarker-live/lexicon.

Provider awareness and education includes convening nurses, nurse navigators, and nursing/nurse navigator societies to discuss pain points for nurses with biomarker testing patient conversations, as well as nurse and nurse navigator continuing medical education on biomarker testing, in collaboration with Oncology Nursing Society chapters, to reach providers at the local level.

The Take Aim initiative's pathologist, pulmonologist, and interventional radiologist education and coordination efforts includes convening experts and professional societies to discuss top needs with tissue acquisition and biospecimen handling, opportunities to address these barriers, and dissemination of a whitepaper on patient attitudes toward rebiopsy. Finally, public policy initiatives include efforts to change the Date of Service/14-Day Rule requiring hospitals to pay for testing if done within 14 days of admission, which can delay testing. Advocating for coverage of next generation sequencing, policy maker briefings at the federal and state levels on the importance of comprehensive biomarker testing, and ongoing work to include biomarker testing as a quality metric are also being done.

Finally, some of the Take Aim work on consistent testing terms has sparked a pan cancer movement to address consistent testing terms across all types of cancer. LUNGevity formed the Consistent Testing Terminology Working Group composed of 50 patient advocacy organizations, professional societies, pharmaceutical companies, biotechnology companies, diagnostics companies, and testing laboratories committed to clarifying and promoting consistent use of common terms for biomarker and germline genetic testing, who aim to harmonize language, simplify communications, and clearly explain the goals of testing. The group has developed several materials including a white paper, infographic, healthcare provider information card, and results from a genetic testing patient survey found at commoncancertestingterms.org.

APPENDIX B: ADDITIONAL STUDIES ON BIOMARKER TESTING IN NSCLC

Nadler et al.[14] evaluated the real-world rates of biomarker testing in 14,461 patients with stage IV NSCLC from the U.S. Oncology Network electronic health records. The study found that 5,132 patients (35.5%) and 4,752 patients (32.9%) were tested for EGFR and ALK mutations, respectively. The study reported that testing rates did improve over time with EGFR testing rates rising from 18% in 2010 to 61% in 2016. Similarly, ALK testing rates increased from 32% in 2011 to 69% in 2018. Testing rates for ROS1, PD-L1, and BRAF were significantly lower. ROS1 or PD-L1 status testing was documented during the study period in 5.7% of patients. BRAF testing was conducted in 0.1% of patients. Testing would not have been performed for these biomarkers during the earlier years of this study when these tests were not yet available or actionable. Factors that were associated with higher testing rates included larger practice size, higher patient volume, non-squamous histology, non-smoking status, and patients who are female.

Likewise, Illei et al.[15] investigated records of adults with two or more visits within the Flatiron Health electronic health record-derived database after January 2011 who were diagnosed with stage IIIB or IV NSCLC through May 2017 and found in an analysis of 31,483 NSCLC patients being treated in community practices that 16,726 patients (53.1%) were tested for ALK during that time period. The rate increased over time with 32.4% being tested in 2011 to 62.1% in 2016. Factors associated with higher testing rates included patients who are female, of younger age, no history of smoking, de novo disease, and living in the western region of the United States.

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A publication from the ACCC education program, "Operational Pathways for Molecular Testing in NSCLC." Learn more at accc-cancer.org/operational-pathways-nsclc.

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