

CT cases (due to increases in screening and subsequent detection of asymptomatic cases), despite an underlying decrease in actual CT infections in the population. The total estimated costs associated with CT infection over this time period were over \$1.0 billion, or \$56.4 million per year. The costs of screening and treatment of asymptomatic infections as a proportion of total CT costs were estimated to have increased over time, while the costs of long-term sequelae associated with untreated infections declined the same period.

**Conclusions** Despite increases in screening over time, the total economic burden associated with CT in Canada remains high; however, the projections of our model suggest that these increases in screening and the subsequent detection of asymptomatic infections may be reducing the costs associated with the treatment downstream sequelae of untreated infections. Further investigation of trends in chlamydia-associated complications is required to better understand the impact of screening on CT incidence in Canada.

## Epidemiology oral session 2: Human papillomavirus

### 01-S02.01 EPIDEMIOLOGY OF, AND BEHAVIOURAL RISK FACTORS FOR, SEXUALLY TRANSMITTED HUMAN PAPILLOMA VIRUS INFECTION IN A SAMPLE OF THE BRITISH POPULATION

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**Background** Persistent infection with high-risk sexually transmitted human papilloma viruses (HR-HPV) can lead to development of cervical and other cancers while low-risk types (LR-HPV) may cause genital warts, the most commonly-diagnosed viral STI in the UK. An HPV immunisation programme, using the bivalent vaccine protecting against types 16 and 18, was introduced in the UK in 2008. The frequency of HPV types is important baseline information against which to monitor the direct and indirect effects of vaccination. Here we examine the proportion of the population with detectable infection with HPV in urine collected in 1999–2001 for the National Survey of Sexual Attitudes and Lifestyles (Natsal-2) and the relationship with demographic and behavioural variables.

**Methods** Natsal-2 was a probability sample survey of men and women aged 16–44 resident in Britain involving computer-assisted personal interviewing. Half of all sexually-experienced respondents aged 18–44 were invited to provide a urine sample. 3436 samples were tested using an in-house Luminex-based HPV genotyping system.

**Results** HPV DNA was detected in 29.0% (95% CI 26.7% to 31.3%) of samples from women and 17.4% (95% CI 15.1% to 19.8%) from men. Any of 13 HR-HPV types was detected in 15.9% (95% CI 14.1% to 17.8%) of women's samples and 9.6% (95% CI 8.0% to 11.6%) of men's. Vaccine preventable types 16 and/or 18 were found in 5.5% (95% CI 4.5% to 6.8%) of women and 3.0% (95% CI 2.1% to 4.3%) of men; and types 6 and/or 11 in 4.7% (95% CI 1.8% to 3.3%) of women and 2.2% (95% CI 1.5% to 3.1%) of men. 4.1% (95% CI 3.1% to 5.2%) of women had HPV 16 and/or 18 without any other HR-HPV. In multivariate analysis, HR-HPV was associated with number of new partners, in women with younger age, single status, and partner concurrency, and in men with number of unprotected partnerships and age at first intercourse.

**Conclusion** This is the first population-based probability sample study of the distribution of sexually transmissible HPV types in Britain. It is also the first to undertake a detailed analysis of relationships with demographic and behavioural variables and to include men. HPV DNA was detectable in urine of a high proportion of the sexually active British population; the lower prevalence in males reflected lower detection sensitivity for HPV in urine from males. In both genders HPV was strongly associated with sexual risk behaviour.

### 01-S02.02 ARE THERE MUTUAL ASSOCIATIONS BETWEEN THE INCIDENCE OF HPV INFECTION AND OTHER SEXUALLY TRANSMITTED INFECTIONS AFTER CONTROLLING FOR SEXUAL BEHAVIOUR?

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**Background** We aimed to determine (i) if other sexually transmitted infections (STIs) increase the risk of incident human papillomavirus (HPV) infection and (ii) if HPV infection predicts the incidence of other STIs.

Abstract 01-S02.02 Table 1 Unadjusted and adjusted estimates of detection of other STIs on HPV incidence (total number of visit pairs=3221)

	Number of visit pairs N=3221	Incident detection at current visit	Unadjusted OR† (95% CI)	Adjusted OR† (95% CI)
Diagnosis of the following at previous visit	N (col %)	New cases of any HPV, n=241(7.5%) n (row%)	New detection of any HPV type across consecutive visits	
STIs other than HPV infection*				
No	3158 (98.0)	230 (7.3)	1.0	1.0
Yes	63 (2.0)	11 (17.5)	2.46 (1.31 to 4.62)	2.16 (1.08 to 4.34)
		New cases of any HR-HPV, n=110 (3.4%) n (row%)	New detection of any HR- HPV type across consecutive visits	
STIs other than HPV infection*				
No	3158 (98.0)	105 (3.3)	1.0	1.0
Yes	63 (2.0)	5 (7.9)	2.42 (0.93 to 6.27)	2.01 (0.74 to 5.48)

\*STIs other than HPV infection included the following: laboratory diagnoses of genital chlamydia, gonorrhoea, syphilis, as well as clinical diagnoses of genital herpes or trichomoniasis.

†Estimates adjusted for age and study site at enrolment, as well as the following covariates assessed at each follow-up visit: pap smear diagnosis at previous visit, contraceptive use in last 6 months, number of lifetime partners, partners having sex with others in last 6 months, having new partner in last 12 months, male partner using condom in last 6 months, number of partners in last 6 months.

HPV, human papillomavirus; HR-HPV, High-risk HPV, defined as HPV types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66 (IARC 2007); STIs, sexually transmitted infections.