

Population Surveys of STIs: Bias due to Missing Biological Specimens.

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Objective: The marriage of NAAT assays to population survey methodology permits monitoring of undiagnosed STIs in populations. We explore subpopulation variation in provision of biological specimens (urine, vaginal swabs) in a new research paradigm.

Methods: The Monitoring STIs Survey Program (MSSP) tracks trends in three STIs (trichomonas, chlamydial and gonococcal infection) in probability samples of adolescents and young adults in Baltimore, MD. Participants complete telephone audio computer-assisted survey interviews (T-ACASI) and provide biological specimens through the mail. We report results for the first two years of the study (Y1-2, 2006 - 2008).

Results: 1,956 of 2,281 survey respondents (86% unweighted) agreed to provide biological specimens. 1,637 (84% unweighted) of these “agreeers” mailed a biological specimen adequate for testing. Overall, 71% (weighted; 95% CI: 68.6%, 73.2%) of the sampled population provided a biological specimen. The specimen return rate was significantly higher in Y2 (75% vs. 67% wtd.; $p = 0.002$) due, we suspect, to changes in survey procedures. Relatively few statistically significant or borderline differences were found in specimen return rates across Baltimore subpopulations (e.g., by education: 78% for < HS, 70% for HS, 67% for >HS, $p = 0.0003$; currently married vs. not: 67% vs. 72%, $p = 0.093$; had 6+ lifetime sex partners vs. not: 74% vs. 68%, $p = 0.019$).

Conclusion. The MSPP’s specimen return rate of 71% suggests that T-ACASI population surveys with mail-back collection of biological specimens provides a feasible methodology for monitoring population trends in undiagnosed STIs. Statistical models for assessing potential bias introduced by the small number of observed subpopulation variations in specimen return rates are evaluated in the presentation.