

# The Impact of Clinical Practice Gaps on the Implementation of Personalized Medicine in Advanced Non-Small Cell Lung Cancer (aNSCLC)

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JCO Precision Oncology Oct. 31 2022 :6

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December 2022

## Objective

- To examine the practice gaps associated with biomarker testing-informed personalized medicine strategies in NSCLC care. The study estimated the impact of seven specific practice challenges on the delivery of personalized cancer care, including those related to test access and availability, sample processing, test performance, test interpretation, and utilization of results and quantified the patient attrition at each step.

## Data Source

- This project utilized the **Diaceutics DXRX Data Repository**, a multisource database that consists of commercial and Medicare claims as well as laboratory data. The data set contains real time lab data, deidentified at a patient level, and covers 340 million lives. Within the claims portion of the repository, a population of **38,068 aNSCLC patients** newly diagnosed and actively managed in 2019 were identified for practice gap analyses.

**Topline Findings:** Despite a lengthy history of targeted treatment availability in aNSCLC, the study found that **644 of every 1,000 newly diagnosed aNSCLC patients (64.4%) did not receive a personalized treatment.**

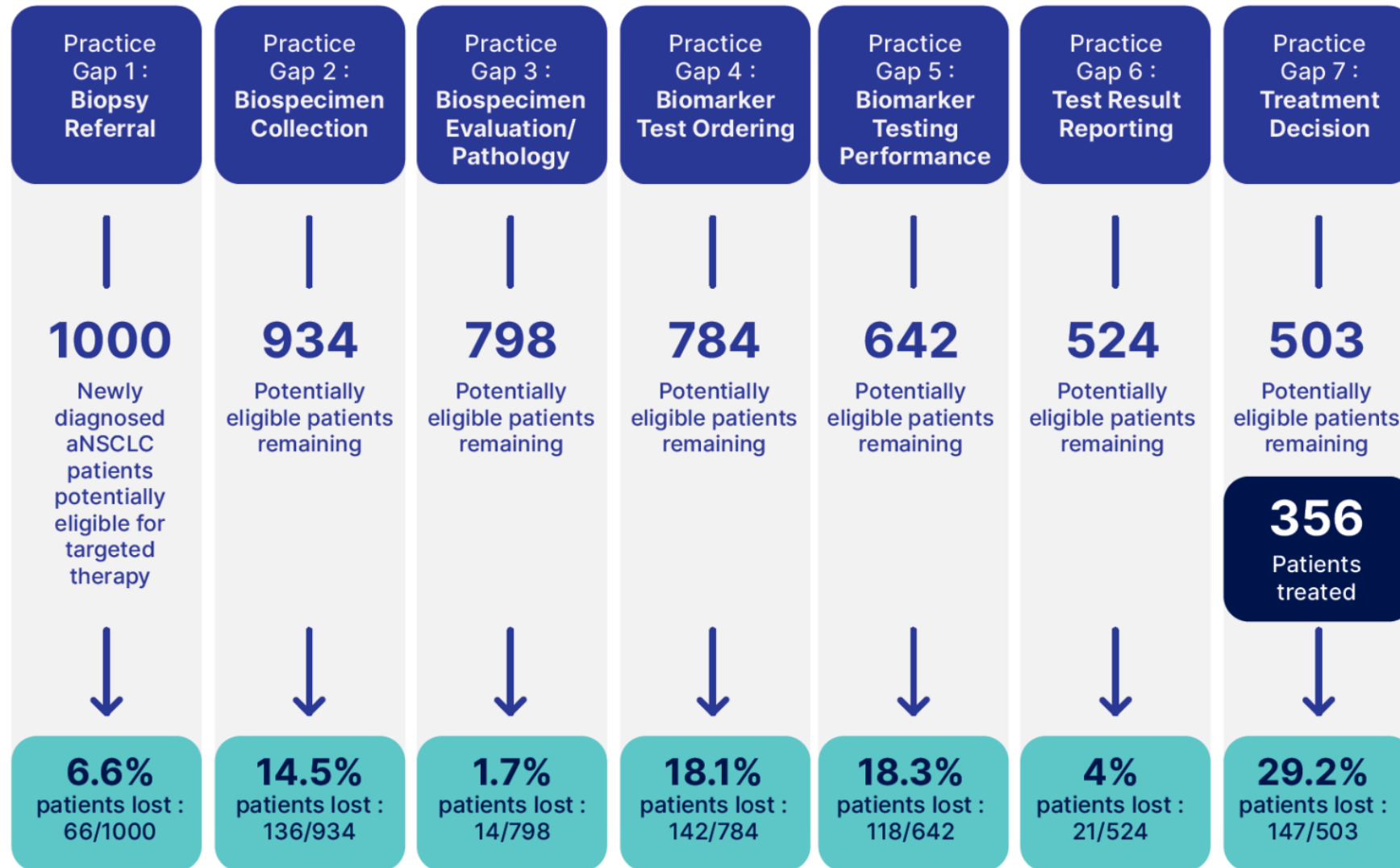
**Among patients who are potentially eligible for targeted therapy, 49.7% are lost to factors associated with biomarker testing.**

