

Evidence for integrating point of care diagnostics as an integral part of primary healthcare in South African rural communities: a people-centred health system-strengthening approach



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Background

Point of care (POC) diagnostics are under-utilised in the developing world. There has been a recent increase in investments and development of POC diagnostics for use in settings with limited access to laboratory services. It has been estimated that the deployment of new POC diagnostics could prevent more than 1.2 million deaths in the developing world. These include deaths caused by HIV co-infections such as: bacterial pneumonia, syphilis and tuberculosis, as well as, deaths caused by malaria. Diagnostic systems designed in developed countries may not be immediately appropriate for use in the target developing countries. Therefore, a rigorous assessment for POC diagnostics outcomes of interest in the setting for which the test is designed should be carried out prior to adoption and scale up.

Keywords: Point of care testing; Resource limited rural communities; Improved health outcomes; Access to healthcare; Early diagnosis; Chronic disease monitoring

Objectives

- To provide an overview of the documented evidence of POC diagnostics impact on patient-centred outcomes in resource limited settings, globally
- To identify areas that requires systematic review and where more primary research is needed

Methods

- A detailed database search of 3 major databases (NCBI, WEB of Science and EBSCOhost) for relevant publications from 2000 to current
- Keyword searches with the terms “rural communities”, “ point of care testing”, “ early diagnosis ” , “ improved healthcare outcome” and “access to healthcare”, combined into phrases by including Boolean (AND, OR)
- All peer reviewed POC diagnostics of human diseases studies carried out in resource-limited settings and published in English
- The quality was assessed using the an adapted Mixed Method Appraisal Tool (MMAT)-Version 2011



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Results

- The flow chart shows a number of included papers
- One out of 14 included studies was set in South Africa
- Only one qualitative study was identified from the included studies
- Included studies scored a 10/10 possible points on MMAT
- The POC diagnostics patient-centred outcomes demonstrated from the analysed studied are shown in Table 1.

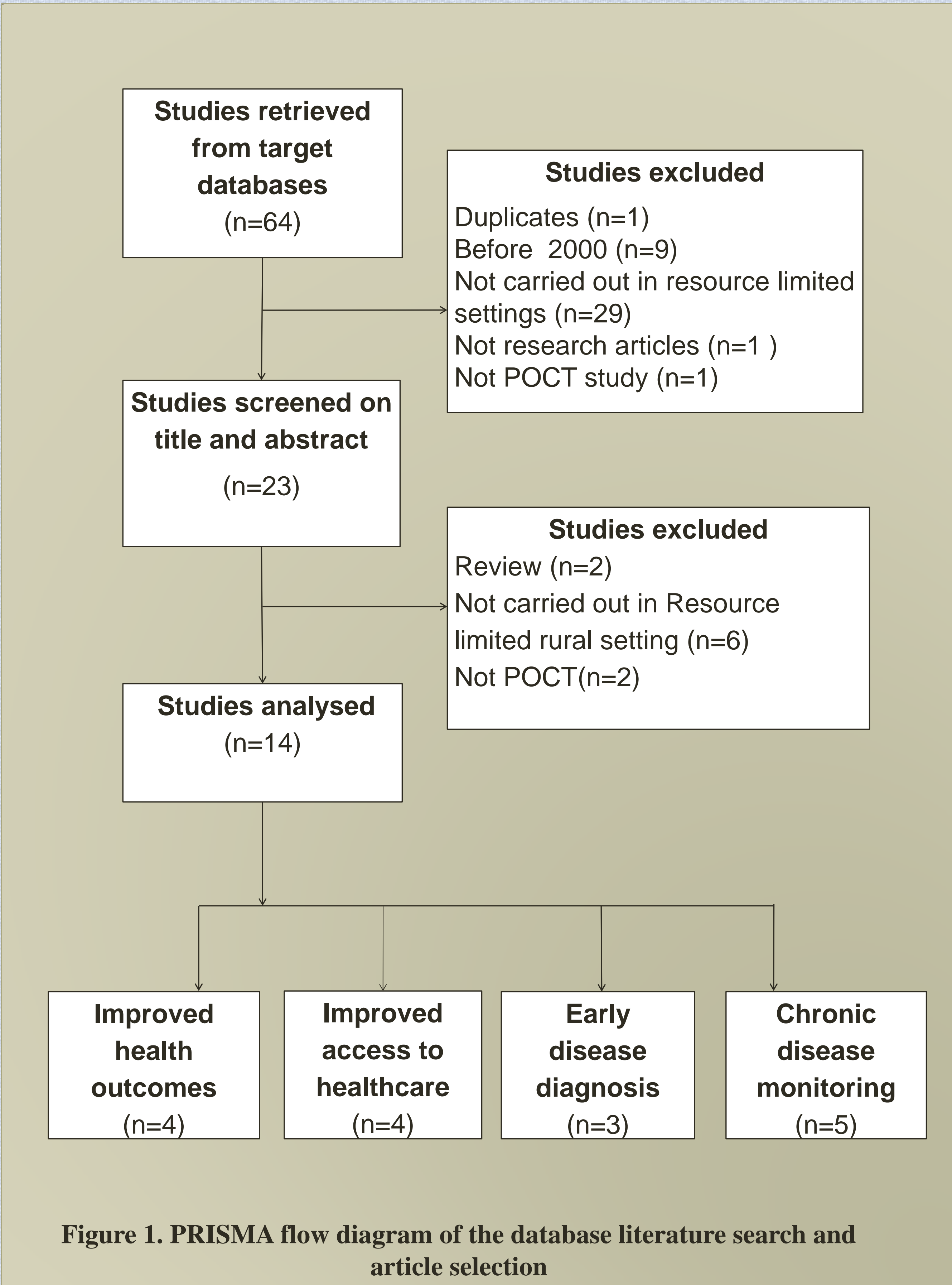


Figure 1. PRISMA flow diagram of the database literature search and article selection

Table 1. Reported POC diagnostics patient-centred outcomes

Improved health outcomes	Improved access to healthcare	Early disease diagnosis	Chronic disease monitoring/ management
Improved antenatal care and reduction of perinatal mortality	Cryptococcal Antigen Testing screening for HIV patients	Identifying undiagnosed diabetes	Screening of drug-induced liver injury
Early detection of infectious and chronic diseases and timely initiation of prophylaxis	Multiplexed simultaneous triple screening for syphilis, hepatitis B and HIV	Facilitating early screening of syphilis ,HIV ,HPV, Malaria, TB and diabetes	CD4 count test for HIV positive patients
Increases levels of knowledge of HIV serostatus - reducing risk of co-infections	Simplicity, enabling used by community health workers with minimum training	Rapid testing and reduced waiting period for results	Increased antiretroviral uptake

Conclusions

- There is a shortage of qualitative research in this area to assist in identification of barriers and challenges associated with use of POC diagnostics in rural settings
- Evidence to date, does not adequately address issues concerning accessibility, availability, reliability of POC diagnostics.
- Understanding of population-level of diagnostic utility is crucial to maximize effectiveness of future interventions

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