**Research news in clinical context**

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**Worldwide STI burden and trends from 1990 to 2019**

Investigators modelled STI data extracted from the Global Burden of Disease study 2019, focusing on syphilis, gonorrhoea, chlamydia, trichomonas, and genital herpes. Although most countries showed a decrease in the age-standardised incidence rate of STIs, incident cases increased over time, possibly reflecting growth in sexually active populations and scaling up of STI testing. Globally, there were 48,677 million incident cases of STIs in 1990 vs. 76,985 million in 2019. The highest burden was in Sub-Saharan Africa, Latin America and the Caribbean; chlamydia and gonorrhoea also showed high incidence across Asia and in eastern Europe and central Asia, respectively. Alarmingly, adolescents had disproportionately high incidence rates, including an upward trend in syphilis in recent years. STIs remain a global public health challenge.

Word count: 121

Zheng Y, Yu Q, Lin Y, et al. Global burden and trends of sexually transmitted infections from 1990 to 2019: an observational trend study. *Lancet Infect Dis*. 2022;**22**:541-551.

**Long-acting injectable cabotegravir (LA-CAB) is highly effective in preventing HIV infection in women: the HPTN 084 trial**

HPTN 084 is a Phase 3, randomised, placebo-controlled trial evaluating the efficacy and safety of LA-CAB in women in 7 African countries. Participants aged 18-45 years at risk of HIV exposure were randomly assigned (1:1) to receive either intramuscular cabotegravir every 8 weeks or daily oral tenofovir/emtricitabine (TDF/FTC). Among 3178 participants and over 3898 person-years, 36 infections were observed on TDF/FTC vs. 4 on LA-CAB, yielding an 88% reduction in the risk of HIV infection with cabotegravir. Of the 4 infections in the LA-CAB arm, one was re-classified as pre-existing, two did not receive any injections, and one had suboptimal cabotegravir concentrations due to delayed visits. Poor or non-adherence was observed in most TDF/FTC incident infections. Women in Africa experience multiple barriers to taking daily TDF/FTC, including judgement, stigma, and fear of violence. LA-CAB offers a more discreet, safe, and superior alternative. Ongoing efforts are needed to address affordability and implementation.

Word count: 151

Delany-Moretlwe S, Hughes JP, Bock P, et al. Cabotegravir for the prevention of HIV-1 in women: results from HPTN 084, a phase 3, randomised clinical trial. *Lancet*. 2022;**399**:1779-1789. doi: 10.1016/S0140-6736(22)00538-4.

**Integrase strand-transfer inhibitors may be associated with excess incidence of cardiovascular events in the first 2 years of exposure**

The RESPOND observational cohort study analysed the incidence of cardiovascular events (myocardial infarction, stroke, or invasive cardiovascular procedures) among 29,340 participants (74% males; median age at baseline 44 years), including 14,000 who were exposed to ≥1 INSTI (62% dolutegravir). Over a median follow-up of 6.2 years, 748 participants (2.5%) had a cardiovascular event. The incidence of cardiovascular events was increased among participants on INSTIs relative to those without INSTI exposure: after accounting for known cardiovascular disease risk factors, INSTI-experienced participants showed an adjusted incidence rate ratio of 1.85 in the first 6 months of INSTI exposure, 1.19 between >6 and 12 months, and 1.46 between >12 and 24 months. After 24 months, the risk decreased to levels similar to those without INSTI exposure. Further studies are needed to confirm the association and identify its potential mechanisms.

Word count: 136

Neesgaard B, Greenberg L, Miró JM, et al. Associations between integrase strand-transfer inhibitors and cardiovascular disease in people living with HIV: a multicentre prospective study from the RESPOND cohort consortium. *Lancet HIV*. 2022;**9**:e474-e485. doi:10.1016/S2352-3018(22)00094-7

**What is the optimal sensitivity of the test of cure following treatment of hepatitis C with direct-acting antivirals (DAAs)?**

The efficacy endpoint of DAA therapy is a sustained virological response (SVR), defined as undetectable HCV RNA 12-24 weeks after ending treatment. To inform the development of point-of-care HCV RNA tests, investigators analysed 174,889 patients within observational cohorts or clinical trials. Among 5973 participants with viraemia at SVR12, 41% had advanced fibrosis, 70% had received DAAs for 12 weeks and 24% for 24 weeks, and 27%, 66%, and 6% had received therapy in the early, mid, and recent DAA era, respectively. HCV RNA levels were >227 IU/mL in 95% and >70 IU/mL in 97% (95% CI 48–86). At both SVR12 and SVR24, ~11% of viraemic patients had HCV RNA <1000 IU/ml; this was more likely in women, and with no/minimal fibrosis, genotype 3, and early era DAAs. Some point-of-care HCV RNA tests may require a trade-off between convenience and diagnostic sensitivity.

Word count: 142

Morgan JR, Marsh E, Savinkina A, et al. Determining the lower limit of detection required for HCV viral load assay for test of cure following direct-acting antiviral-based treatment regimens: Evidence from a global data set. *J Viral Hepat*. 2022;**29**:474-486. doi:10.1111/jvh.13672.

**Published in *Sexually Transmitted Infections*: When to test women for *Mycoplasma genitalium* (MG) infection?**

MG has been associated with cervicitis and pelvic inflammatory disease. A cross-sectional study investigated 1318 women attending a sexual health clinic in Melbourne. A questionnaire gathered data on genital symptoms and sexual practices. Asymptomatic women (n=198) self-collected first-void urine for *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG), and a vaginal swab for MG. A clinician examined symptomatic women (n=1120) and collected a cervicovaginal swab for CT, NG, and MG. Overall, 6% of women had MG detected, with no difference according to presence or absence of symptoms. MG was associated with mucopurulent cervicitis in women without bacterial vaginosis (adjusted odds ratio 4.38, 95% CI 1.69-11.33; p=0.002), but not with any other clinical signs. Nearly half of MG infections showed macrolide resistance. More data are needed to inform MG testing practices in women with common genitourinary symptoms.

Word count: 134

Latimer RL, Vodstrcil LA, Plummer EL, et al. The clinical indications for testing women for *Mycoplasma genitalium*. *Sex Transm Infect*. 2022 Jun;**98**:277-285. doi: 10.1136/sextrans-2020-054818.

**HPV infection may be associated with sudden sensorineural hearing loss**

Viral infection is one possible cause of sudden sensorineural hearing loss (SSNHL). A Taiwanese nationwide population-based cohort study examined the occurrence of SSNHL among 49,247 individuals with HPV infection who were matched 1:2 by age, sex, index year, and comorbidities to a control group of 98,494 individuals without any HPV history. After controlling for demographics, comorbidities, and medications, individuals with HPV infection had a 37% greater risk of developing SSNHL compared to controls (adjusted hazard ratio [aHR]: 1.37; 95% CI 1.07-1.74). Individuals with HPV who also had a previous diagnosis of cerebrovascular disease were at greater risk compared to those without cerebrovascular disease (aHR: 4.59 vs. 1.27, *p*=0.024). Further research is needed to confirm the observation and understand the causal mechanisms.

Word count: 121

Chen TY, Chang R, Hung YM, et al. Association between human papillomavirus infection and sudden sensorineural hearing loss: A nationwide population-based cohort study. *EClinicalMedicine*. 2022;**47**:101402.