

for young women over 19 years of age who have aged out of the Vaccines for Children entitlement program. The objectives of this study were to assess a sample of minority women who attend neighbourhood health centers to determine predictors of vaccination, and to assess for the presence of HPV infection in these women. Those without evidence of prior HPV infection may benefit from a prophylactic vaccine.

Methods Between April 2009 and April 2010, we enrolled a convenience sample of 100 African American and 100 Latina women who completed a computer-assisted personal interview. Participants were queried regarding: demographics, risk for sexually transmitted infections including drug or alcohol use, HPV vaccine willingness, knowledge, attitudes and beliefs, and vaccination status. Frequencies were calculated using SAS, version 9.2. Self-collected vaginal swab samples from 118 participants were tested for HPV using line probe assay.

Results Participants were poor with 113 (57%) having a household income of <\$20 000; and at risk for HPV infection. One hundred twenty-one (61%) did not use condom at last sex. However, only 17/118 (14%) were positive for any HPV. Predictors of vaccination could not be determined because there was not sufficient outcome response variation. A vast majority 161 (80%) of participants had not received HPV vaccination, though a most 136 (68%) reported willingness.

Conclusions Three years after vaccine approval, the majority in a sample of vulnerable women had not been vaccinated despite their willingness. Public health campaigns have been successful at raising awareness and making vaccine acceptable, but may be less successful at providing the vaccine to vulnerable women. Strategies should focus on delivering vaccine to African American and Latina women in order to decrease cervical cancer disparities.

S14.3 EVALUATING THE INTERNET AS AN STD RISK ENVIRONMENT FOR TEENS: FINDINGS FROM THE COMMUNICATION, HEALTH, AND TEENS (CH@T) STUDY

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Background The CH@T study aims to identify/characterise a group of teens reporting meeting sex partners online and a group reporting meeting sex partners in-person (not online) and examine the differences between the 2 groups in sexual health risks.

Methods Youth aged 13–19 years (N=273) visiting a publicly-funded clinic completed a 20-min Audio-Computer Assisted Self-Interview. Included were global sexual behaviour questions (eg, oral/vaginal/anal sex experience, number of sex partners) and specific partnership history questions, including meeting partners online/offline. Participants were also tested for chlamydia/gonorrhoea. Audio-Computer Assisted Self-Interview responses were anonymously linked to teens' biological STD results. A χ^2 test was performed to determine the association between meeting a sex partner online and current STD status.

Results Participants identified as female (89.4%) and heterosexual (80.7%). Nearly 9 in 10 (88.6%) reported oral, 97.8% vaginal, and 28.6% anal sex experience. Of those with biological STD data (n=267), 14.2% had a current STD infection. Of all teens, 15.4% (n=42) reported having sex with a partner originally met online (of these, > half [57.1%] met >1 partner). Compared with teens reporting only partners met in-person, teens reporting an online partner had significantly greater numbers of oral, vaginal, and anal sex partners. However, analyses indicated no association between having a current STD and reporting an online partner, χ^2 (1, N=267)=0.95, p=0.34.

Conclusions Theory-driven STD prevention and sexual health promotion interventions should be tailored to meet specific needs of

young people seeking partners both online and offline. Sex-seeking, dating, and social networking websites may represent important intervention contexts.

