Background: Treatment of HIV with antiretroviral therapy (ART) can save lives and stop the spread of the virus. In 2014, UNAIDS launched the 90–90–90 treatment target. By 2020, it remains unattainable in many low and middle-income countries (LMICs). This review aimed to identify research gaps and needs for interventions to improve viral load monitoring and viral suppression for people living with HIV (PLHIV) in LMICs.

Methods: Medline and PubMed were searched to identify relevant literature, published in English between Dec 2015 and May 2020, using key search terms of a review published in 2016. The primary outcome was initial viral load (VL) monitoring (the proportion of PLHIV on ART and eligible for VL monitoring who receive a VL test). Secondary outcomes include follow-up VL monitoring (the proportion of PLHIV who receive a follow-up VL after an initial elevated VL test), confirmation of treatment failure (the proportion of PLHIV who had two consecutive elevated VL test results) and switching treatment regimen rates (the proportion of PLHIV switching treatment regimen after confirmation of treatment failure).

Results: The search identified 1829 non-duplicate records, of which 23 were included in the review. More than 80% (19/23) of included studies were conducted in 11 sub-Saharan African countries (SSA) and most were published in 2019–2020. Marked variations in initial VL monitoring coverage were reported across study settings (11–93%) and study populations (adults 25–93%, children and adolescents 2–94%), and pregnant women (32–67%). Suboptimal uptake of follow-up VL monitoring and low regimen switching rates after confirmed treatment failure were observed.

Conclusions: Substantial gaps in VL coverage across study settings and study populations remained evident with limited data availability outside of SSA. Further research is needed to fill the data gaps. Interventions to address the ‘failure cascade’ in PLHIV on ART who fail to achieve viral suppression are required.

Abstracts

SYPHILIS REINFECTION AMONG WOMEN: FLORIDA AND LOUISIANA, USA 2000–2018

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Background: Syphilis rates have continued to rise in the United States. Florida and Louisiana consistently report high numbers of cases. In a previous study, reinfections accounted for 30.4% of new infections among men in 2018. In this analysis, we evaluated rates of reported reinfections in women.

Methods: We evaluated all syphilis records, all stages (primary, secondary, early latent, and late latent) in females aged 15–70 years from the Florida and Louisiana Departments of Health surveillance databases during 2000–2018. Demographics of cases and repeaters (individuals reported with 2 or more cases of syphilis) were examined. Percentages of syphilis cases from repeaters by year were calculated as were percentages from HIV+ females.

Results: From 2000–2018, 124,827 syphilis cases were reported from 107,405 individuals: 33,594 (31%) were female accounting for 35,279 (28%) of all cases. Of 33,594 females, 32,050 (95%) reported a single episode of syphilis and 1,544 (5%) were repeaters. Most women with a single case report were African American 18,429 (57.5%) and 1,510 (4.7%) of single cases were HIV+. Women with a single episode of syphilis were likely in the age range of 20–39 (primary child-bearing years) 20,037 (63%). Repeaters were primarily African American 914 (59.2%) and 218 (14.1%) were HIV+. Women reported with two or more episodes of syphilis also were likely to be of child-bearing age 20–39: 1,065 (69%). Repeaters had 1,685 cases reported; range 2 to 5. Mean time to secondary infection was 3.5 years (median = 2.3 years). From 2010–2018, repeaters accounted for a slowly increasing percentage of all syphilis reported: 2010 (5.1%), 2013 (5.9%), 2016 (6.8%), and reached (10.3%) in 2018. Within females living with HIV, cases from repeaters also increased: 2010 (13%), 2014 (16%), 2016 (21%), and 2018 (25%).

Conclusion: Most syphilis diagnosed in Florida and Louisiana was among persons infected for the first time and among men. However, syphilis infection and reinfections are increasing in women.

THE ROLE OF EXOGENOUS SEX STEROIDS ON THE VAGINAL MICROBIOTA: A SYSTEMATIC REVIEW

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Background: There is considerable interest globally in understanding the influence of exogenous sex steroids/hormones on the vaginal microbiota (VM). We conducted a systematic review summarising the influence of hormonal contraception (HC) and hormone replacement therapy (HRT) on the VM among reproductive-aged women and peri/post-menopausal women, respectively. PROSPERO registration: CRD42018107730.

