

Biomarker Testing and Cost Savings

Timely access to guideline-indicated comprehensive biomarker testing can help achieve the triple aim of health care including better health outcomes, improved quality of life, and reduced costs.

Comprehensive biomarker testing looks for all recommended biomarkers based on clinical guidelines. This testing can lead to treatments with fewer side effects, longer survival and allow patients to avoid treatments that are likely to be ineffective or unnecessary. Exposure to these ineffective treatments can exacerbate the physical, emotional, and economic burdens of disease.

Spending on Biomarker Testing Can Yield Savings on Treatment Costs

There are several studies looking at the cost effectiveness of *single marker testing*, which are most likely to be covered by insurance plans currently, to more comprehensive testing, which isn't always covered. Comprehensive biomarker testing is often done with a *panel test* that assesses multiple biomarkers (e.g., genes or proteins) in one test as compared to single marker testing that assesses one marker per test. For many patients, panel testing is most appropriate. Examples include when there is limited tissue available for testing or as recommended by clinical practice guidelines to gain sufficient information to appropriately guide treatment decisions.

Often paying more upfront for comprehensive testing can result in overall savings in treatment costs.

- In a study sponsored by CVS Health looking at total cost of care for non-small cell lung cancer patients who received broad panel biomarker testing in comparison to narrow panel biomarker testing; broad panel testing had an average additional up-front cost increase of approximately \$1,200 in comparison to narrow panel biomarker testing. However, those patients who underwent broad panel biomarker testing experienced a savings of approximately \$8,500 per member per month in total cost of care, as a result of more optimal treatment.ⁱ
- Other studies have found upfront broader biomarker testing results in substantial cost savings for commercial payers (\$3,809; \$127,402; and \$250,842 less than exclusionary, sequential testing, and hotspot panels, respectively)ⁱⁱ and decreased expected testing procedure costs to the health plan by \$24,651.ⁱⁱⁱ
- Some studies have found minimal cost increases as a result of the costs of more effective treatment and prolonged patient survival.^{iv, v}

Costs to Insurers

According to a 2022 analysis of biomarker testing coverage by Milliman, the average allowed unit cost to insurers per biomarker test ranges from \$78.71 (Medicaid) to \$224.40 (large group self-insured).^{vi} When biomarker testing is not covered by insurance, patients can be on the hook for hundreds or even thousands of dollars in out-of-pocket costs.^{vii}

This study also projected the impact of legislation requiring robust coverage of biomarker testing, projecting an impact of \$0.08-\$0.51 per member per month. This does not account for any potential cost savings from avoiding ineffective treatments.^{viii}

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ⁱ Brito RA, Cullum B, Hastings K, et al. Total cost of lung cancer care associated with broad panel versus narrow panel sequencing. *Journal of Clinical Oncology* 2020; 38, no. 15_suppl; 7077.

https://ascopubs.org/doi/abs/10.1200/JCO.2020.38.15_suppl.7077

ⁱⁱ Economic Impact of Next-Generation Sequencing Versus Single-Gene Testing to Detect Genomic Alterations in Metastatic Non–Small-Cell Lung Cancer Using a Decision Analytic Model

DOI: 10.1200/PO.18.00356 *JCO Precision Oncology* - published online May 16, 2019.

ⁱⁱⁱ Budget Impact of Next-Generation Sequencing for Molecular Assessment of Advanced Non–Small Cell Lung Cancer

<https://doi.org/10.1016/j.jval.2018.04.1372>

^{iv} Budget Impact of Next-Generation Sequencing for Molecular Assessment of Advanced Non–Small Cell Lung Cancer

<https://doi.org/10.1016/j.jval.2018.04.1372>

^v Budget impact analysis of comprehensive genomic profiling in patients with advanced non-small cell lung cancer

Source: James Signorovitch, Zhou Zhou, Jason Ryan, Rachel Anhorn & Anita Chawla (2019) Budget impact analysis of comprehensive genomic profiling in patients with advanced non-small cell lung cancer, *Journal of Medical Economics*, 22:2, 140-150, DOI:

10.1080/13696998.2018.1549056

^{vi} The landscape of biomarker testing coverage in the United States: Quantifying the impact of expanding biomarker testing coverage in the commercial and Medicaid markets. https://www.milliman.com/-/media/milliman/pdfs/2022-articles/2-16-22_the_landscape_of_biomarker_testing_coverage_in_the_us.ashx

^{vii} Survivor Views: Biomarker Testing. ACS CAN. Sept. 2020.

<https://www.fightcancer.org/sites/default/files/Survivor%20Views%20Biomarker%20Testing%20Polling%20Memo.pdf>

^{viii} The landscape of biomarker testing coverage in the United States: Quantifying the impact of expanding biomarker testing coverage in the commercial and Medicaid markets. https://www.milliman.com/-/media/milliman/pdfs/2022-articles/2-16-22_the_landscape_of_biomarker_testing_coverage_in_the_us.ashx