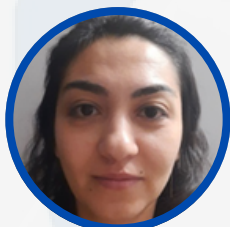


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An Economic Evaluation of An Electrochemical Portable Innovative Biosensor

Biosensors have emerged as indispensable diagnostic tools in contemporary biomedical applications. It is necessary to develop low-cost biosensor devices and well-established production standards. Within this context, Türkiye has demonstrated substantial commitment to health technology innovation, as evidenced by increasing R&D investments in this sector. Exemplifying this national strategy, TÜBİTAK's 1004 Program funded the "Regenerative and Restorative Medicine Research and Practices" project (Project No: 20AG003). The project was executed by ASELSAN, a Turkish defense cooperation and focused on developing a biosensor capable of detecting anti-SOX2 protein and CD133 antibody—both recognized biomarkers for small cell lung cancer. Our study is an economic evaluation of this biosensor which aims to contribute to the scientific and technological research. We compare the operational unit cost of the diagnostic kit with the costs of standard processes such as tomography, PET, and biopsy used in the diagnosis of small cell lung cancer patients in the current health system. The operational unit costs are provided by the research team. The data for the current standard diagnostic procedures are provided by Ankara University Faculty of Medicine. The findings show that the project prototype has a lower cost compared to its international equivalents but higher cost compared to public university hospital standard diagnostic process. Producing more effective personalized diagnostic methods can contribute to patient health at the micro level and the economy as a whole. This new technology is crucial for producing a low-cost device using national resources, early detection of a common noncommunicable disease, and activating the potential to produce new projects by developing a biosensor using national resources.

Keywords

biosensors, innovation economics, public health, personalized medicine

Biography

My research focus is on Health economics, program evaluation/impact analysis, and innovation economics. I conduct research on workplace wellness programs, economic evaluation of health technologies, and innovation economics.