Prevalence of Sexually Transmitted Infections in a Population-based Sample of Women Attending Cervical Cancer Screening in New Mexico, USA
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BACKGROUND: Comprehensive unbiased estimates of the prevalence of sexually transmitted infections and co-infections are critical to monitor the impact of STI prevention and control programs.

METHODS: We conducted a population-based surveillance of sexually transmitted infections using an age and cervical cytology stratified random sample of 6,619 liquid-based cytology specimens collected during routine cervical cancer screening, in New Mexico from 8/1/13 to 7/31/14. The New Mexico HPV Pap Registry (NMHPVPR) which collects statewide data for all HPV tests as Notifiable Diseases and Conditions was used as the data source to define the sample selection. Chlamydia trachomatis (CT), Neisseria gonorrhoeae (GC), Mycoplasma genitalium (Mgen), Trichomonas vaginalis, and high-risk human papillomavirus (HR-HPV) infections were assessed using standard nucleic acid amplification (APTIMA, Hologic). Prevalence estimates and 95% CI were corrected for sampling design using the survey command in STATA v13.

RESULTS: Prevalence among women aged 21-64 years (recommended cervical cancer screening age) was 9.4% (8.7-10.1) HR-HPV, 1.9% (1.6-2.3) CT, 3.3% (2.8-3.8) GC, 1.9% (1.6-2.3) Mgen, and 0.1% (0.05-0.23) GC. STI prevalence was highest in 21-24 years, declining continuously through age, although trichomonas remained high through 39 years. Despite similar marginal prevalence of CT and Mgen in the 21-30 year old women, co-infection was relatively uncommon (15.3% of CT positives co-infected with Mgen and 12.6% of Mgen positives co-infected with CT). Although co-infections are rare they are statistically higher than would be expected assuming independence, in all but HR-HPV and trichomonas co-infections.

CONCLUSION: This strategy for a population-based estimation of STI infection and co-infection prevalence will provide a useful tool for unbiased surveillance and control in the state of New Mexico. Understanding co-infection rates and the high rate of trichomonas infection through age 45 years warrants further investigation.

Methods

All women aged 21-66 are recommended for cervical cancer screening. Therefore, LBC selected from this pool represents a reasonable population-based sample across a broad age range. Clinical surveillance using residual exfoliuvium collected specifically for CT/HPV or other STI testing – subject to bias by indication and may not reflect the true population prevalence. Collect all liquid-based cytology specimens from four laboratories in New Mexico capturing ~70% of cervical cancer screening in the state. From all LBC, select a stratified random sample on age and cytology result. Oversample younger ages.

Screening rates not adjusted for hysterectomy, which likely explains decline in screening with increasing age.

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Prevalence of multiple sexually transmitted infections

• Preliminary estimates of infection prevalence are generally consistent with prior population-based surveillance estimates
• Proof of concept for utilization of residual LBC from routine cervical cancer screening for STI surveillance over age 21 years
• Co-infection prevalence with STIs other than HPV is relatively low (<1%) in a population-based sample.
• Future linkage with NMHPVPR may allow prospective estimation of effect of HPV-other STI co-infection on pre-cancer risk
• Future linkage of surveillance data to other data resources (e.g. EMR) may allow prospective assessment of risk of adverse pregnancy outcomes

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