S14.4 DETECTING CHLAMYDIAL AND GONOCOCCAL INFECTIONS THROUGH SOCIAL AND SEXUAL NETWORKS

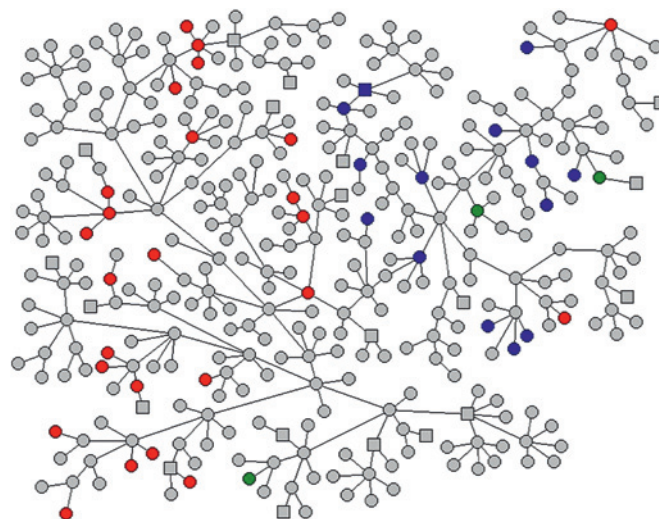
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Background The overall goal of this ASTDA award was to adapt and evaluate Respondent-Driven Sampling (RDS) to enhance *Chlamydia trachomatis* (Ct) and *Neisseria gonorrhoeae* (GC) screening activities. Specifically, the aims were to develop and evaluate a programmatic approach using RDS as a method to prospectively screen for Ct/GC in networks of infected persons, to compare the prevalence of Ct/GC infections detected via current venue-based screening activities to the prevalence of infection detected using RDS as a referral mechanism, and to determine and compare the cost per infection detected via current screening activities to the cost per infection using RDS.

Methods Using two components of RDS, the systematic referral scheme and the dual incentive structure, we developed a program to refer social and sexual contacts for Ct/GC screening. Initial seed participants ages 15–24 were identified and asked to recruit their peers for screening, who in turn recruited their peers, and so on. Persons received incentive for their own participation (\$10) in addition to incentive for participation of those they refer (\$10). Participants could refer up to 5 social and sexual contacts. Participants provided a urine specimen for Ct/GC screening and completed a brief survey questionnaire.

Results Between December 2008 and March 2010, 66 initial seeds were recruited. Of the 66 seeds, 17 (25%) were successful in recruiting referrals. A total of 439 referrals were recruited, resulting in 7 networks initiated from an infected seed and 10 networks from a non-infected seed. The majority of referrals, 372 (85%), belonged to a single network (Abstract S14.4 figure 1). The remaining 67 referrals belonged to 16 networks ranging in size from 2 to 18 members. Across all networks, 67% of referrals were male and 33% were female. The overall prevalence of infection was 5.7% for Ct and 6.9% for GC among the referrals. This is compared to a prevalence of 12.2% for Ct and 1.5% for GC detected through venue-based screening in the same age demographic.



Abstract S14.4 Figure 1

Conclusions With the exception of one large network, RDS was not a particularly efficient way to screen for Ct/GC. Only one-fourth of those initially recruited by research staff in turn referred their social and sexual contacts. While social network testing has been adopted in the HIV testing realm, in the Ct/GC screening realm a focus on messages encouraging those who are tested to get their friends tested may have the greatest public health impact.

S14.5 **TREPONEMA PALLIDUM σ 24 REGULON AND ENVELOPE STRESS RESPONSE**

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Background During syphilis infection, the envelope of *Treponema pallidum* is constantly exposed to the host environment and, therefore, the most likely target of the host defences against the invading spirochaete. The mechanisms that maintain *T pallidum* envelope integrity and functionality, particularly in response to host-induced stresses, are however poorly understood, and their elucidation would likely help identify important pathogenesis-associated molecules, perhaps related to *T pallidum*'s ability to persist in the host despite a robust immune response. We hypothesised that in *T pallidum*, similarly to other Gram-negative pathogens, the transcription factor σ 24 (σ 24, encoded by the *rpoE* gene, TP0092) might be a key element in maintaining *T pallidum* envelope homeostasis. Putative σ 24 binding motifs can be identified in silico upstream of several *T pallidum* genes that were experimentally shown to be involved in envelope stress response (ESR) in *Escherichia coli*. Furthermore, during early experimental syphilis σ 24 is highly transcribed compared to other σ factors, and its expression increases even more as primary infection progresses. We therefore decided to investigate the possible role of σ 24 in *T pallidum* ESR by identifying the components of the *T pallidum* σ 24 regulon.

Methods *T pallidum* cells grown in rabbits were fixed after harvest to crosslink DNA-binding proteins to their target sequences in the chromosome. DNA sequences recognised by σ 24 in vivo were isolated using chromatin immunoprecipitation in combination with high-throughput DNA sequencing (ChIP-seq) to identify bound DNA regions.

