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Response to the Modeling Analysis by Katz et al. on the Impact of Replacing Clinic-Based HIV Tests With Home Testing Among Men Who Have Sex With Men in Seattle: Authors' Reply

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To the Editor

We welcome the comments from Conway et al.¹ on our work. Our model focuses on the effects of replacing clinic-based HIV tests with home-use tests among Seattle men who have sex with men (MSM).² We agree with Conley et al. that the inability of our model's structure to explicitly account for MSM with no prior test and to include MSM who supplement clinic-based tests with home-use tests is an important limitation. Nevertheless, the model serves as a useful heuristic device for understanding the potential implications of the relatively long window period of the Food and Drug Administration–approved home-use test and challenges in linking individuals diagnosed as having HIV infection at home into care.

In the absence of a definitive window period for the OraQuick In-Home HIV Test, we used the 90-day estimate from the manufacturer for our base model and conducted analyses varying its window period from 15 to 90 days (Figure 3 in Katz et al.²). Using the estimate proposed by Conway et al. of approximately 42 days, home-use tests would need to increase testing frequency more than 1.6-fold to decrease HIV prevalence among Seattle MSM. However, this estimate is based on the performance of the professional use version of the In-Home Test on serial plasma specimens,³ and studies suggest that this test has a significantly longer window period when used on oral fluids.^{4,5}

In our base model, MSM diagnosed at home and in clinics initiate antiretroviral therapy (ART) at the same rate, which we back-calculated from population-based estimates of the

proportion of HIV-infected MSM on ART (74%). Conway et al. suggest that this underestimates ART use among men diagnosed at home because 96% of newly diagnosed persons in the OraSure Unobserved Use Study reported that they would “follow-up with a doctor or clinic for treatment options.”⁶ However, reported intentions to seek care do not translate directly into ART use, and it is unlikely that MSM diagnosed at home, who may use home tests because of barriers to care,⁷ would initiate treatment faster than those diagnosed in clinics where services to support linkage to care are often available.

Although we focused on Seattle because population-based data were available to parameterize the model, we conducted sensitivity analyses to examine the impact of replacing clinic-based testing with home-use tests in different settings by varying the testing frequency and window period of clinic-based tests (Figure 4 in Katz et al.²). Other jurisdictions with known testing frequencies and window periods for clinic-based tests could use these results to estimate the effects of such replacement with the understanding that other parameters influencing transmission may differ. In general, our results suggest that home-use tests have greater potential for benefit in settings where tests with longer window periods are the norm or in populations that test less frequently.

We agree with Conway et al. that additional research is needed to provide a more complete picture of how home-use tests will affect the HIV epidemic. Future work should consider their potential to reach persons who would otherwise not test, supplement clinic-based testing, and affect sexual behaviors as well as their impact in other settings and populations.

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