Results 134 CT-positive patients were diagnosed before and 116 were diagnosed after service introduction. Of these, 2 (1.5%) and 8 (6.9%) respectively were treated elsewhere and excluded. Average time to treatment decreased from 6.5 to 4.1 days (p = 0.09). When we excluded patients treated as contacts of CT (before NAAT result was available) the time to treatment decreased from 8.7 to 5.1 days (p<0.001). The reduction in time to treatment decreased significantly more in women; 11.3 to 6.1 days (p<0.001) than men; 6.8 to 4.7 days (p=0.27).

Conclusions Introduction of a rapid STI service significantly reduced time from testing to treatment of CT. Availability of microscopy for symptomatic men allows immediate presentation of CT in men. This probably explains why men were treated earlier than women. Earlier treatment is expected to reduce both asymptomatic CT transmission, and risk of CT complications, particularly in women.

Potent effects of antibacterial mouthwash on Neisseria gonorrhoeae transmission among men who have sex with men: a mathematical modelling study

Background The objective is to gain insight in the impact of the COVID-19 pandemic on the sexual health of youth in the Netherlands.

Methods We conducted two cross sectional surveys targeting Dutch youth aged 16–20 year old during the pandemic. Recruitment occurred via social media and a youth sexual health website (sense.info). Both studies included a questionnaire about dating, relationships, sexual- and help seeking behavior and mental health. We identified 4 different time periods: (i) 6 months before the pandemic (pre pandemic), (ii) first lockdown, (iii) between lockdowns, and (iv) second lockdown.

Results The samples consisted of 5218 and 4091 participants. The study showed that less singles had sex during the first (40%) and second (52%) lockdown period compared to pre

The impact of COVID-19 on the sexual health of youth in the Netherlands

H De Graaf, F Joemmanbaks*, J Heijne, S Meijer, J Polet. Rutgers, Utrecht, The Netherlands

Background Coronavirus disease (COVID-19) changed people’s life drastically, due to restrictions to reduce transmission such as social distancing and the limited number of social contacts. The objective is to gain insight in the impact of the COVID-19 pandemic on the sexual health of youth in the Netherlands.

Methods We conducted two cross sectional surveys targeting Dutch youth aged 16–20 year old during the pandemic. Recruitment occurred via social media and a youth sexual health website (sense.info). Both studies included a questionnaire about dating, relationships, sexual- and help seeking behavior and mental health. We identified 4 different time periods: (i) 6 months before the pandemic (pre pandemic), (ii) first lockdown, (iii) between lockdowns, and (iv) second lockdown.

Results The samples consisted of 5218 and 4091 participants. The study showed that less singles had sex during the first (40%) and second (52%) lockdown period compared to pre

P341 Predicting the diagnosis of HIV and sexually transmitted infections among men who have sex with men using machine learning approaches

Background We aimed to develop machine learning models and evaluate their performance in predicting HIV and sexually transmitted infections (STIs) diagnosis based on a cohort of Australian men who have sex with men (MSM).

Methods We collected clinical records of 21,273 Australian MSM during 2011–2017. We compared accuracies for predicting HIV and STIs (syphilis, gonorrhoea, chlamydia) diagnosis using four machine learning approaches against a multivariable logistic regression (MLR) model.

Results Machine learning approaches consistently outperformed MLR. Gradient boosting machine (GBM) achieved the highest area under the receiver operator characteristic curve for HIV (76.3%) and STIs (syphilis, 85.8%; gonorrhoea, 75.5%; chlamydia, 68.0%), followed by extreme gradient boosting (71.1%, 82.2%, 70.3%, 66.4%), random forest (72.0%, 81.9%, 67.2%, 64.3%), deep learning (75.8%, 81.0%, 67.5%, 65.4%) and MLR (69.8%, 80.1%, 67.2%, 63.2%). GBM models demonstrated the ten greatest predictors collectively explained 62.7–73.6% of variations in predicting HIV/STIs. STIs symptoms, past syphilis infection, age, time living in Australia, frequency of condom use with casual male sexual partners during receptive anal sex and the number of casual male sexual partners in the past 12 months were most commonly identified predictors.

Conclusions Machine learning approaches are advantageous over multivariable logistic regression models in predicting HIV/STIs diagnosis.