Results Thirty-nine DNA fragments targeted by σ 24 were identified in the *T pallidum* chromosome. Seven of these target genes (*lon-1*, *greA*, *ftsZ*, *prfB*, *htrA*, and *rpoE*) were previously reported to be induced in response to envelope stress in *E coli*, suggesting that the *T pallidum* σ 24 regulon is likely to be similar to that of other bacteria. Other putative target genes encode transporters, cell division proteins and a subset of motility and chemotaxis proteins.

Conclusions In *T pallidum*, σ 24 seems to control genes involved in a variety of cellular processes, including maintenance of envelope homeostasis and barrier function. Additional putative σ 24-dependent functions, apparently not directly involved in ESR, could as well be important in helping *T pallidum* adapt to the host environment during the infection.

S14.6 **PREVALENCE AND PREDICTORS OF TRICHOMONAS INFECTION IN INCARCERATED WOMEN**

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Background *Trichomonas vaginalis* is the most prevalent curable sexually transmitted infection in the United States and may lead to

preterm delivery, infertility and increased HIV transmission. Illicit drug use, HIV infection and Black race have been associated with high rates of infection. Incarcerated women may be at especially high risk for infection, though few studies have examined routine screening for trichomonas in this population.

Methods Women >18-years-old entering the Rhode Island Department of Corrections between September 2009 and December 2010 were recruited to participate. All women submitted a self-collected vaginal swab for trichomonas culture and Transcription Mediated Amplification testing. Each participant completed a survey addressing demographics, symptoms, sexual behaviour, and substance use by audio computer-assisted self-interview. Data analysis was completed using multivariate logistic regression in STATA.

Results 288 women enrolled in the study, mean age was 28 years. 59% of participants were White, 17% Hispanic, 12% Black and 12% other races. Forty-three per cent reported vaginal symptoms and 54% reported illicit drug use in the 30 days prior to incarceration. Among all participants, the prevalence of trichomonas was 8.7% by culture and 12.5% by NAAT. The strongest predictors of infection included Black race (OR 4.1, 95% CI 1.4 to 12.0), cocaine use in the 30 days prior to incarceration (OR 2.5, 95% CI 1.1 to 5.7), and >3 year since last pap smear (OR 5.2, 95% CI 1.5 to 17.8). Vaginal symptoms and age were not significantly associated with trichomonas detection.

Conclusions Trichomonas infection is common in incarcerated women, especially among Blacks, recent cocaine users and those not receiving routine gynaecologic care. Infection was not predicted by symptoms or by age. Routine screening for trichomonas infection in high-risk populations may lead to increased detection and treatment.

S15 STI epidemiology in Europe: challenges for prevention and control

S15.1 **SEXUALLY TRANSMITTED INFECTIONS IN EUROPE: COORDINATING THE EUROPEAN STI NETWORK**

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Background Since 2008, the European Centre for Disease Prevention and Control is coordinating the enhanced STI surveillance in 30 EU/EEA countries. Each country was requested to nominate experts for collaboration and data submission to the European Surveillance System. Five STI are under surveillance, syphilis, congenital syphilis, gonorrhoea, chlamydia and LGV, as per Decision 2119/98/EC of the European Commission.

Methods Surveillance objectives and the set of variables for enhanced STI surveillance were agreed upon in the annual network meeting and training session to use the European Surveillance System for data submission. Data were collected for the period 1990–2009; two network meetings were organised for all 30 EU/EEA countries to discuss the preliminary results.

Results Chlamydia is the most frequently reported STI in Europe, accounting for the majority of all STI reports with 343 958 cases in 2009 (185 per 100 000 population). Chlamydia was reported more in women than in men and 75% were reported in young people (15 and 24 years). Chlamydia is increasing continuously over time. In 2009, 29 202 gonorrhoea cases have been reported (9.7/100 000) and nearly a quarter of all gonorrhoea cases were reported in MSM. For syphilis, 18 317 cases have been reported (4.5 per 100 000) and half of syphilis cases were reported in MSM. The overall trend in gonorrhoea and syphilis across the EU/EEA showed a notable decreasing trend in