SUPPLEMENT: HIV incidence declines in a rural South African population: a G-imputation approach for inference

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Supplementary Figures

Figure S1: Compares the basic demographic characteristics of repeat-testers that entered the HIV cohort (labeled as HIV cohort) with eligible HIV-negative participants that did not enter the HIV cohort (labeled as HIV-negatives). The comparison between both groups is for the percentage that were women, the mean age (in years) by sex, and the mean number of in-migration and out-migration events irrespective of serostatus. The figure show that the basic demographic characteristics not markedly differ between the two groups.
Table S1: Participation in the HIV incidence cohort.

| Year | HIV$^-$ Eligible$^1$ | HIV$^-$ Eligible$^1$ | Repeat-testers$^2$ | Repeat-testers$^2$ |
|------|----------------------|----------------------|-------------------|-------------------|
| 2005 | 13,568               | 10,043               | (74.0)            |                   |
| 2006 | 15,854               | 11,629               | (73.3)            |                   |
| 2007 | 17,819               | 13,006               | (73.0)            |                   |
| 2008 | 19,622               | 14,271               | (72.7)            |                   |
| 2009 | 20,671               | 14,924               | (72.2)            |                   |
| 2010 | 23,021               | 16,476               | (71.6)            |                   |
| 2011 | 24,547               | 17,351               | (70.7)            |                   |
| 2012 | 26,000               | 18,308               | (70.4)            |                   |
| 2013 | 27,962               | 19,592               | (70.1)            |                   |
| 2014 | 29,464               | 20,641               | (70.0)            |                   |
| 2015 | 31,551               | 21,941               | (69.5)            |                   |
| 2016 | 33,870               | 23,052               | (68.1)            |                   |
| 2017 | 35,254               | 23,554               | (66.8)            |                   |
| 2018 | 36,840               | 23,554               | (63.9)            |                   |

$^1$ Shows the number of HIV-negative participants that were eligible for entry into the HIV incidence cohort at the household visit date. $^2$ Shows the number and percentage of eligible HIV-negative participants that had a repeat-test, entered into the HIV cohort, and contributed person-time to the analysis.
Table S2: Incidence rates and 95% confidence intervals computed from four G-imputation models with no covariates, individual-level, behavioral-level, and structural-level covariates.

|           | No covariates | Individual | Behavioral | Structural |
|-----------|---------------|------------|------------|------------|
|           | Rate (95% CI) | Rate (95% CI) | Rate (95% CI) | Rate (95% CI) |
| **Males** |               |            |            |            |
| 2008      | 1.71 (1.13, 2.30) | 1.75 (1.15, 2.36) | 1.73 (1.13, 2.33) | 1.71 (1.13, 2.29) |
| 2009      | 2.04 (1.38, 2.70) | 2.05 (1.37, 2.72) | 2.00 (1.36, 2.63) | 2.02 (1.35, 2.70) |
| 2010      | 2.39 (1.69, 3.09) | 2.40 (1.72, 3.09) | 2.39 (1.67, 3.11) | 2.35 (1.65, 3.05) |
| 2011      | 2.32 (1.65, 3.00) | 2.29 (1.56, 3.02) | 2.28 (1.57, 2.99) | 2.32 (1.63, 3.00) |
| 2012      | 2.42 (1.67, 3.17) | 2.43 (1.67, 3.19) | 2.40 (1.66, 3.15) | 2.45 (1.72, 3.19) |
| 2013      | 2.41 (1.64, 3.18) | 2.35 (1.64, 3.05) | 2.42 (1.68, 3.17) | 2.40 (1.67, 3.14) |
| 2014      | 2.11 (1.43, 2.78) | 2.09 (1.41, 2.78) | 2.12 (1.44, 2.80) | 2.14 (1.47, 2.82) |
| 2015      | 1.68 (1.09, 2.27) | 1.64 (1.04, 2.24) | 1.71 (1.12, 2.30) | 1.67 (1.06, 2.28) |
| 2016      | 1.49 (0.90, 2.07) | 1.49 (0.95, 2.04) | 1.52 (0.91, 2.14) | 1.53 (0.93, 2.14) |
| 2017      | 1.30 (0.67, 1.94) | 1.25 (0.65, 1.85) | 1.26 (0.64, 1.88) | 1.27 (0.66, 1.87) |
| 2018      | 1.13 (0.27, 1.99) | 1.07 (0.16, 1.98) | 1.09 (0.22, 1.97) | 1.06 (0.19, 1.93) |
| **Females** |         |            |            |            |
| 2008      | 4.67 (3.83, 5.51) | 4.72 (3.92, 5.52) | 4.67 (3.89, 5.45) | 4.63 (3.85, 5.41) |
| 2009      | 4.79 (3.99, 5.59) | 4.76 (3.93, 5.60) | 4.84 (3.98, 5.70) | 4.85 (4.02, 5.69) |
| 2010      | 4.83 (3.99, 5.67) | 4.88 (4.05, 5.71) | 4.87 (4.04, 5.70) | 4.82 (3.96, 5.67) |
| 2011      | 4.53 (3.71, 5.34) | 4.54 (3.71, 5.37) | 4.48 (3.63, 5.34) | 4.52 (3.70, 5.34) |
| 2012      | 5.01 (4.10, 5.93) | 5.04 (4.11, 5.96) | 4.98 (4.09, 5.86) | 4.96 (4.07, 5.85) |
| 2013      | 4.75 (3.93, 5.57) | 4.76 (3.88, 5.64) | 4.75 (3.91, 5.59) | 4.81 (3.93, 5.69) |
| 2014      | 4.98 (4.16, 5.79) | 4.95 (4.10, 5.80) | 5.04 (4.13, 5.94) | 5.03 (4.18, 5.88) |
| 2015      | 4.55 (3.73, 5.36) | 4.52 (3.66, 5.38) | 4.58 (3.77, 5.40) | 4.50 (3.69, 5.31) |
| 2016      | 3.97 (3.19, 4.74) | 3.93 (3.16, 4.71) | 3.97 (3.15, 4.79) | 3.96 (3.20, 4.73) |
| 2017      | 3.25 (2.45, 4.04) | 3.27 (2.51, 4.03) | 3.23 (2.43, 4.02) | 3.32 (2.54, 4.09) |
| 2018      | 3.82 (2.67, 4.97) | 3.73 (2.55, 4.91) | 3.87 (2.64, 5.10) | 3.81 (2.60, 5.01) |