**Among those who did receive results from a biomarker test, 29.2% of eligible patients were not prescribed the appropriate targeted therapy.**

# The Precision Oncology Care Pathway: The Loss of Eligible Patients to the Delivery of Personalized NSCLC Care at Various Clinical Steps

Potential Practice Gaps	Step 1	Step 2		Step 3	Step 4		Step 5		Step 6	Step 7		
	Tissue and/or liquid biopsy not performed	Initial biopsy	Re-biopsy	Insufficient tumor	Tumor load overestimation	Physicians not ordering testing  • Lack of awareness of current guidelines for NSCLC testing  • Insurance challenges	Premature treatment initiation	No results reported (QNS/TNP/inconclusive rates)	Test performance /sensitivity	Turnaround time – result not reported within treatment decision window	Targeted treatment not selected despite positive test result  • Report indicates alternative/no therapy	
Data Sources	<ul style="list-style-type: none"> <li>Medicare claims data</li> <li>SEER data</li> </ul>	<ul style="list-style-type: none"> <li>Medicare claims data</li> <li>Published journals</li> </ul>		<ul style="list-style-type: none"> <li>Medicare claims data</li> <li>Published journals</li> </ul>	<ul style="list-style-type: none"> <li>Medicare claims data</li> <li>Published journals</li> <li>Real-time lab data</li> </ul>		<ul style="list-style-type: none"> <li>Medicare claims</li> <li>Real-time lab data</li> <li>Published journals</li> </ul>		<ul style="list-style-type: none"> <li>Medicare claims data</li> </ul>	<ul style="list-style-type: none"> <li>CMS Claims data (Parts A, B and D)</li> <li>Real-time lab data</li> <li>Published journals</li> </ul>		
Patients Available	1000	934	897	888	803	803	789	651	647	553	531	510
Leakage %	6.6%	4.0%	0.97%	9.6%	0%	1.7%	17.5%	0.6%	14.5%	3.9%	4%	29.2%
Patients Lost	66	37	9	85	0	14	138	4	94	22	21	149
Patients Advancing	934	897	888	803	803	789	651	647	553	531	510	361
Total Patients Lost	<b>66</b>	<b>131</b>		<b>14</b>		<b>142</b>		<b>116</b>		<b>21</b>	<b>149</b>	

# Impact of Clinical Practice Gaps on the Delivery of Precision Oncology



# Conclusion

- ✓ This study provides health system administrators, policymakers, and the pathology and oncology communities with needed data to target steps in the process where patients are losing the chance for targeted therapy
- ✓ The insights from this study can inform efforts to optimize biomarker testing in clinical practice and therefore help drive the delivery of personalized medicine to all cancer patients
- ✓ Potential areas for focus and strategies for reducing clinical practice gaps and improving personalized medicine implementation include:
  - Developing best practices to ensure tumor sampling, handling and testing is efficient
  - Improving practice integration and cross stakeholder communication including laboratories as a key function
  - Ensuring clear and timely reporting of test results
  - Improving clinician awareness of testing and interpretation of results
  - Addressing coverage, reimbursement and affordability challenges for tests and treatments underpinning personalized medicine