Oncology 2025
The Cancer Control Challenge:
Better Understanding It to Better Face It

IMPACTS OF TELEMEDICINE ON ONCOLOGICAL CARE IN RIBEIRINHO COMMUNITIES IN THE BRAZILIAN AMAZON

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Introduction: Access to specialized oncological care remains a major challenge in remote areas of the Brazilian Amazon, particularly for riverside ribeirinho communities. Geographic isolation, limited infrastructure, and a shortage of specialized professionals contribute to delays in cancer diagnosis and treatment, increasing morbidity and mortality rates. Telemedicine emerges as a strategic alternative by enabling remote consultations, diagnostic support, and professional training at a distance. **Objectives**: To assess the impact of telemedicine on oncological care in ribeirinho communities in the Brazilian Amazon, identifying its benefits, challenges, and implementation strategies. This revised version also aims to address methodological limitations of the included studies, potential biases, and a comparison with systematic reviews in other geographic settings. Methods: A systematic literature review was conducted in the PubMed, LILACS, SciELO, EMBASE, and CAPES Journals databases. Studies published between 2010 and 2024 were included if they addressed telemedicine in rural or remote Amazonian communities, focusing on oncology, diagnostic support, remote consultations, and professional training. Articles in Portuguese, English, or Spanish were considered. Studies published before 2018 or with low methodological quality were excluded. Four studies met the eligibility criteria and were evaluated according to PRISMA guidelines. **Results**: The selected studies demonstrated that telemedicine can expand access to oncological consultations, second opinions, and early diagnostic services in underserved areas. Health promotion and tele-education initiatives proved effective in increasing health literacy and community engagement. Nonetheless, logistical and technological barriers such as limited internet connectivity, cultural and language differences, and lack of continuous professional support were reported. Although the studies consistently pointed to benefits of telemedicine, they had important limitations. Three out of four studies were observational, with small samples and no control groups, limiting causal inferences. Most relied on self-reported or qualitative data, introducing potential perception bias. Methodological heterogeneity among studies also compromised direct comparisons. When compared to systematic reviews conducted in other remote regions—such as rural areas of Canada

and isolated parts of India—the findings align in terms of the effectiveness of telemedicine in improving access and reducing delays in cancer care. However, the nature of barriers differs in high-income countries, challenges revolve around clinical protocols and technological adoption, whereas in the Amazon, structural and sociocultural constraints predominate. **Conclusion**: Telemedicine is a feasible and promising strategy to reduce disparities in oncological care access for ribeirinho communities. By enhancing early detection and facilitating access to specialized evaluation, it can positively influence cancer outcomes. However, effective and sustainable implementation requires overcoming structural, technical, and cultural barriers. Context-specific strategies, ongoing training of health teams, and targeted public policies are essential to ensure long-term success of tele-oncology in remote regions.

Keywords: Telemedicine; Oncology; Ribeirinho communities; Health disparities; Amazon; Systematic review.