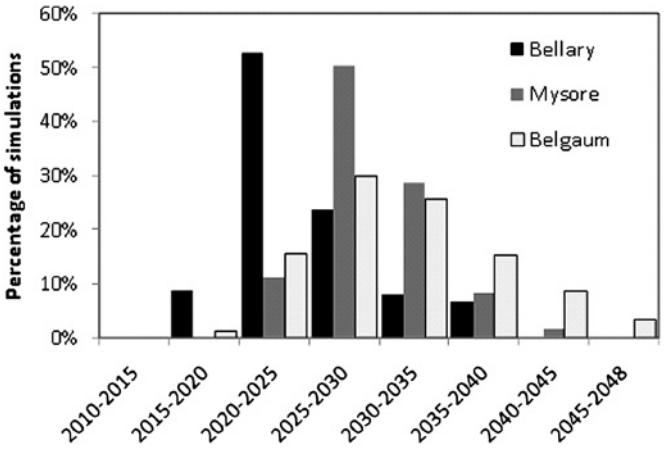
S09.02 figure 1 suggests local elimination is likely to occur earlier in Bellary (median: 2023) than in Mysore (2028) and Belgaum (2030), with the required intervention duration being 11–35 years. The discounted cost of achieving local elimination in each of the settings is estimated to be $8-11 000 000 with 5000–11 000 HIV infections averted up to 2050.



Abstract O1-S09.02 Figure 1 Posterior distribution of the year when HIV indicates in FSWs and clients goes below 1 infection per 1000 FSWs and clients.

Conclusion Our results suggest Avahan could result in local elimination of HIV among FSWs and clients in these districts without ART. Current discussions around the use of ART for HIV elimination should also consider other prevention strategies, especially in concentrated epidemic settings where eliminating HIV from FSWs and clients is likely to eliminate HIV in the general population. Our modest estimated costs for local elimination could be completely offset against averted ART costs.

O1-S09.03 MAIN RESULTS AND IMPACT ANALYSIS OF ANNUAL CHLAMYDIA SCREENING IN A LARGE REGISTER-BASED PROGRAMME IN THE NETHERLANDS

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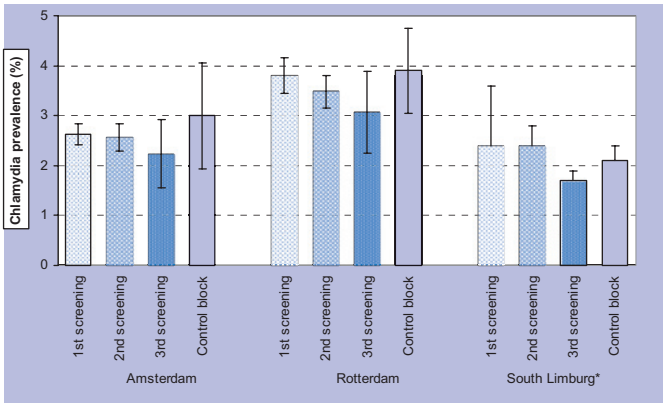
Background Chlamydia screening programmes can only work when they motivate sufficient persons at risk to get tested regularly. The outcomes of the Chlamydia Screening Implementation (CSI) in the Netherlands are novel and valuable because of the large scale of the programme (315 000 young persons targeted), its systematic nature (invitations based on municipal registers) and its multiple screening rounds (annual invitations in three consecutive years).

Methods From April 2008 to March 2010, Chlamydia Screening was offered annually to municipal-registered 16–29 year olds in three regions of the Netherlands. A phased implementation was applied by grouping clusters in three random, risk-stratified blocks. Participation and positivity rates were compared between blocks submitted to 1, 2 or 3 screening rounds (3rd round only partially completed). The effect of the repeated screening rounds on the prevalence of Chlamydia in the whole target group was estimated by weighting procedures comparing demographic characteristics of participants and target group.

Results The participation rate in the first round was 16% among all invitees and 20% among the sexually active target population (M13%, F 25%). The participation fell down to 11% in blocks invited two times and 9% in the block invited three times, whereas it was 13% in the control block invited in round two only. The positivity rate in round one was 4.2% among all participants. Positivity rates decreased significantly to 4.0% in blocks screened twice and to 3.5% in the block screened thrice (p=0.04); in the control block 4.3% tested positive. The population prevalence was estimated at 2.6% in Amsterdam, 3.8% in Rotterdam and 2.4% in South Limburg. The prevalence declined over the three screening rounds, but declines were not significant (see Abstract O1-S09.03 figure 1).



Abstract O1-S09.03 Figure 1 Estimated Chlamydia prevalence among young people invited for Chlamydia screening 1, 2 or 3 times at annual intervals, as compared to a control group invited only once. [*bars indicate high-low estimates for South Limburg, an adaptation to correct for participant selection.

Conclusions The participation in the CSI project was lower than expected and declined with repeated invitation. Chlamydia positivity rates were reduced by 17% in clusters screened three times, whereas these stayed high in control groups. Only a small and non-significant impact on population prevalence was measured. Further extrapolation of the findings in a simulation model suggest a limited impact on Chlamydia prevalence after 10 years of screening and estimates of cost-effectiveness do not support a nationwide roll-out of this programme in the Netherlands.

