



Figure 2. Registered user referral source. Prescribers were more likely to have been referred to the curriculum by a colleague, while RNs and non-clinicians were more likely to have been required by a supervisor to use the curriculum, $p < 0.0001$.

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420. Prevalence of Oropharyngeal Meningococcal Carriage in an Urban STD Clinic

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Background. *Neisseria meningitidis* (Nm) can cause invasive disease, but it also asymptotically colonizes the pharynx in approximately 10% of the general population. Older studies have reported higher carriage rates (>30%) among individuals attending sexually transmitted disease (STD) clinics. This study examined the prevalence of oropharyngeal Nm carriage in STD clinic attendees in Columbus, Ohio.

Methods. Per normal procedures, all patients presenting for care in the STD clinic who report oral sex in the last year are screened for oropharyngeal *Neisseria gonorrhoeae* (Ng) using nucleic acid amplification testing (NAAT). For the same patients, we also initiate cultures using media selective for *Neisseria* spp. Analytical Profile Index *Neisseria-Haemophilus* (API NH) and Nm-specific PCR screening is performed on colonies with oxidase-positive Gram-negative diplococci to distinguish between Ng and Nm. For this study, we then performed PCR-based genogrouping on confirmed Nm isolates.

Results. Between July 2018 and March 2019, oropharyngeal screening occurred at 5,015 patient visits and oropharyngeal Nm was detected at 163 visits (3.3%). Nm-positive individuals were primarily male (69.9%), Caucasian (62.6%), with non-Hispanic ethnicity (98.8%). The median age was 27 years and 5.5% were HIV-positive. Among male cases, 49.1% reported sex with men; among women, 98.0% reported sex with men. Meningococcal vaccination status was unknown for 71.2%, but 26.4% had documentation of prior MenACWY vaccination and 2.3% had prior MenB vaccination. Among the 163 cases, genogroup distribution was 23.9% B, 10.4% E, 9.8% Z, 3.1% C, 0.0% W, 0.0% Y, and 39.3% capsule null locus. For 13.5%, the selected screening approach could not determine genogroup.

Conclusion. In STD clinic patients reporting recent oral sex, we found a much lower prevalence of oropharyngeal Nm carriage compared with what has been reported historically for similar populations. While NmB was the most common capsular type identified by genogrouping, almost 40% of Nm isolates contained the capsule null locus, making them unable to express capsule. Additional studies should evaluate the effect of Nm vaccination programs on carriage among STD-clinic attendees.

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421. Return of Results in Sexually Transmitted Infection Research: The Ethics of Notification and Treatment

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Background. In prevalence studies of sexually transmitted infections (STI), investigators often provide syndromic management for symptomatic participants, but may provide no specific treatment for asymptomatic individuals with positive test results due to the delays between sample collection and processing. It is unknown how frequently positive test results are returned to participants so that they know to seek treatment. The potential outcome, untreated study participants with documented infection, is concerning given the history of ethical lapses in STI research and the vulnerability of many STI study populations.

Methods. To characterize the extent of this issue, 82 prevalence studies from the World Health Organization's (WHO) *Report on global sexually transmitted infection surveillance, 2018*, were reviewed to determine whether return of test results were reported. Studies were classified as either results returned, unspecified, or other. Publications were coded by country income in accordance with World Bank designations based on the study population's location(s).

Results. Nearly half (45%) of the cited studies did not specify if participants were notified of their STI test results. Most study populations (78%) were in lower- and middle-income countries (LMIC) while 20% were in high-income countries (HIC). The remaining 2% of studies screened populations in both LMIC and HIC. Return of results was similar across income groups. Half of papers (50%) in HIC clearly indicated the return of results, whereas 44% were unspecified and one publication (6%) indicated results were not returned due to an unlinked-anonymized testing protocol (other). Results were returned in 53% of studies conducted in LMIC and not specified in 47%.

Conclusion. A substantial proportion of STI prevalence studies cited in a 2018 WHO report did not specify if participants received their test results. Institutional approval and informed consent are critical, but insufficient for ethical research. Clinically relevant results should be returned to study participants and treating clinicians to ensure appropriate management of identified infections, if not treated during research. This is especially important in STI research in vulnerable populations.

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422. Pooling Strategy for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* Reduces Cost of GeneXpert Molecular STI Screening in Two Limited-Resource Clinics in Zambia

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Background. Risk of heterosexual HIV-1 transmission is elevated in the presence of sexually transmitted infections (STIs) such as chlamydia (CT) and gonorrhea (NG). Syndromic management is a common, low-resource, approach to detecting STIs. However, CT and/or NG infections in women are often asymptomatic and therefore missed by syndromic management. Molecular testing for STIs is highly sensitive, but time and cost restraints preclude implementation of these technologies in resource-limited settings. Pooling samples for testing together in GeneXpert cartridges is one strategy for reducing the cost per individual tested.

Methods. This project describes the development of a pooling strategy based on social and demographic factors associated with CT/NG prevalence rates in a cohort of high-risk women in Zambia. Logistic regression modeling was used to predict the probability of a positive CT/NG test result in the presence of various factors. Data from a 2016 cross-sectional sub-study on intra-vaginal practices in 509 women was examined and an easy-to-use diagnostic screening checklist was created to categorize women by probability of testing positive on the GeneXpert. An algorithm considering cost of each test and prevalence of disease in each group determined the optimal pool size for each risk category.

Results. Logistic regression identified CT/NG to be associated with: city, age, education, long-acting reversible contraception usage, and laboratory results for bacterial vaginosis, *Trichomonas vaginalis*, and incident syphilis on the day of CT/NG testing. Signs and symptoms were not found to be associated. The overall prevalence of either CT and/or NG infection in this population was 17%. Low, middle, and high-risk groups could be separated based on checklist score with 7.52%, 18.30%, and 46.51% CT/NG prevalence, respectively.

Conclusion. Pooling women with similar CT/NG predictive factors together, or testing those at highest risk individually, reduces the cost per test. Further implementation of this tool to guide presumptive treatment, in lieu of molecular testing, increases the cost-saving potential. The strategies described in this study are applicable to other low-resource clinical settings seeking to provide the accuracy of molecular testing with a reduced financial burden.

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423. Self-Reported Screening for Rectal Sexually Transmitted Infections Among Men Who Have Sex with Men

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Background. Rectal gonorrhea and Chlamydia are common and predict HIV acquisition among men who have sex with men (MSM); however, screening for rectal sexually transmitted infections (STIs) is not routine.

Methods. In 2017, we recruited sexually-active MSM in the Portland, Oregon metropolitan area through venue-based sampling. Our outcome of interest was self-reported rectal STI screening in the prior 12 months. Stratified by HIV status, we assessed the prevalence and demographic, healthcare, clinical, and behavioral predictors of screening.