

prevalence of cytologically-detected cervical low-grade and high-grade squamous intraepithelial lesions (LSIL and HSIL, respectively), and of histologically-detected cervical intraepithelial neoplasia grades 2 and 3 (high-grade lesions, collectively termed CIN2+), during 2007–2013. To account for changes in cervical cancer screening over time, analyses were restricted to females who were screened during the same calendar year. Age-stratified trend tests were conducted using binomial regression.

**Results** Prevalence of LSIL, HSIL and CIN2+ decreased significantly during 2007–2013 for females aged 10–14 and 15–19. For those aged 15–19, prevalence of LSIL decreased by 50% (53.2 to 26.8 per 1000 person-years,  $P < 0.001$ ) and HSIL decreased by 72% (5.9 to 1.6,  $P < 0.001$ ); CIN2+ prevalence in this age group decreased by 83% (13.4 to 2.3,  $P < 0.001$ ). Prevalence of HSIL and CIN2+ also decreased significantly for women aged 20–24. No decreases were seen in older women.

**Conclusion** This is the first US study to find decreased prevalence of cervical lesions in the age groups most likely to be impacted by HPV vaccination, while accounting for changes in cervical cancer screening. Decreases in low-grade and high-grade lesions reflected their relative associations with HPV types 16 and 18. These results provide ecologic evidence of population effectiveness of HPV vaccination among young, privately-insured US women.

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#### P10.09 VIEW ON HUMAN PAPILLOMAVIRUS VACCINATION AMONG AT-RISK MEN IN WUXI, CHINA: A CROSS-SECTIONAL STUDY

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**Introduction** Human papillomavirus (HPV) infection is common among sexually active men who have sex with men (MSM) and men who have sex with women (MSW). The quadrivalent HPV vaccine is effective in preventing HPV infection and HPV related morbidities in both MSM and MSW. View on HPV vaccination among MSM and MSW in China has not been studied.

**Methods** We enrolled MSM from the community and MSW from a sexual health clinic in Wuxi, China. A questionnaire about participants' socio-demographic characteristics and view on HPV vaccination was collected.

**Results** A number of 186 MSM and 182 MSW were recruited. The proportions of having ever heard of HPV among these two groups were 18.4% and 23.1%, respectively. The proportions of having ever heard of HPV vaccine were 10.2% and 15.4%, respectively. MSW (70.9%) were significantly more willing to take HPV vaccine than MSM (34.9%) ( $p < 0.001$ ). Only 26.2% of MSM and 20.2% of MSW were willing to take free HPV vaccine before the age of 20 when they commenced their sexual behaviours. MSM preferred receptive anal sex (OR: 3.8, 95% CI: 1.7–13.5), never using condom in anal sex in the past 6 months (OR: 3.4, 95% CI: 1.4–20.1), ever diagnosed with STIs (OR: 3.3, 95% CI: 1.2–8.3) and ever receiving HIV/AIDS related service (OR: 1.6, 95% CI: 1.1–4.3) and MSW having female commercial sex (OR: 1.7, 95% CI: 1.2–8.5), never using condom in commercial sex (OR: 1.9, 95% CI: 1.3–8.5) and diagnosis of an STI (OR: 2.0, 95% CI: 1.6–7.2) were more likely to accept free HPV vaccine.

**Conclusion** Sexually active MSM and MSW in China lacked knowledge of HPV. The majority of homosexual men would not benefit from HPV vaccination as their sexual debut proceeds vaccine uptake. Aggressive education aimed at increasing knowledge of HPV and HPV vaccination among these men is warranted.

**Disclosure of interest statement** All authors declare no competing interests.

#### P10.10 T-CELLS IN THE ANAL MUCOSA OF MEN WITH HIGH-GRADE SQUAMOUS INTRAEPITHELIAL LESIONS

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**Introduction** The host cellular immune response plays an integral role in controlling human papilloma virus (HPV)-induced precancerous lesions. Anal mucosal cellular immune responses have not been previously studied.

**Methods** The Study of the Prevention of Anal Cancer (SPANC) is a longitudinal natural history study of anal HPV infection in men  $\geq 35$  years who have sex with men. 26 participants with anal, high-grade (grade 2 or 3) squamous intraepithelial lesions (HSIL) at study entry had 44 anal biopsies. Lymphoid aggregates in these biopsies were detected by inspection of haematoxylin and eosin-stained sections. Additional sections were immunofluorescently stained to enumerate submucosal and intra-epithelial CD4<sup>+</sup> and CD8<sup>+</sup> T-cell counts. Whole slide imaging to reveal full tissue architecture at high resolution (x600) was used. Student's t-test of log<sub>10</sub>-transformed T-cell density was used to compare means; a generalised, linear model was used to determine factors associated with total T-cell density (biopsy-based analysis with intra-subject adjustment).

**Results** Of 26 men with mean age 53 years [standard deviation (SD) 10.5], 7 (27%) were HIV-infected and 17 (68%) had concurrent anal HPV16 in anal swabs. Of 44 biopsies, 26 (59%) revealed HSIL and 24 (55%) had lymphoid aggregates localised in the submucosa adjacent to the epithelium. Presence of lymphoid aggregates was associated with higher CD4<sup>+</sup> T-cell density (mean 192 vs. 69 cells/mm<sup>2</sup>,  $P < 0.001$ ), but not higher CD8<sup>+</sup> T-cell density (106 vs. 62 cells/mm<sup>2</sup>,  $P = 0.077$ ). A biopsy diagnosed with HSIL was significantly associated with higher total T-cell density [odds ratio (OR) 11.80, 95% confidence interval (CI) 1.51 – 92.08,  $P = 0.02$ ], as was having anal HPV16 detected (OR 14.08, 95% CI 1.15 – 172.71,  $P = 0.04$ ). Presence of low-risk HPV genotype (s) was not associated (OR 1.37, 95% CI 0.12 – 15.14,  $P = 0.80$ ).

**Conclusion** CD4<sup>+</sup> T-cell enriched lymphoid aggregates in the anal mucosa were associated with anal HSIL and HPV 16.

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