

Abstract

TUAC0402 - Modelling the cost -effectiveness of rapid point-of-care diagnostic tests for the control of HIV and other sexually transmitted infections amongst female sex workers

P. Vickerman¹, C. Watts¹, R. Peeling², D. Mabey¹, M. Alary³

¹London School of Hygiene and Tropical Medicine, London, United Kingdom, ²World Health Organization, Sexually Transmitted Diseases Diagnostics Initiative, Geneva, Switzerland, ³Centre hospitalier affilié universitaire de Québec and Université Laval, Quebec, Canada

Background: In sub-Saharan Africa, gonococcal and chlamydial infections are usually managed using the syndromic approach. However, many infections are asymptomatic in women, and the syndromic algorithm has poor sensitivity and specificity for infections caused by *Neisseria gonorrhoea* (Ng) and *Chlamydia trachomatis* (Ct). Because of this, rapid point-of-care (POC) tests for Ct/Ng could improve STI management in women. This study uses mathematical modelling to estimate the incremental cost-effectiveness of using POC tests to diagnose Ng/Ct instead of the current syndromic approach used by the SIDA2 HIV/STI prevention project for female sex workers in Cotonou, Benin.

Methods: A dynamic mathematical model was used with data from Cotonou to estimate the HIV impact of the existing SIDA2 project (1995-1998), and to project how impact would change if POC tests had been used. As observed in test evaluations, the POC tests were assumed to have high specificity, but a range of sensitivities. The incremental economic cost-effectiveness of using POC tests was modelled using intervention cost data and data from an evaluation of a Ng POC test in Cotonou in 2004. All costs were in 2004US\$.

Results: The model estimated the STI treatment aspect of the intervention averted 18,553 Ng/Ct and 359 HIV infections over 4- years. In contrast, if Ng/Ct had been diagnosed with a 70-80% sensitive and 95% specific POC test then 24-31% less clinic attenders would have been treated, but 42-60% more HIV infections would have been averted. If these POC tests cost \$1-2, the incremental cost-effectiveness of using them would be \$58-152 per HIV infection averted.

Conclusions: POC tests can be a cost-effective strategy for substantially increasing the impact on HIV transmission, and decreasing the over-treatment of STI treatment interventions that use syndromic management to diagnose Ng/Ct.