

# PROCESS IMPROVEMENT IN MOLECULAR TESTING:

## ASSESS. CHANGE. TEST.

### CASE STUDY: Goshen Center for Cancer Care

This case study demonstrates implementation of a process improvement (PI) project focusing on molecular biomarker testing in patients with advanced non-small cell lung cancer (NSCLC).

Located in Goshen, Indiana, the **Goshen Center for Cancer Care** is a Commission on Cancer (CoC)-accredited Comprehensive Community Cancer Program. Since 2004, Goshen Center for Cancer Care has received national recognition by the CoC for continual accreditation with commendations. The cancer center's Disease-Oriented Teams meet weekly to address current guidelines and management principles to ensure that patients are treated appropriately. The Lung Institute is a comprehensive program led by a multidisciplinary team of cancer clinicians who work collaboratively to care for patients with lung cancer.

#### PURPOSE AND BACKGROUND

Patients with advanced NSCLC who harbor driver mutations and gene rearrangements may derive clinical benefit from receiving biomarker-driven therapy. However, molecular biomarker testing may not be performed due to a host of reasons including: lung biopsy samples may be insufficient for testing; tests are not ordered for eligible patients; testing is delayed; and clinicians are not capturing and documenting molecular testing rates as a quality measure.

In 2014, Goshen Center for Cancer Care participated in the Association of Community Cancer Centers (ACCC) Learning Labs for Process Improvement project. The team at Goshen gathered baseline data from their tumor registry and electronic patient records, participated in an on-site learning lab workshop, and conducted follow-up meetings with staff to monitor process improvement efforts. In 2017, ACCC had the opportunity to hear how Goshen had sustained these process improvements.

#### PROCESS IMPROVEMENT GOALS AND OBJECTIVES

After reviewing their molecular biomarker testing rates in patients with advanced NSCLC, the team at the Goshen Center for Cancer Care identified several key improvement opportunities:

- **Clinical Goal:** Develop a consistent and timely process for NSCLC biomarker testing and interpretation so that appropriate patients receive targeted therapies.
- **Programmatic Goal:** Improve the quality and quantity of biopsy tissue samples sent for testing, standardize the biomarker testing process, and track biomarker testing as a quality measure.

#### METHODS

**Baseline Assessment:** Prior to participating in the 2014 Learning Lab, the team at Goshen reviewed patient data from July 2012 through June 2013 and found that 43% of their patients with stage IV lung adenocarcinoma had received molecular testing.

**Improvement Plans:** After the Learning Lab workshop, the team at Goshen, under the clinical leadership of one of their medical oncologists, incorporated discussions around the programmatic element of molecular testing into their weekly lung cancer tumor boards. This led the group to review and discuss their lung biopsy processes, their tissue sample adequacy, and their biomarker testing rates. The lung cancer tumor board includes medical oncology, pulmonology, radiology, surgery, and pathology.

- **Improving Communication:** Through the weekly lung tumor boards, pathologists were able to provide more feedback and open communication about the quality and quantity of recent lung biopsy samples. Under the leadership of their medical oncologist, the team also engaged in active discussions about the clinical importance of using molecular test results to guide biomarker-driven treatment decisions for each patient.<sup>1</sup>
- **Obtaining More Tissue for Testing:** As a result of the feedback provided by the pathologists, the biopsies performed by radiology and pulmonology yielded greater samples for molecular testing. In some instances, up to 8 specimens may be obtained during a pulmonary procedure. The radiologists almost exclusively converted to using core needles to perform CT-guided lung biopsies.<sup>2</sup>

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## RESULTS

In 2017, the team reviewed patient data from January 2016 through December 2016 and found that their total lung cancer patient population had increased by 32%. Among patients with stage IV lung adenocarcinoma, 92% received EGFR testing, 88% received ALK testing, and 88% received ROS1 testing.

TIME PERIOD	BASELINE: July 2012 – June 2013	POST-INTERVENTION: Jan. 2016 – Dec. 2016	CHANGES
Total # of patients with NSCLC	74	98	Increased by 32%
# of patients with stage IV lung adenocarcinoma	14	24	Increased by 71%
• Testing rate for EGFR	43% (6 out of 14)	92% (22 out of 24)	Increased by 49%
• Testing rate for ALK	43% (6 out of 14)	88% (21 out of 24)	Increased by 45%
• Testing rate for ROS1	Not Available	88% (21 out of 24)	Not Available

## CONCLUSION

At the Goshen Center for Cancer Care, the combined efforts of the disease-oriented multidisciplinary cancer team, led by a physician champion, sustained their commitment to improving lung cancer biomarker testing processes by embracing a culture of continuous improvement. Their team-based approach to care has led to more coordinated efforts in providing biomarker-driven therapies to lung cancer patients in northern Indiana.

For details on the ACCC Molecular Testing: Learning Labs for Process Improvement and to access a process improvement planning tool, visit: [acc-cancer.org/resources/MolecularTesting-LearningLabs.asp](http://acc-cancer.org/resources/MolecularTesting-LearningLabs.asp)

## END NOTES

- 1 Consistent with expert recommendations, see. Levy BP, Chioda MD, Herndon D, et al. Molecular testing for treatment of metastatic non-small cell lung cancer: How to implement evidence-based recommendations. *Oncologist*. 2015;20(10):1175-81. Available at <http://theoncologist.alphamedpress.org/content/20/10/1175.long>
- 2 NCCN Clinical Practice Guidelines in Oncology for NSCLC support this approach. Available at: [https://www.nccn.org/professionals/physician\\_gls/PDF/nscl.pdf](https://www.nccn.org/professionals/physician_gls/PDF/nscl.pdf)

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