

# Increasing attendance in a cervical cancer screening programme by personal invitation: experience of a Lithuanian primary health care centre

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**Background.** High participation rates are an essential component of an effective screening programme and many approaches were introduced as being successful for enhancing compliance to screening guidelines. The aim of this study was to evaluate to which extent a personal invitation by mail increases the rate of attendance in a cervical cancer screening programme in a primary health care centre.

**Materials and methods.** The study was carried out as a pilot project to gain insight into feasibility of applying a well-known compliance increasing measure in Lithuanian population. The study included a sample of women registered at the primary health care centre in Panevėžys who had not participated in the cervical cancer screening programme for six and more years. Personal registered invitation letters to attend the primary health care centre for a Pap smear were sent out to 1789 women by mail.

**Results.** In total, 2195 women were tested during 2011 at the primary health care centre. 487 (22.2%) of them attended the screening programme after receiving a personal invitation letter. Response rate for attending screening after receiving a personal invitation letter was 27.3%.

**Conclusions.** Our study demonstrated that personal invitation letters addressed to long-term non-attendees could markedly increase participation in cervical cancer screening in Lithuania.

**Keywords:** Pap smear, cervical cancer screening, attendance

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## INTRODUCTION

The burden of cervical cancer across the European Union varies considerably. Recent analysis of the countries with the highest cervical cancer incidence and mortality rates revealed rising trends in Lithuania, as well as in other most affected EU member states (1). Based on the conventional cytological screening test, cervical cancer screening programmes, have been shown to be effective in decreasing the incidence and mortality rates (2). The Lithuanian national screening programme was launched in 2004, targeting all women aged 30 to 60, with the latter interval widened in 2008 to target all women from 25 to 60 years of age. The recommended interval between two smears is 3 years if a previous smear did not show cytological abnormality. Data on the exact coverage of screened women is currently not available; however, the Lithuanian Health Behaviour Monitoring study, based on six postal surveys conducted in 2004–2014, demonstrated that the proportion of women invited for cervical cancer screening in the past 12 months has increased from 30.6% in 2006 to 40.9% in 2014 (3).

In Lithuania, the cervical screening test of choice is a conventional Pap smear along with a modified Bethesda cytological classification. Primary health care centres are responsible for carrying out the invitations and performing Pap smears. Usually personal invitations are not sent out by mail and general practitioners tend to rely on informing women about the screening when they attend their primary health care centre. The programme still carries opportunistic features because it is strongly dependent on the frequency of visits to the general practitioner and the activity of the general practitioner in providing information about screening (4). The lack of an organized invitation system is an important weakness of the programme.

The aim of this study was to evaluate to which extent a personal invitation by mail increased the rate of attendance in a cervical cancer screening programme in a primary health care centre. It was carried out as a pilot project to gain insight on its feasibility in the Lithuanian population.

## METHODS

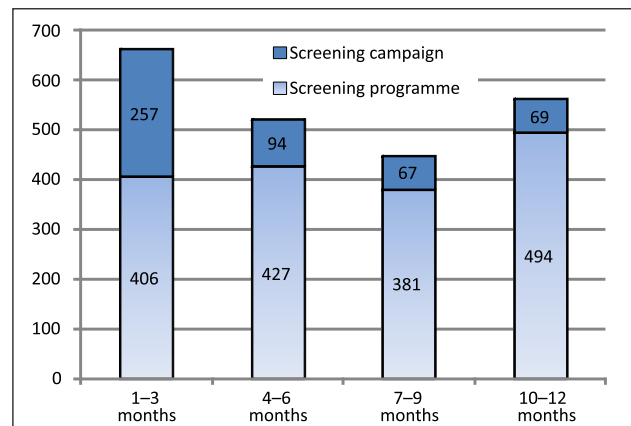
The study included women registered at a primary health care centre and who had not participated in

the programme since its beginning in 2004. The total number of women eligible for screening in this health care centre was 10,894. The invitations were distributed in December 2010.

Personal registered invitation letters to attend the primary health care centre for a Pap smear were sent by mail. Invitation letters were sent out to 1789 women (regarded as the “Screening campaign” group). The attendance rate was analysed during January – December 2011. All Pap smears and requisition forms were sent to the Diagnostic Pathology laboratory for cytological investigation.

## RESULTS

The response rate to the “Screening campaign” was 27.2% with 487 women attending out of all of those invited. In total 2195 women were tested during 2011 at the primary health care centre in Panevėžys (Figure), of whom 487 women (22.2%) women attended the screening programme after receiving a personal invitation letter. The highest activity of the women invited was observed in the first three months after invitation.



**Figure.** The structure of attendance of Pap test screening at Panevėžys primary health care centre

Among the 487 responders to the “Screening campaign” 14 cases (2.9%) of pathological cytology were detected: 6 HSIL (High-Grade Squamous Intraepithelial Lesion), 4 ASCUS (Atypical Cells of Undetermined Significance), and 4 LSIL (Low-Grade Squamous Intraepithelial Lesion). The rate of HSIL in the “Screening campaign” group was 1.23%, compared to 0.31% in women who attended the screening without receiving a personal invitation letter ( $p = 0.01$ ).

## DISCUSSION

Regardless of the test used in the screening of women for cervical cancer, the success of a prevention programme is not possible without sufficient coverage of the population. Therefore, differences in attendance rates between populations and efforts put into increasing them have received a fair amount of attention from the academic community.

