Stigma as a Barrier to the Elimination of New Infant Infections: Model Projections from an Urban PMTCT Program in South Africa

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Introduction

• Stigma and resulting discrimination, whether experienced or anticipated, have been documented as powerful barriers to uptake and retention in programs providing pregnant women living with HIV with services to prevent child infection and maternal death.

• However, the size of the potential impact of stigma and discrimination on numbers of new child infections and their contribution to the burden of HIV in South Africa is unclear.

• The aim of this study was to quantify the extent to which mother-to-child transmissions (MTCT) can be attributed to stigma in an urban setting of South Africa.

A schematic representation of the WHO 2009 treatment guidelines for PMTCT, showing different stages of the cascade where women may be lost from the process as a result of stigma or non-stigma-related barriers.

Methods

A static Excel worksheet mathematical model, incorporating the new WHO 2009 treatment guidelines for PMTCT, was developed, and clinical program data from a PMTCT program in Johannesburg were used to parameterize the model and simulate a high-functioning health system, in which women are affected by both stigma and non-stigma-related barriers. Non-stigma-related barriers include, for example, a number of issues such as healthcare system delivery barriers, access to care barriers, and incorrect adherence to treatment.

• A comprehensive literature review identified studies providing quantitative estimates most likely to reflect the number of women lost through PMTCT as a result of non-stigma-related issues, and this was verified through a number of key stakeholder interviews, providing additional evidence for the main non-stigma-related barriers for the setting in Johannesburg.

• From these estimates, a hypothetical “idealized” stigma scenario was created, reflecting only those infections thought to be attributable to non-stigma-related barriers, as well as infections that result from PMTCT drugs not being 100% effective.

• An “idealized” scenario estimated the number of transmissions that occur solely because PMTCT drugs [highly active antiretroviral therapy (HAART) only] are less than 100% effective.

Results

• Model projections show that if stigma could be reduced to “minimal” levels, 44 percent of all vertical transmissions may be avoided, with interquartile range (IQR) estimating 38–46 percent.

• In addition, if non-stigma-related barriers could be eradicated, a further 48 percent of infections could be avoided, IQR 43–53 percent.

• However, even under ideal circumstances, the model estimates infections would occur; because drug regimens do not provide absolute protection.

Uncertainty analysis showing the full range, interquartile range (IQR) and median values projected across the model simulations for the percentage of infections attributable to each component of the PMTCT programme. Median and IQR values are displayed.

Conclusions

The model projections suggest HIV-related stigma may be an important barrier to the elimination of vertical HIV transmission. Allopathic investment to strengthen the health system delivery of PMTCT, interventions to address HIV-related stigma need to be supported.

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