

Interim report for granted project

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Title of the granted project	The relationship between the use of hormonal contraceptives, the composition of the vaginal microbiota, and the risk to acquire Chlamydia infection among women.
Amount granted by the ESC (in euro)	9420
Initial funding (part of the grant received already) in euro:	7065
Final amount to be paid by ESC (in euro):	2355
Project number:	P-2016-B-03
Allocated mentor:	B. Zilaitiene
Date project actually started:	01-06-2017
Planned date of completion:	28-02-2018

Have there been any problems or issues with starting or continuing this project? If so, what impact will that have on your planned completion date?

The project started on time and is progressing smoothly. Though, due to the results of the first analyses we propose to use another dataset than the one we proposed in our initial research proposal.

We have found that sexual risk behavior is a major confounder. In the analysis, as described in the results section, we were not able to fully adjust for sexual risk behavior, because such detailed data collection is not part of standard STI care. For women assigned to the short protocol we only had information on the number of partners, but not on condom use. For women in the standard protocol, limited data on condom use was available. There might be residual confounding, which complicates the interpretation of our findings.

Based on the results obtained so far, we are hesitated to use data from the HELIUS study, as initially proposed, because sexual risk behavior data is also very limited in that study. We propose to use data from the 'Heterosexual Networkstudy', which was a cross-sectional study performed at the STI outpatient clinic of the Public Health Service in Amsterdam between May and August 2010, which overlaps with the time period of the current analysis [see Matser et al. 2013. PLoS ONE 8(6):e67287 and Matser et al. Sex Transm Infect. 2014;90(4):325-31].

A subset of the women (n=983) in the current analysis participated in the Heterosexual Networkstudy. For these women, detailed sexual risk behavior data is available. They completed a very detailed questionnaire about sexual behavior in self-defined steady or casual partnerships with up to four partners in the year preceding study participation. E.g., data on the duration of partnerships, types of sexual acts, and the frequency of condom use per partnership is available. We propose to use this dataset instead of HELIUS data to investigate the relationship between hormonal contraceptive use and chlamydia infection in more detail and disentangle the effects of hormonal contraceptive use and sexual risk behavior.

We aim to complete the research by February 2018.

Have you discussed the project status and any problems with your Mentor?

We have send an update of the project by email on August 21 2017. We did not discuss the progress of the project or the proposed changes in detail with our mentor Birute Zilaitiene.

Please provide a synopsis of your findings and data so far (max 500 words)

To explore the relationship between hormonal contraceptive (HC) use and Chlamydia infection, we used data from 50,278 women who visited the sexually transmitted infections (STI) outpatient clinic of the public health service of Amsterdam during 87,153 consultations between January 2009 and October 2016. At the clinic, women with STI related symptoms, women who are notified for an STI by a sexual partner, and sex workers, are assigned to the 'standard protocol', including an extensive sexual history and STI testing. Women who do not belong to one of these 'risk groups' are assigned to a 'short protocol', which is less extensive. Data on condom use is only obtained in the standard protocol. Logistic regression analyses using generalized estimating equations were used to assess the association between HC use and Chlamydia. The analysis was stratified by visiting reason. In multivariable analyses, we accounted for age, ethnicity, the number of partners in the preceding 6 months, and gonorrhoea diagnosis (as marker of high-risk sexual behavior), condom use with steady and casual partners. Women in the short protocol. Chlamydia was diagnosed in 5.3% of the 14,457 consultations by women who did not use HC and in 6.1% of women who used non-genital tract HC (non-GT-HC) (i.e., estrogen and/or progestin containing oral contraceptive pills, progestin-only injectables, hormonal implants or patches) in 31,374 consultations. In 3.1% of the 1,405 visits by vaginal ring (VR) users Chlamydia was found, and in 9.1% of 1,189 visits by hormonal intra-uterine device (hIUS) users. In multivariable analyses, the adjusted odds ratio (aOR) for being diagnosed with Chlamydia was 1.17 (95% CI 1.07-1.27) for non-GT-HC users, 0.58 (95% CI 0.42-0.79) for VR users, and 1.78 (95% CI 1.43-2.22) for hIUS users, compared non-HC users. Women with STI related symptoms or partner notification. Non-GT-HC use was reported during 17,232 (59.2%) clinic visits, VR use during 743 (2.6%) visits, hIUS use during 1,031 (3.5%) visits, and no use during 10,105 (34.7%). Inconsistent condom use with a casual partner in the preceding 6 months was reported by 31.8% of non-HC users, 34.8% of the non-GT-HC users and by 18.5% of VR or hIUS users. The Chlamydia positive rate was 18.1%, 27.1%, 22.1%, and 12.9%, respectively. Among women who reported STI related symptoms, only non-GT-HC was significantly associated with Chlamydia positivity (aOR 1.18 [95% CI 1.06-1.32]), while VR or hIUS were not significantly associated. Among women who were notified, the aORs were 1.50 (95% CI 1.33-1.69) for non-GT-HC use, 1.52 (95% CI 1.11-2.09) for VR use, and 0.76 (95% CI 0.60-0.97) for hIUS use. Sex workers. Non-GT-HC use was reported during 3,607 (37.5%) clinic visits, VR use during 88 (0.9%) visits, hIUS use during 98 (1.0%) visits, and no use during 5,824 (60.6%) visits. Sex workers were significantly older than women in the other groups ($p < 0.001$). 78.7% of women reported >100 partners in the preceding 6 months. The majority of women reported a steady partner without condom use or inconsistent use. Inconsistent condom use with casual partners was reported by 33.4% of non-HC users, 31.5% of non-GT-HC users, 25.0% of VR users, and by 35.1% of hIUS users. Chlamydia positive rates were 5.2%, 6.0%, 3.4%, and 8.2%, respectively. The aOR for non-GT HC use was 1.13 (95% CI 0.93-1.47), 0.74 (95% CI 0.22-2.57) for VR use, and 1.37 (95% CI 0.64-2.93) for hIUS use. Discussion. In the analyses, we found that the chlamydia risk was slightly higher among women using non-genital tract hormonal contraceptives (e.g. oral pills) as compared to women who did not use hormonal contraceptives. Results should be interpreted with caution, because it is very likely that there is residual confounding caused by limited sexual risk behavior data.

Please provide a current budget on how much you have spent to date. Receipts may be requested.

From July to September 2017 we have spent € 1965,-, which were the salary costs for the researcher analysing the data and € 950,- for weekly supervision of the researcher.

The financial overview of the fourth quarter is not yet available.

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