

Systematic literature review of critical gaps in costs and cost-effectiveness analyses (CEA) of HIV testing services in sub-Saharan Africa

Authors: Nurilign Ahmed, Stephanie Rotolo, Jason Ong, Marc d'Elbée, Lawrence Mwenge, Karin Hatzold, Graham Medley, Hendramoorthy Maheswaran, Cheryl Johnson, Liz Corbett, Fern Terris-Prestholt

Introduction: HIV testing services (HTS) have undergone dramatic changes in recent years, and the most recent and the most innovative one is HIV self-testing. To date, there has been no systemic assessment of the evidence around the costs and cost-effectiveness of the broad HIV testing alternatives in sub-Saharan Africa.

Methods: We conducted a systematic literature review of costs and cost-effectiveness of HTS in sub-Saharan Africa between 2006 and 2017 following accepted guidelines (the CHEERS statement). We assessed study methodology, including primary or secondary costings, outcomes reporting as generic (QALYs, DALYs, HIV infection averted or life years gained or HTS specific). We analysed variations in unit costs per person tested ($\$p_{\text{ptested}}$) and per positive case identified ($\$p_{\text{positive}}$), cost-effectiveness, and identified cost drivers. All costs are presented in US\$ 2016.

Results: Ninety-five studies met the eligibility criteria. Twenty-percent conducted primary costing exercises and applied it to perform CEA of alternative HTS. FBT, home-based and mobile-testing costs were presented in 73%, 12% and 7% of studies, respectively. Only 15% reported generic health outcomes. More than 50% assessed for uncertainty in parameters and reported cost drivers.

The reported unit costs for HTS varied widely. FBT $\$p_{\text{ptested}}$ ranged from \$4.24 to \$49.61 and $\$p_{\text{positive}}$ from \$26.59 to \$1,147. For mobile outreach, the $\$p_{\text{ptested}}$ was \$6.35 to \$34.15 and $\$p_{\text{positive}}$ was \$9.65 to \$303. Home-based HIV testing $\$p_{\text{ptested}}$ ranged from \$9.58 to \$20.74 and $\$p_{\text{positive}}$ ranged from \$14.14 to \$576 [pic_1]. QALYs $\$p_{\text{ptested}}$ ranged from \$522 to \$1570. The main factors driving-up costs were: personnel, transportation, and HIV test kits commodity.

Conclusion: The observed unit costs and cost-effectiveness varied widely, attributable both to real differences in scale of implementation, uptake and HIV prevalence, and variation in study methodology. It is vital to understand costs as well as estimate ultimate CEA using generic health outcomes to allow optimisation across health budgets and scaling-up of HIV interventions to improve population health, even more so as the financing of HIV programs increasingly falls on national governments.

Figure 1A: Costs of mobile outreach HIV testing services

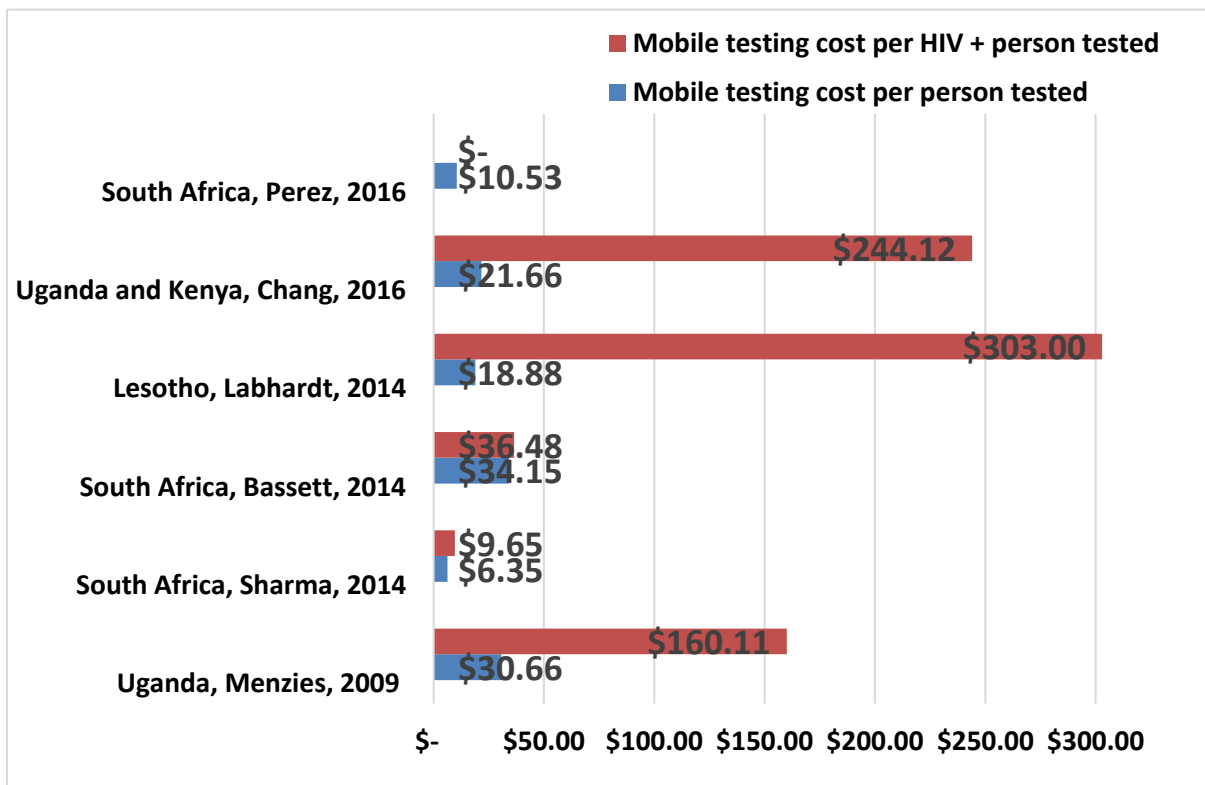


Figure 1B: Costs of home-based HIV testing services

