
Evaluating current screening programs for congenital Chagas disease in rural Latin America



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Chagas disease (CD), caused by the parasite *Trypanosoma cruzi*, is endemic in countries across Latin America.¹ Vertical transmission from mother to fetus leading to congenital Chagas disease is an increasing concern worldwide due to the often asymptomatic nature of the disease.^{2,3} If left undetected, congenital CD can lead to cardiac or intestinal complications later on in life.^{4,5} Identifying congenital CD early leads to almost 100% cure rates, avoiding the progression to chronic CD.⁵ Detection of congenital CD is especially difficult in rural populations, attributing to poor infrastructure, insufficient equipment, and lack of education.

This paper will evaluate the effectiveness of current screening techniques available to detect congenital Chagas disease and recommend which program should be implemented in rural settings lacking equipped laboratories and properly trained personnel.

Six available screening techniques to diagnose congenital Chagas disease were evaluated using two frameworks developed by the World Health Organization.

Components from the Principles and Practice of Screening for Disease and the ASSURED criteria were combined to identify the most suitable diagnostic tool for use in low-resource, rural areas.^{6,7}

Immunochromatographic (IC) tests matched the criteria set out by the framework. It has high sensitivity, high positive predictive value and high negative predictive value for both whole blood and serum samples. The test is low-cost, simple to administer and provides easy to read rapid results. No refrigeration is necessary, and the test does not require the use of a fully equipped laboratory or highly trained personnel.⁸

Although IC tests closely fit the criteria, no studies indicate the use of the test for early diagnosis in newborns, restricting it to use in mothers only. IC tests need to be coupled with an inexpensive, reliable and easy to use test for infants within one month following birth. The evaluation proposes the Chunap test as a promising candidate, with further research to decrease costs and technical requirements.⁹ Ongoing efforts need to be directed toward one test that is able to diagnose both mothers and newborns in a timely manner.

Global Health Relevancy

- There are no current suitable testing standards for congenital Chagas disease in rural Latin America, leaving thousands of affected children undiagnosed
- Identifying appropriate screening techniques for use in resource-limited settings, as well as enhancing the current educational programs across Latin America can help control the spread of congenital Chagas disease and alleviate the significant burden untreated Chagas disease