

Supplemental Material

Table S1 presents specific scenarios with points represented along the curves in Figure S1. Assuming a low positivity of 3.5%, the estimated number of tests that would have had to occur to give rise to the observed MSM cases in 2016 was 4,672,486 (testing rate of 985 tests per 1,000 MSM). Assuming no change in positivity, the estimated number of tests that would have had to occur to give rise to the observed MSM cases in 2017 was 5,506,857 (testing rate of 1,150 tests per 1,000 MSM), an increase of 834,371 additional tests and an increase in testing rate of 17.9%.

If positivity increased by 20% from the 3.5% starting point, the estimated number of tests needed to give rise to the observed number of MSM cases in 2017 would be much smaller than in the constant positivity scenario, and the testing rate would slightly decrease to 958 tests per 1,000 MSM. If the assumed test positivity in 2016 is higher (10%) and stable, the number of estimated number of tests needed to give rise to observed MSM cases decreases; 1,635,370 in 2016 and 1,927,400 in 2017, for an increase in an additional 292,030 tests between 2016 and 2017. If positivity decreased by 20% (from 10% to 8%) during 2016–2017, the estimated number of additional tests needed to be performed in 2017 would increase to 773,880.

Table S1. Estimated number of tests among MSM and changes in testing from 2016—2017 under various scenarios

| | | 2016 | 2017 | Abs. change | % change |
|--|--------------------------------|-----------|-----------|-------------|----------|
| | Estimated # MSM GC Cases (18+) | 163,537 | 192,740 | 29,203 | 17.9% |
| | MSM Population (18+) | 4,743,196 | 4,788,668 | 45,472 | 1.0% |
| Scenario 1: Low Positivity, Stable | Positivity | 3.5% | 3.5% | 0% | 0.0% |
| | # Tests | 4,672,486 | 5,506,857 | 834,371 | 17.9% |
| | # MSM Testing/1,000 | 985 | 1,150 | 165 | 16.7% |
| Scenario 2: Low Positivity, Increasing | Positivity | 3.5% | 4.2% | 0.7% | 20.0% |
| | # Tests | 4,672,486 | 4,589,048 | -83,438 | -1.8% |
| | # MSM Testing/1,000 | 985 | 958 | -27 | -2.7% |
| Scenario 3: High Positivity, Stable | Positivity | 10.0% | 10.0% | 0% | 0.0% |
| | # Tests | 1,635,370 | 1,927,400 | 292,030 | 17.9% |
| | # MSM Testing/1,000 | 345 | 402 | 58 | 16.7% |
| Scenario 4: High Positivity, Decreasing | Positivity | 10.0% | 8.0% | -2.0% | -20.0% |
| | # Tests | 1,635,370 | 2,409,250 | 773,880 | 47.3% |
| | # MSM Testing/1,000 | 345 | 503 | 158 | 45.9% |

The top panel presents the estimated reported gonorrhea cases among MSM and the estimated MSM population in 2016 and 2017. Scenarios 1 and 2 assume 3.5% positivity in 2016, while scenarios 3 and 4 assume 10% positivity in 2016. Scenarios 1 and 3 reflect stable positivity while scenarios 2 and 4 demonstrate the effect of changing positivity.