017.2 WOMEN'S EXPERIENCES WITH PRIMARY HUMAN PAPILLOMAVIRUS (HPV) TESTING FOR CERVIX SCREENING: HPV FOCAL EXIT SURVEY RESULTS

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10.1136/sextrans-2019-sti.202

Background Globally, cervical screening is moving from cytology (Pap) to HPV-based testing. Cytology-based screening has occurred for decades; therefore, engaging the screened population is critical to success of this significant paradigm shift. HPV FOCAL, a large clinical trial, compared primary HPV testing every 4 years to liquid-based cytology (LBC) every 2 years. Participants were surveyed to assess experiences surrounding HPV screening.

Methods Women aged 25–65 (n=19,009) from two urban centres were randomized to control (LBC) or intervention (HPV) arms, and 16,374 women attended 48 month exit with HPV/LBC co-testing. At trial entry, women were provided information about HPV, cervical cancer, HPV testing and results. Women completing exit screening were invited to complete a survey assessing attitudes to HPV vs. Pap testing, screening intervals, and receipt of HPV results.

Results Of 14,535 invites sent, 5,532 (38%) responders completed some or all of the survey with 63% reporting that HPV vs. Pap testing was acceptable; and 54% willing to have HPV testing every 4–5 yrs vs. a Pap every 3 yrs. Concerns regarding HPV positive results differed by age. More women ≥50 yrs reported it important for them to know who gave them HPV than younger women (25–34 yrs: 68%; 35–49 yrs: 69%; 50+ yrs: 76%). More women 25–34 yrs than >35 yrs would feel judged for having HPV (25–34 yrs: 44%; 35–49 yrs: 36%; 50+ yrs: 34%). More women ≥50 yrs reported being HPV positive would affect the relationship with a sexual partner (25–34 yrs: 36%; 35–49 yrs: 41%; 50+: 45%). Response differences by education will also be presented.

Conclusion In this large HPV screening trial, the majority of women reported that HPV vs. Pap testing was acceptable and over half would be willing to have HPV testing every 4–5 yrs. Women had varied concerns regarding HPV positive results and responses varied by age. These findings illustrate the importance of comprehensive, targeted communication strategies prior to implementation of primary HPV screening.

Disclosure No significant relationships.

017.3 DECLINING RATES OF CERVICAL INTRAEPITHELIAL NEOPLASIA AFTER INTRODUCTION OF THE HPV VACCINE IN BRITISH COLUMBIA, CANADA

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10.1136/sextrans-2019-sti.201

Background In 2008 British Columbia (BC), Canada, implemented a voluntary school-based HPV vaccination program for girls, born 1994 or later, with an average uptake of 63%. Given the long time-lead between infection and malignant disease, effects on cancer incidence will take decades to assess. To evaluate the early impact of the HPV vaccine in BC, ecological trends in cervical intraepithelial neoplasia (CIN) rates were assessed in young women before and after the implementation of the HPV vaccination program.

Methods From the population-based cervical cancer screening program database in BC, information on all Pap smears and histopathological abnormalities, in calendar years 2004–2017 in women under age 28 were obtained. Rates of cervical intraepithelial neoplasia (CIN) were calculated as the number of cases divided by the number of cytology specimens for that period. Incidence rate ratios (IRR) comparing pre- and post-vaccination years, adjusted for age and screening year, were calculated by piece-wise Poisson regression analysis. We performed a sensitivity analysis including only women eligible for routine screening.

Results The total number of screens in the unvaccinated cohort was 1,417,512 and in the vaccinated cohort 73,343. After the introduction of the HPV vaccination program in BC, a decrease in the incidence of CIN was observed in vaccine-eligible birth cohorts. The adjusted IRR for CIN1, 2 and 3 were respectively 0.60 (95%CI 0.53–0.67), 0.49 (95%CI 0.41–0.57) and 0.39 (95%CI 0.32–0.47). Sensitivity analysis confirmed these findings, also indicating a significant decline in CIN rates in birth cohorts eligible for the HPV vaccination program.

Conclusion This study illustrates the population impact of the provincial school-based HPV vaccination program, by an observed decline in rates of CIN since introduction of the program. Further evaluation of the population-based impact includes a linkage between vaccination and screening registry.

Disclosure No significant relationships.

017.4 IMPACT OF THE HUMAN PAPILLOMAVIRUS IMMUNIZATION PROGRAM ON RATES OF ANOGENITAL WARTS IN BRITISH COLUMBIA, CANADA 2000–2017

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10.1136/sextrans-2019-sti.202

Background In 2008, British Columbia (BC), Canada, implemented a provincially-funded school-based quadrivalent human papillomavirus (HPV-4) vaccine program for girls born in 1994 or later. In 2015, the program was expanded to include men who have sex with men (MSM) born in 1989 or later. To determine the impact of the vaccine on anogenital warts (AGW), diagnosis rates were measured among women who have sex with men (WSM), men who have sex with women (MSW), and MSM.

Methods AGW diagnoses were ascertained from an electronic medical record system used at 16 geographically dispersed high volume sexually transmitted infection (STI) clinics across BC. Clients aged 14–46 years, born between 1970–1999 who accessed services from 2000–2017 were included. Rates were calculated as new AGW diagnoses over person-years (PY) at risk, and stratified by age group, period of clinic visit, and birth cohort. Age-period-cohort Poisson modeling produced adjusted relative rates (aRR).

