

## DFID SRH & HIV RPC at the XVI International AIDS Conference, Toronto, 2006

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### Abstract

#### TUPE0406 - Four cities modelling: #3 the changing role of direct and STI-mediated effects of male circumcision on HIV incidence during epidemics in sub-Saharan Africa

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**Objective:** Estimate the relative contribution of direct and STI-mediated effects of male circumcision to effects on HIV incidence at different stages of HIV epidemics in sub-Saharan Africa

**Methods:** An individual-based stochastic model was fitted to demographic, behavioural and epidemiological data from cross-sectional population-based surveys in Kisumu, Kenya and Ndola, Zambia. In the default Kisumu and Ndola models the prevalence of male circumcision was 25% and 10%, respectively and uncircumcised males were assumed to be twice as susceptible to HIV, chancroid and syphilis infection as circumcised males. To estimate the relative contribution of direct and STI-mediated effects of male circumcision, HIV incidence in the default models was compared to that in models in which the increased susceptibility to HIV, chancroid and syphilis and all three infections in uncircumcised males was removed at time-points 5, 10, 15, 20 and 25 years into the HIV epidemics.

**Results:** The impact of male circumcision was greatest early in the HIV epidemics and due primarily to the indirect effect on STI infections. At this stage of the HIV epidemic it also provided considerable immediate protection to females. By 15 years into the HIV epidemic the impact of male circumcision had declined and was due primarily to the direct effect on susceptibility to HIV infection. At this stage of the HIV epidemic it provided little immediate protection to females, although they may still benefit from falling HIV prevalence in males over the longer-term.

**Conclusions:** In contemporary populations in sub-Saharan Africa, even those with relatively high rates of classical STI infection, the impacts of male circumcision interventions are likely to be due primarily to direct, rather than STI-mediated effects.