Methods: To be eligible for inclusion, studies had to report on sex steroid use (HC or HRT) and provide a measurement of the VM by molecular methods. Two authors systematically identified and extracted data from eligible studies. Data regarding the ‘positive’, ‘negative’ or ‘neutral’ effect of exogenous sex steroid use on the VM was summarised. A positive effect was defined as an increased abundance of lactobacilli, decreased abundance of bacteria associated with a non-optimal VM, decreased bacterial diversity and/or increased bacterial stability, relative to participants’ pre-treatment specimen or compared to a non-exposed control population. A negative effect was defined as parameters in the opposite direction, and a neutral effect was defined as no specific effect identified.
Results Of the 2647 unique studies screened for inclusion, 266 full-texts were assessed for eligibility and 33 studies were included in qualitative data analysis. Among 28 studies of reproductive-aged women using HCs, 15/28 reported on >1 HC type. Oestrogen-containing contraceptives, mostly reflecting the combined-oral contraceptive pill, had a positive effect on the VM in 11/15 studies. The effect of progesterone-only contraceptives were less clear; of 21 studies, 8 showed a positive effect, 8 a negative effect and 5 a neutral effect. In particular, the effect of Depo-Provera was negative in 7, positive in 4, and neutral in 2 studies. All 5 studies investigating the combined-oral contraceptive pill, had a positive effect on the VM.

Conclusion Exogenous sex steroids, particularly containing oestrogen, may play a role in supporting an optimal VM in both reproductive-aged and peri/post-menopausal women.

Background Limited macrolide and fluoroquinolone resistance data are available in France for Mycoplasma genitalium. The aim of this study was to investigate the prevalence of macrolide and fluoroquinolone resistance in M. genitalium-positive men and women seeking care in metropolitan and overseas France in 2018 and 2019.

Methods A one-month systematic prospective collection of M. genitalium-positive specimens was proposed between September 15th and October 15th 2018 and 2019 to metropolitan French diagnostic laboratories. A similar three-month collection between August 1st and October 31st 2018 and 2019 was proposed to overseas French microbiology diagnostic laboratories (La Réunion, Mayotte, French Guiana, French Polynesia, and New Caledonia). Macrolide resistance-associated mutations were detected using the ResistancePlus MG assay (SpeeDx) and 23S rRNA sequencing. Fluoroquinolone resistance-associated mutations in the parC gene were searched by sequencing.

Results A total of 1361 specimens from 1328 patients were analyzed. In metropolitan France, macrolide resistance was 42.9% and 34.7% in 2018 and 2019, respectively, and was significantly higher in men (59.6% and 52.4%) than in women (18.7%) and 15.9%, respectively, p<0.001). These percentages of macrolide resistance were significantly higher than those of 6.1% and 14.7% observed in overseas France in 2018 and 2019, respectively, (p<0.001), with no significant difference between men and women.

Regarding fluoroquinolone resistance, rates of resistance rates were significantly higher in metropolitan France in 2018 and 2019 (16.1% and 14.9%, respectively) than in overseas France (1.3% and 2.6%) in 2018 and 2019, respectively, p<0.001). No difference was observed between men and women.

Conclusion Macrolide and fluoroquinolone resistance rates are high in metropolitan France and contrast with significant lower rates in overseas France. In metropolitan France, macrolide resistance is up to 60% in men but three times lower in women, highlighting that gender and sexual behavior should be taken into account for the management of M. genitalium infections.

Background Novel approaches to monitoring sexually transmitted infections (STI) may contribute to understanding of STI rates and associated behaviors, especially during the coronavirus (COVID)-19 pandemic, when healthcare and surveillance systems are likely affected. Therefore, we explored public interest in STI-related internet search terms from 2019–2020.

Methods We downloaded Google Trends data for the United States (US) to capture number of searches including at least one of 64 search terms within four STI-related categories (STIs, symptoms, testing, and treatment) from January 1, 2019 to December 31, 2020. We expressed search interest across weeks as the unit of analysis, with scores normalized from 0–100; 100 represents the week with the most search interest for each variable.

Results For many STI-related search terms, interest dropped in March 2020 (when most states deployed COVID mitigation measures), increased later in the year, but did not increase to pre-pandemic interest. For example, ‘chlamydia’ ranged from 73–100 from January 2019-February 2020, dropped to a low of 35 in mid-April before increasing to values between 59–79 through December. Only a few search terms did not change during the pandemic. For example, besides one peak week of 100, ‘syphilis’ ranged from 21–35. Although the COVID-19 pandemic shifted interest away from STIs for spring and summer of 2020, most search terms remained used throughout July to December 2020 (ranges for chlamydia: 60–79, gonorrhea: 32–44, herpes: 44–55, HPV: 38–57, STD: 60–92, and STI: 58–80).

Conclusions In the US, internet searches for STI-related terms prior to and during the COVID-19 pandemic dropped from March through fall 2020. Concerns over STI symptoms, testing, and treatment increased by fall and winter 2020, which may indicate a need for access to STI services. Google Trends is a novel way to understand public interest in health topics, especially during a global pandemic.

Purpose Mycoplasma genitalium 23S rRNA and parC genes are associated with antimicrobial resistance. In our study successful treatment of M. genitalium infections chosen according