

# **Non-attendees need attention**

## **Determinants and interventions affecting participation in cervical cancer screening**

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- I. Broberg G, Miao Jonasson J, Ellis J, Gyrd-Hansen D, Anjemark B, Glantz A, Söderberg L, Ryd M-L, Holtenman M, Milsom I and Strander B. Increasing participation in cervical cancer screening: Telephone contact with long-term non-attendees in Sweden. Results from RACOMIP, a randomized controlled trial. *International Journal of Cancer* 2013;133:164-71
- II. Broberg G, Gyrd-Hansen D, Miao Jonasson J, Ryd M-L, Holtenman M, Milsom I and Strander B. Increasing participation in cervical cancer screening: Offering a HPV self-test to long-term non-attendees as part of RACOMIP, a Swedish randomized controlled trial. *International Journal of Cancer* 2014; 134: 2223-30
- III. Broberg G, Strander B, Ellis J and Adolfsson A. Attending cervical cancer screening, opportunities and obstacles: A qualitative study on midwives' experiences telephoning non-attendees in Sweden. *Scandinavian Journal of Public Health* Published online July 10 2014 DOI: 10.1177/1403494814541594
- IV. Broberg G, Wang J, Östberg A-L, Adolfsson A, Nemes S, Sparén P and Strander B. Socio-economic and demographic determinants affecting participation in the Swedish cervical cancer screening: population based cross sectional study. *In manuscript*



UNIVERSITY OF GOTHENBURG

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## Determinants and interventions affecting participation in cervical cancer screening

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### ABSTRACT

**Aim:** Non-attendance is the foremost screening-related risk factor for cervical cancer. The overall aim of this thesis is to contribute to preventing cervical cancer by focusing attention on non-attendees, assessing interventions to increase participation in screening and identifying determinants for non-attendance.

**Methods:** The effectiveness and cost-effectiveness of two interventions to increase participation were studied in a population-based, randomised trial in the context of a well-run screening program in western Sweden. Non-attendees were telephoned and offered an appointment to take a Pap smear or mailed an offer to take a high-risk human papillomavirus (HPV) self-test, and the results were compared with a control group. Midwives' experiences of contacting non-attendees were discussed in focus groups, and analysed by qualitative content analysis. A cross-sectional study with data from population-based registers was carried out to study socioeconomic and demographic factors' affect on screening participation. The results were analysed using univariate and multivariate logistic regression models.

**Results:** Participation during the follow-up period after the interventions was significantly higher in both the telephone arm (18.0%) and the HPV self-test arm (24.5%) than in the control group (10.6%). There were significantly more detected abnormal smears and followed up abnormalities in the telephone arm (39 and 34, respectively) than in the control group (19 and 18, respectively). The midwives realised that there were a number of reasons for non-attendance that could be addressed by improving the screening program. These reasons were often related to logistics, such as scheduling flexibility and appointment booking. Women with high household income or high education or who were living with a partner, born in Sweden, working or not receiving welfare benefits were found to be more likely to attend cervical screening. The relative risk for attendance related to county of residence varied more than twofold.

**Conclusions:** Long-term non-attendees had a fourfold increase in high-grade cytological atypia, compared with regularly screened women. Both telephone contact and offering a HPV self-test, increased participation among women who had abstained from cervical cancer screening for a long time. The telephone intervention yielded a significant increase in detected and followed up atypical smears. These interventions are also practically feasible and do not seem to increase costs. Offering various screening options can be successful in increasing overall participation rates. Midwives' awareness of women's varying requirements for attending screening provides possibilities to improve access and prevent non-attendance in cervical cancer screening. Low socio-economic status, being born abroad and residing in some Swedish counties are independent factors associated with lower attendance in cervical cancer screening. This indicates there is major potential for improvement of cervical cancer screening routines in Sweden in order to increase participation.

**Keywords:** Cervical cancer, cervical intraepithelial neoplasia, demography, HPV, mass screening, non-attendance, Papanicolaou smear, telephone call and socioeconomic factors.

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