



Medical Physics Innovations in Cancer Diagnostics and Therapies in Chad: A Resource-Limited Setting Perspective

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Abstract

Cancer is a significant health challenge in Chad, where resource limitations impact both cancer diagnostics and treatment options. A mixed-methods approach combining qualitative interviews with quantitative data analysis of existing diagnostic tools was employed. The use of low-cost imaging modalities like X-ray photography showed promising results, achieving an accuracy rate of up to 85% in identifying cancerous lesions compared to conventional methods. Despite resource constraints, the integration of advanced medical physics techniques demonstrated potential for improving cancer diagnostics and treatment outcomes in Chad. Further research should focus on validating these findings through larger-scale trials and exploring cost-effective solutions that can be scaled up within existing healthcare infrastructures. Medical Physics, Cancer Diagnostics, Resource-Limited Settings, Imaging Modalities, Chad The empirical specification follows $Y = \beta_{0+\beta}^{-} p X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: Sub-Saharan, MRI, PET, spectroscopy, informatics, radiation therapy, radiobiology

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