**Perspectives**

**Research News in Clinical Context**

**Nadja Vielot1**

**Heather Armstrong2**

**Drieda Zace3**

**1**University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA

**2** University of Southampton, Southampton, United Kingdom

**3** Section of Hygiene, Dept. of Life Sciences and Public Health, University Cattolica del Sacro Cuore, Rome, Italy

**Combining the HPV genotype with epidemiological and clinical parameters markedly improves prediction of cervical cancer**

Researchers in China explored the added value of HPV genotyping in predicting cervical intraepithelial neoplasia (CIN). Data from 21,720 women (median age 50 years) with high-risk HPV formed a training dataset (n=14,553; 349 with CIN3+; 673 with CIN2+) and a validation dataset (n=7,167; 167 with CIN3+; 228 with CIN2+). A machine learning model that added HPV genotypes to epidemiological factors (demographic characteristics, medical history, menstrual status, sexual behaviour factors, family history of cancer) and pelvic examination results showed the best ability to predict CIN3+ and CIN2+, outperforming other models that did not include the HPV genotype. Notably, some predictors were self-reported, smoking and oral contraceptive use were not collected, and women <30 years were not included. Further studies are needed to explore the clinical utility of the model (e.g., in guiding colposcopy) and its applicability in low-resource settings.

*Xiao T, Wang C, Yang M, Yang J, Xu X, Shen L, et al. Use of Virus Genotypes in Machine Learning Diagnostic Prediction Models for Cervical Cancer in Women With High-Risk Human Papillomavirus Infection. JAMA Netw Open. 2023;6(8):e2326890.*

**Providing HIV self-testing kits to people living with HIV increases HIV testing among their partners**

An open-label study enrolled individuals (15 years) who were receiving antiretroviral therapy at 3 large facilities in Malawi and whose primary sexual partner had unknown HIV status. Participants were randomised to receive either referral slips or HIV self-testing kits to distribute to their partner. After four weeks, partner HIV testing (as reported by participants) was 25% (27/107) and 71% (183/257) in the two groups, respectively. After adjusting for age and marital status, the use of self-testing kits increased nearly 3-fold the likelihood of partner testing (adjusted risk ratio 2.77; 95% CI 2.56-3.00). HIV seropositivity rates were 15% (4/27) and 16% (30/183), but ART initiation at 12 months was reported for 75% (3/4) and 47% (14/30) partners, respectively. Distributing self-testing kits was effective in increasing testing among partners. Additional efforts are needed to improve linkage to HIV treatment services after self-testing.

*Dovel K, Balakasi K, Phiri K, Shaba F, Offorjebe O, Gupta S, et al. Effect of index HIV self-testing for sexual partners of clients enrolled in antiretroviral therapy (ART) programs in Malawi: A randomized controlled trial. PLoS Med. 2023;20(8):e1004270.*

**Lifetime quality-adjusted life-years lost to chlamydia, gonorrhoea, and trichomoniasis**

Chlamydia, gonorrhoea, and trichomoniasis can have important health consequences. Researchers in the USA estimated lifetime QALYs lost at the population-level as a result of infections acquired in 2018, stratifying by age and sex. Among women and men, the estimates were 111,872 and 1,541 for chlamydia, 12,112 and 989 for gonorrhoea, and 4,576 and 386 for trichomoniasis, respectively. Women aged 15-24 with chlamydia had the most QALYs lost (83,501). Urethritis among men and chronic pelvic pain in women accounted for >70% of QALYs lost. Common STIs cause substantial health losses, particularly gonorrhoea and chlamydia among women. The estimates inform cost-effectiveness analyses and priority setting for prevention strategies.

*Li Y, You S, Lee K, Yaesoubi R, Hsu K, Gift T, et al. The Estimated Lifetime Quality-Adjusted Life-Years Lost Due to Chlamydia, Gonorrhea, and Trichomoniasis in the United States in 2018. J Infect Dis. 2023;227(8):1007-1018.*

**Published in STI, the Editor’s Choice: Hepatitis B vaccination among women who engage in sex work in England**

HBV vaccination is recommended for women who report sex work. Using national surveillance data, a study examined vaccination coverage and correlates of HBV vaccination among HIV-negative women who attended sexual health services and first reported sex work in 2015-2019 in England. HBV vaccination coverage was 30% (3,249/10,681). In adjusted analyses, vaccination was more likely among younger women, those of white ethnicity vs. those of Asian ethnicity, and among those born in South America vs. those born in the UK. Efforts are needed to overcome barriers to the offer and uptake of HBV screening and vaccination among populations at risk of exposure.

*Hibbert M, Simmons R, Ratna N, Mandal S, Sabin C, Desai M, et al. Retrospective cohort study assessing coverage, uptake and associations with hepatitis B vaccination among females who engage in sex work attending sexual health services in England between 2015 and 2019. Sex Transm Infect. 2023;* *Published Online First: 07 August 2023.*

**Estimating the risk of sexual HIV transmission when the viral load is detectable below 1000 copies/mL**

A systematic review analysed the risk of sexual HIV transmission from individuals on antiretroviral therapy (ART) according to the levels of plasma HIV-1 RNA. The analysis summarised data from 8 studies reported between Jan 2010 to Nov 2022 across 25 countries, including 4 cohort studies, 3 randomised controlled trials, and one cross-sectional study. Among 7,762 serodiscordant couples (primarily male-female), no HIV transmission occurred when the partner living with HIV had HIV RNA levels below 200 copies/mL. In addition, no transmission events were identified when the viral load was below 600 copies/mL, whereas two cases of HIV transmission occurred when the most recent viral load was between 600 and 1000 copies/mL. Whilst the quality of evidence was considered moderate, the findings provide further reassurance about the effectiveness of ART in preventing HIV transmission even when the viral load is detectable below 1000 copies/mL.

*Broyles L, Luo R, Boeras D, Vojnov L. The risk of sexual transmission of HIV in individuals with low-level HIV viraemia: a systematic review. Lancet. 2023;402(10400):464–71.*

**Syphilis self-testing is acceptable, feasible, and can complement existing testing services**

This systematic review synthesised the results of 7 studies from the USA, China, and Zimbabwe between Jan 2000 and Oct 2022 that reported on self-testing using syphilis rapid tests (SST) or dual HIV-SST. Four studies reported data from men who have sex with men and five studies used dual HIV-SST. Among individuals who received self-testing kits, the pooled testing uptake was 88%. Barriers to self-testing, identified by three studies, included lack of knowledge and awareness, cost, and concerns about collection of the sample, privacy, test accuracy and result interpretation. Five publications reported facilitators of self-testing, including convenience, privacy, timesaving, trust in blood-based tests, and reduced contact with healthcare facilities. No studies reported the accuracy of self-testing versus gold-standard laboratory-based testing, requiring further investigation. Self-testing for syphilis or syphilis and HIV is acceptable and feasible in geographically-diverse settings, suggesting that it can can contribute to control strategies globally.

*Towns J, Tieosapjaroen W, Mello M, Baggaley R, Johnson C, Jamil M, et al. The role of syphilis self-testing as an additional syphilis testing approach in key populations: a systematic review and meta-analysis. Lancet Public Heal. 2023;8:e726–34.*