The main features identified in women who are less likely to attend screening have been older age (5), a low socio-economic status (6), being single (7), lack of information about screening (8), and poor interaction with health system in general (9). Additional factors in some studies have also been shown to contribute towards the problem of not participating in screening: smoking, place of residence (10), organisational (11) as well as psychological (12, 13) reasons, and ethnic background (14). Although reasons for non-participation in cervical cancer screening programmes are likely to vary within and between populations, it is important to identify the best approach to increase participation, as it could be used not only in programmes with opportunistic traits, but also in highly organized settings where increasing the programme uptake is still of importance (15).

It has been widely suggested in the literature that the cervical cancer screening uptake increases significantly when personal letters of invitation are sent out to the target population (in comparison to no intervention at all) (16). A recent review on strategies for increasing participation in screening suggested that a personal letter of invitation by itself could potentially increase adherence to cervical cancer programmes by 50% (95% CI: 1.28; 1.85) on average (16). The same review also estimated effects of other approaches, namely, a telephone call and a reminder of the general practitioner. All three were observed to be effective, with no approach being superior in comparison to others. A telephone reminder and personal invitation letters combined seemed to enhance the effect and participation in cervical cancer screening programmes and was observed to increase the attendance more rapidly than when only the invitations were sent out (16).

An extensive review by Everett et al. (17) was published in 2011 and served as an update of the 2002 version. It included numerous proposed strategies for increasing participation in cervical

cancer screening, such as invitations, reminders, educational interventions, message framing, counselling, risk factor assessment, tackling the economic barrier, and offering variations in screening procedures (e. g., test being carried out by a female nurse practitioner) (17). Overall personal invitations and educational interventions showed to be effective measures in enhancing participation in screening. Also, the effect yielded by personal invitation (RR = 1.44, 95% CI: 1.24 to 1.52) was very similar to the result published by Ferroni et al. (16).

Besides postal invitations, other approaches have also been revised considering an organized screening setting, and some of them showed to be effective: telephone reminders, general practitioner's signature on the invitation letter, a scheduled appointment (instead of an open one), and mailing a kit for self-sampling cervical specimens (18). Although the review only considered organized programmes, one could potentially argue that if the effect is present in a well-run setting, it would be likely for the effect to increase when applied to programmes with opportunistic traits.

Our study suggests that personal invitation letters sent out to the target population are likely to significantly increase participation in the cervical cancer screening programme in Lithuania. Bearing in mind that high participation in the screening is the primary goal of all programmes (18), this study provides further evidence on feasible and efficient approaches that can be applied for increasing the cervical cancer screening coverage in Lithuania. In our study, the effect of personal invitations on the uptake of screening seems to be sufficiently attenuated (response rate: 27.3%) in comparison to other studies (16, 17). Also, it is debatable whether the results would differ between long-term non-attendees and non-participants of one screening cycle (i. e., three years), considering potential resistance of long-term non-attendees due to confounding factors unadjusted in this analysis.

In general, the results of this study are in concordance with evidence from the literature and show that a simple and straightforward approach might be of great value in enhancing participation in cervical cancer screening, which is especially important for screening practices with distinct opportunistic traits.

## CONCLUSIONS

Our study demonstrated that personal invitation letters addressed to long-time non-attendees could markedly increase participation in cervical cancer screening. This strategy of invitation is also practically feasible and yields an increase in detected atypical smears.

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**DALYVAVIMO GIMDOS KAKLELIO  
PATOLOGIJOS PATIKROS PROGRAMOJE  
SKATINIMAS NAUDOJANT ASMENINĮ  
PAKVIETIMĄ: PIRMINĖS SVEIKATOS  
PRIEŽIŪROS CENTRO LIETUVOJE PATIRTIS**

*Santrauka*

**Įžanga.** Atrankinės patikros programos efektyvumas neatsiejamas nuo joje dalyvaujančių gyventojų apimties. Šio tyrimo tikslas buvo įvertinti, kokią įtaką Panevėžio asmens sveikatos priežiūros centre registruotų moterų dalyvavimui Gimdos kaklelio patologi-

jos atrankinės patikros programoje turi paštu išsiųstas asmeninis kvietimas.

**Metodika.** Atliktas pilotinis tyrimas, kuriuo siekta įvertinti, ar viena iš gerai žinomų ir efektyvių kitose populiacijose priemonių yra tinkama taikyti Lietuvos populiacijoje siekiant didinti moterų dalyvavimą Gimdos kaklelio patologijos atrankinės patikros programoje. Į tyrimą įtrauktos moterys, registruotos Panevėžio asmens sveikatos priežiūros centre, nedalyvavusios programoje 6 ar daugiau metų. Asmeniniai kvietimai, kuriuose siūloma dalyvauti šioje atrankinės patikros programoje ir atlikti Pap tepinėlį, buvo išsiųsti 1 789 moterims.

**Rezultatai.** Iš viso 2011 m. Pap tepinėlio tyrimas buvo atliktas 2 195 moterims, iš kurių 487 (22,2 %) atvyko pasitikrinti gavusios asmeninį kvietimą paštu. Atsako dažnis į asmeninį kvietimą dalyvauti atrankinės patikros programoje mūsų imtyje siekė 27,3 %.

**Išvados.** Mūsų tyrimas rodo, kad asmeniniai kvietimai, išsiųsti paštu ilgai atrankinėje patikros programoje nedalyvavusioms moterims, gali reikšmingai padidinti tikslinės populiacijos dalyvavimą Gimdos kaklelio patologijos atrankinės patikros programoje Lietuvoje.

**Raktažodžiai:** Pap tepinėlis, gimdos kaklelio patologijos atrankinė patikra, dalyvavimas