O1-S09.04 MODELLED IMPACT OF CHANGING PARTICIPATION RATES ON EFFECTIVENESS OF POPULATION BASED CHLAMYDIA SCREENING

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Background The Chlamydia Screening Implementation (CSI) is a Dutch large-scale pilot of an internet-based self-sampling Chlamydia trachomatis (Ct) screening program for 16–29-year-old men and women. The effectiveness of CSI can be estimated from changes in the positivity rate of the sampled individuals, but shifts in health-care use and CSI participation rates makes modelling a valuable alternative approach for estimating screening effectiveness.
Methods We simulated the spread of Ct in a heterosexual population of age 13–65, using sexual survey data to parametrise a dynamic sexual contact network. A screening program was implemented in the model by constructing "participation trees", which capture the likelihood to participate given an individuals participation history, as observed in the CSI program. Currently available health-care options to test for and treat Ct were also implemented in the model as a baseline (including trends in their usage), against which the effect of screening could be compared. In order to estimate the long-term effects of screening on the Ct prevalence in the Netherlands, future participation rates were estimated from trends in the yearly number of new participants, and by extrapolation of the participation trees.
Results Compared to a baseline scenario, there is a moderate additional effect of 3 years of screening: the estimated Ct prevalence for the target population (16–29) dropped from 2.8% to 1.7% in large cities, and from 1.9% to 1.2% in more rural regions. As repeated invitees were likely not to participate, the largest effect of screening occurred in its first year when everyone in the target population was invited for the first time. After 3 years, the largest effect of screening on the Ct prevalence had been reached. Due to the anticipated further decrease in participation rates the long-term decrease in Ct prevalence is estimated to be in the range of 0.5–0.7 and 0.4–0.6 per cent-points in urban and rural regions, respectively.
Conclusions A continued population based screening program has a permanent additional effect on lowering the Ct prevalence in the Netherlands, but the size of this effect is strongly tied to the participation rate in the targeted population. Therefore, the accuracy of long-term predictions of screening effectiveness depends on a good model implementation of the available data on participation behaviour.

O1-S09.05 DECLINE IN HIV PREVALENCE AMONG YOUNG PEOPLE IN THE GENERAL POPULATION OF COTONOU, BENIN, 1998–2008

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Objective Comparative study of the prevalence of HIV and sexually transmitted infections (STI), and associated behaviours in the general population of Cotonou between 1998 and 2008.
Methods In Cotonou, two studies employing similar methods were carried out in 1998 and 2008 respectively. In these studies, the census areas (clusters) were sampled with probability proportional to size. After enumeration of all households in the selected clusters, a certain number of households were randomly sampled from each selected census area (950 in 1998, 1070 in 2008). Consenting adults, aged 15–49 years (but 15–64 years for the men in 2008) were interviewed and screened for HIV, syphilis, and HSV-2 (serologic detection of antibodies for the latter infections), *Neisseria gonorrhoeae* and *Chlamydia trachomatis* (nucleic acid amplification assays on urogenital samples). The Roa-Scott χ^2 was used to consider the cluster effect in the univariate comparison of proportions. Logistic regression (taking into account the cluster effect) was used for multivariate analysis, adjusting for socio-demographic variables.
Results The global HIV prevalence was stable (3.4% in 1998 vs 3.1% in 2008). There was however a trend towards decreasing among men (Abstract O1-S09.05 table 1). The decrease was highly significant among men aged less than 30 (3.0% in 1998 vs 0.5% in 2008, p<0.0001). A trend towards decreasing prevalence was also observed among women aged less than 20 (2.4% in 1998 vs 0.5% in 2008, p=0.102). On the other hand, an upward trend was observed among women aged 20+ (3.8 in 1998 vs 4.8% in 2008, p=0.346). Syphilis prevalence also decreased significantly, but this decline was more pronounced among women (Abstract O1-S09.05 table 1). The prevalence of gonorrhoea trended lower among men while prevalence of HSV-2 increased among both men and women (Abstract O1-S09.05 table 1). The proportion of adults who reported condom use during their last extramarital sexual intercourse increased (23.0% in 1998 vs 40.1% in 2008, p<0.0001).
Discussion The decrease in HIV prevalence among young people could be explained by the increase in condom use and may also be related to the impact of intensive interventions targeting the prostitution milieu during the same period. The upward trend among older women could be related to a large increase in access to antiretroviral therapy that occurred from 2004 onwards.

O1-S09.06 ASSESSING THE IMPACT OF A FSW TARGETED HIV INTERVENTION PROGRAMME ON INCIDENCE AND PREVALENCE IN COTONOU, BENIN

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Abstract O1-S09.05 Table 1 Multivariate comparison of HIV/STI prevalence between 1998 and 2008 among men and women of the general population of Cotonou aged 15–49

	Women			Men			Overall		
	1998 (N=1093)	2008 (N=1348)	p Value*	1998 (N=1019)	2008 (N=1159)	p Value	1998 (N=2112)	2008 (N=2507)	p Value
HIV	35 (3.5%)	50 (4.0%)	0.3463	31 (3.4%)	21 (2.0%)	0.2385	66 (3.4%)	71 (3.1%)	0.9259
N gonorrheae	9 (0.9%)	10 (0.8%)	0.9292	10 (1.1%)	3 (0.3%)	0.2464	19 (1.0%)	13 (0.6%)	0.5770
C trachomatis	13 (1.3%)	27 (2.2%)	0.0834	21 (2.5%)	23 (2.2%)	0.7977	34 (1.8%)	50 (2.2%)	0.2337
T pallidum	12 (1.3%)	4 (0.3%)	0.0263	16 (1.8%)	9 (0.9%)	0.0986	28 (1.5%)	13 (0.6%)	0.0050
HSV-2	275 (29.5%)	397 (33.2%)	0.2124	103 (11.9%)	181 (18.1%)	<0.0001	378 (21.1%)	578 (26.4%)	0.0026

*p Value from the logistic regression analysis taking into account the cluster effect and adjusting for sex (overall analysis only), age, marital status and education level.