position 83 or 87 of ParC, which are highly associated with clinical resistance to fluoroquinolones, were detected in ten participants (9.7%) including four in Togo (16.7% of 24), five in Mali (11.9% of 42), and one in Côte d'Ivoire (7.7% of 13).

Conclusion While no macrolide RAM in MG was detected, the high prevalence of fluoroquinolone RAMs calls for public health attention. Between-country heterogeneity of fluoroquinolone RAMs prevalence figures may be explained by different treatment guidelines or over-the-counter use of fluoroquinolones.

011.6 ACCEPTABILITY OF A POTENTIAL GONOCOCCAL VACCINE AMONG SEXUALLY-ACTIVE MEN WHO HAVE SEX WITH MEN – AMERICAN MEN'S INTERNET SURVEY, 2019

¹W Abara*, ¹K Bernstein, ¹R Kirkcaldy, ²M Zlotorzynska, ²T Sanchez. ¹Centers For Disease Control and Prevention, Atlanta, USA; ²Department of Epidemiology, Emory University, Atlanta, USA

10.1136/sextrans-2021-sti.115

Background New approaches, such as vaccination, are needed to address increasing gonorrhea rates and the threat of antibiotic-resistant gonorrhea. Although prospects for a gonococcal vaccine have advanced, vaccine acceptability is crucial to maximizing population-level protection among key groups, such as men who have sex with men (MSM). We assessed correlates of acceptability of a potential gonococcal vaccine among sexually active MSM in the United States.

Methods We used data from the American Men's Internet Study (AMIS) conducted during 8/2019–12/2019. We calculated frequencies of socio-demographic characteristics, vaccine acceptability (responses classified as willing or unwilling) and preferred location for vaccine receipt. Using log-binomial regression analyses, we calculated unadjusted prevalence rates (PR) and 95% confidence intervals (CI) to evaluate factors associated with vaccine acceptability. Reference group for vaccine acceptability was unwilling to accept a vaccine.

Results Of 10,130 MSM, 83.5% were willing to accept a potential vaccine and 16.5% were unwilling. Preferred locations for vaccination were primary care provider's offices (83.5%) and sexual health clinics (64.6%). Willingness to accept a vaccine was more likely among young MSM (15–24 years [PR=1.09, 95% CI=1.05–1.12], 25–29 years [PR=1.13, 95% CI=1.09–1.17], and 30–39 years [PR=1.10, 95% CI=1.05–1.14]) compared to older MSM (≥40 years), and MSM who reported condomless anal sex (PR=1.09, 95% CI=1.06–1.12), a bacterial sexually transmitted disease (STD) test (PR=1.18, 95% CI=1.15–1.21), HIV pre-exposure prophylaxis use (PR=1.17, 95% CI=1.14–1.19), HIV positivity (PR=1.05, 95% CI=1.02–1.09), a bacterial STD (PR=1.04, 95% CI=1.02–1.07), and a healthcare provider visit (PR=1.11, 95% CI=1.06–1.16) in the past 12 months. MSM who reported ≤high school education (PR=0.93, 95% CI=0.90–0.97) were less willing to accept a vaccine compared to those with >high school education.

Conclusion Most respondents were willing to accept a potential gonococcal vaccine. These findings can inform the planning and implementation of a future gonococcal vaccination program that targets MSM.

HIV

012.1 USE OF MACHINE LEARNING ALGORITHMS TO ASSESS THE RISK OF ACQUISITION OF HIV AND SEXUALLY TRANSMITTED INFECTIONS

^{1,2,3}X Xu*, ⁴Z Ge, ^{2,3,5}E Chow, ¹Y Bao, ⁶W Li, ³Z Yu, ^{1,2,3}C Fairley, ^{1,2,3,7}L Zhang. ¹China Australia Joint Research Center for Infectious Diseases, School of Public Health, Xi'an Jiaotong University Health Science Centre, Xi'an, People's Republic of China; ²Melbourne Sexual Health Centre, Alfred Health, Melbourne, Australia; ³Central Clinical School, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia; ⁴Monash e-Research Centre, Faculty of Engineering, Airod Research, Nvidia AI Technology Research Centre, Monash University, Melbourne, Australia; ⁵Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia; ⁶School of public health, Southeast University, Nanjing, People's Republic of China; ⁷Department of Epidemiology and Biostatistics, College of Public Health, Zhengzhou University, Zhengzhou, People's Republic of China

10.1136/sextrans-2021-sti.116

Background Early identification of HIV and sexually transmitted infections (STIs) leads to early intervention and treatment. We assessed whether ensemble machine-learning methods may provide an accurate assessment of the risk of acquiring HIV and STIs in both heterosexual and homosexual populations.

Methods To develop the machine learning models, we used data from the Melbourne Sexual Health Centre's electronic health records between January 2015 and September 2019 (210,271 consultations). We developed 31 machine learning models, using ensemble learning to predict the risk of HIV, syphilis, gonorrhoea, and chlamydia. The models included five base models (Logistic Regression (LR), Naive Bayes (NB), Deep Learning (Neural Networks) (DL), and Random Forest (RF), and Gradient Boosting Machine (GBM); and twenty-six stacked ensemble models based on the different combinations of the above five base models.

Results The models with the highest area under the receiver operating characteristic curve (AUC) were: for HIV (LR+GBM+RF+NB+DL, AUC=0.8048 [0.7641–0.8455]), for syphilis (GBM+RF+NB, AUC=0.8483 [0.8339–0.8627]), for gonorrhoea (LR+GBM+NB+DL, AUC=0.8136 [95%CI 0.8058–0.8214]), and for chlamydia (LR+GBM+RF+NB, AUC=0.7373 [0.7279–0.7468]). The commonly identified predictors for four infections were being men who have sex with men, male gender, self-reported STIs symptoms, having sex with an opposite-sex partner in the past 12 months, and younger age.

Conclusions Our results suggest that ensemble learning algorithms could better assess HIV/STIs risk than the individual classifiers models. Our developed machine learning-based tool using self-reported questions could reasonably accurately predict the risk of HIV, syphilis, gonorrhoea, and chlamydia in a population attending an STI service.

012.2 A NOVEL ANALYSIS OF NSW HIV SURVEILLANCE DATA TO HIGHLIGHT HIV PREVENTION PROGRAM IMPACT AND GAPS

¹P Keen*, ²S Nigro, ³D Callander, ²C Selvey, ¹R Guy, ¹B Bavinton, ¹G Prestage, ¹M Hammoud, ¹A Kelleher, ⁴C Power, ¹A Grulich. ¹Kirby Institute, UNSW Sydney, Sydney, Australia; ²Health Protection NSW, NSW Ministry of Health, Sydney, Australia; ³Mailman School of Public Health, Columbia University, New York, USA; ⁴NSW Ministry of Health, Sydney, Australia

10.1136/sextrans-2021-sti.117