Results There were 204,832 clinic visits by 85,158 unique individuals: 28,366 (33%) WSM, 35,688 (42%) MSW and 14,534 (17%) MSM. After adjusting for age and period, overall AGW rates were 56% lower among the birth cohorts 1994–1996 compared to 1991–1993 (1.21 vs 2.72 cases/100PY, aRR: 0.44, 95%CI: 0.34, 0.59). AGW rates in the 1994–1996 cohort were 65% lower among WSM (0.97 vs 2.77 cases/100PY, aRR: 0.35, 95%CI: 0.22, 0.57), 58% lower among MSW (1.60 vs 3.78 cases/100PY, aRR: 0.42, 95%CI: 0.28, 0.65) and 41% lower among MSM (1.14 vs 1.19 cases/100PY, aRR: 0.59, 95%CI: 0.38, 0.91) versus the 1991–1993 cohort.

Conclusion The HPV-4 vaccine program had a significant impact on lowering AGW rates in BC, specifically among WSM born after 1994 who had access to the school-based program, and MSW born after 1994 likely from herd immunity. A smaller reduction in AGW rates among MSM may reflect delayed access to provincially-funded HPV-4 vaccine.

Disclosure No significant relationships.

017.5 DECLINING TRENDS IN ANOGENITAL WARTS SINCE HPV VACCINE INTRODUCTION IN A LARGE URBAN HEALTH SYSTEM, 2013–2017

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10.1136/sextrans-2019-sti.203

Background Assessing the extent to which the HPV vaccines are affecting trends of HPV-related diseases is an important public health priority. Diagnoses of anogenital warts (AGW) provide an early indicator of vaccine impact due to its short incubation period compared to other HPV-related diseases. We expand on previous trend studies by including recent data through 2017 that permit more robust assessments since the routine recommendations for male vaccination in 2011 in the United States.

Methods Electronic medical record data were abstracted from encounters that occurred in 8 Yale-New Haven Health system clinics between 2013–2017. Visits related to incident AGW were identified for each patient as the first occurrence of either having an AGW diagnosis code (ICD-9 078.11) or 'genital warts' as a reason for visit indicated by their medical provider. The annual proportion of visits related to incident cases of AGW was estimated among the number of patients who had at least one visit in that clinic per year. Trends overall, by sex, and by vaccine eligibility were analyzed using Cochran-Armitage tests and $p < 0.05$.

Results A significant decline over time was observed in the proportion of visits for incident AGW overall (p -value < 0.001 , annual percent change (APC) = -20.3). When stratified by sex,

a significant decline was observed in both males (p -value = 0.0203, APC = -17.9) and females (p -value = 0.0006 APC = -9.4). Significant declines were also observed among later birth cohorts that were eligible for HPV vaccines (p -value = 0.0003, APC = -24.4) but not for earlier birth cohorts (p -value = 0.12, APC = -3.1).

Conclusion Diagnoses of incident AGW have declined significantly through 2017, and birth cohort analyses are consistent with expected HPV vaccine impact. Importantly, these trends reflect and extend previous analyses and provide strong evidence of declines in males since their eligibility for routine vaccination in 2011 in the United States.

Disclosure No significant relationships.

017.6 PARENTS'/HEALTHCARE PROVIDERS' KNOWLEDGE, ATTITUDE AND PERCEPTION OF SCHOOL-BASED HPV VACCINATION PROGRAM IN LAGOS, NIGERIA

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10.1136/sextrans-2019-sti.204

Background Human Papillomavirus (HPV) infection is a necessary cause for cervical cancer. HPV vaccine is available at a cost but not yet implemented in the national vaccination program in Nigeria. School age children are the target population for this vaccine. Parents play crucial roles in the decision to vaccinate their children against HPV and the healthcare providers have important roles to play in the coverage of this vaccine. The study objective was to assess and compare the knowledge, attitude and perception of parents and healthcare providers about school-based HPV vaccination program in Lagos State, Nigeria.

Methods A comparative cross sectional descriptive study involving 300 parents of children aged 9–13 years attending public primary and junior secondary schools as well as 221 healthcare providers in Primary Health Centers in Lagos State selected by multistage sampling techniques was conducted. A pre-tested self-administered questionnaire was used for data collection. Data analysis was done using SPSS. Chi-square statistics was used to test the associations between the variables at the level of significance of 5%.

Results The mean ages were 42.0 ± 7.9 years (parents) and 36.8 ± 6.2 years (healthcare providers). Majority of the parents (75%) and healthcare providers (94%) have heard of HPV infection and cervical cancer but only 40% of parents and 80% of the healthcare providers knew about HPV vaccine. Of these, 33% of the parents and 58% of the healthcare providers knew that this vaccine can be given in schools. Overall knowledge was significantly poor (35%) among parents and good (94%) among healthcare providers. Attitude and perception in both groups were good (about 90%) and about 70% of respondents were in support of school-based HPV vaccination. Significant factors affecting overall knowledge in the two groups were age, gender and level of education.

Conclusion With poor knowledge among parents, there is a need for educational campaigns and medical education to increase the HPV vaccine awareness with subsequent increase in vaccination coverage in Nigeria.

Disclosure No significant relationships.