

## Forecasting HIV in Japan

その他のタイトル	日本におけるHIVの予想に関する研究
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[別紙 2]

審査の結果の要旨

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HIV prevalence is low in Japan, but there is evidence that it may be increasing rapidly amongst men who have sex with men (MSM). This study used a deterministic, compartmental mathematical model to investigate the factors associated with the growth of HIV among MSM in Japan, and to forecast future prevalence of the disease under two scenarios: A *high risk scenario* based upon published estimates of current risk behavior in Japan; and a *lower risk scenario* modeling a counter-factual future in which interventions to prevent HIV transmission are scaled up. The objectives of this study were: 1) to understand the dynamics of the HIV epidemic in the Japanese MSM population; 2) to forecast the prevalence of HIV 30 years into the future; and 3) to identify interventions that may be effective in controlling the epidemic.

The key findings of this study were:

1. Rates of condom use and HIV antibody testing were key drivers of the HIV epidemic.
2. The time taken to enter treatment after a positive HIV test has little influence on the progress of the HIV epidemic.
3. Current published estimates of condom use, partner numbers and HIV antibody testing rates among MSM suggest that these variables are close to the edge of the parameter space required to contain the epidemic.
4. If these risk behaviors do not change, HIV prevalence amongst MSM will increase over 30 years from a baseline value of 2.1% to 10.4% (sensitivity range: 7.4 – 18.7%).
5. There is a small risk of epidemic outbreak amongst low-risk (heterosexual) women and this risk is dependent on the degree of sexual contact between low risk women and MSM.
6. In the lower risk scenario, 30 year prevalence is forecast to be between 0.2% and 4.1%, with no risk of epidemic outbreak amongst non-MSM groups.

This study found that there is a high risk of rapid and unconstrained spread of HIV

amongst MSM in Japan, but that this epidemic can be easily contained by small changes in condom use behavior and small increases in HIV antibody testing. Interventions amongst MSM need to be enhanced to improve uptake of testing and to encourage awareness of the need for regular monitoring of HIV serostatus. Health promotion amongst MSM communities in Japan needs to encourage the concept of a community-wide obligation of safer sex and regular HIV and STI testing. Better surveillance data and more extensive clinical cohorts are also needed to better understand the background risks in Japan, to monitor sexual behavior, and to better assess progress towards HIV containment goals. This study has shown that with these efforts it is possible to prevent an HIV epidemic amongst MSM in Japan.