

Advancing Cancer Treatment with Diagnostic Oncologic Biomarkers in Personalized Medicine in Bulgaria

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OBJECTIVES

The integration of diagnostic oncologic biomarkers is essential for optimizing therapeutic strategies for cancer patients, maximizing therapeutic response, and minimizing treatment-associated toxicity. This study aims to evaluate the economic and health benefits of implementing biomarker diagnostics in personalized cancer treatment in Bulgaria.

METHODS

An economic evaluation was conducted using a cost-outcome analysis focusing on direct costs and the financial savings from reducing complications. The analysis includes projected expenditures for biomarker diagnostics and estimates the health benefits in terms of life years (LY) and quality-adjusted life years (QALY) gained through targeted therapies. The budget impact analysis covers a three-year period, providing a comprehensive view of the long-term financial implications.

RESULTS

The implementation of biomarker diagnostics incurs an initial cost of approximately **EUR 5 551 401** for the National Health Insurance Fund (NHIF) to cover 18 480 patients.

Health benefits are significant, with an average increase of 1.18 LY and 0.93 QALY per patient. The cumulative health benefits for all patients included in the analysis amount to 10,728 LY and 8,474 QALY. Additionally, the economic benefits, measured by the potential contribution to Bulgaria's Gross Domestic Product (GDP), are substantial. For the 6,604 patients of working age, the added economic value is estimated at

EUR 77 023 601

CONCLUSION

The inclusion of biomarker diagnostics in cancer care, despite the initial costs, yields significant health and economic benefits. The approach facilitates personalized treatment, improving clinical outcomes and enhancing the quality of life for cancer patients. The findings suggest that adopting biomarker diagnostics could lead to considerable long-term savings and economic gains, serving as a decision-making guide for other countries considering similar healthcare advancements.