Interventions targeted at women to encourage the uptake of cervical screening

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The use of invitation letters and educational interventions are effective in increasing the uptake of Pap tests (smears). Educational materials, informing women of the gender of the smear taker, using a health promotion nurse, and interventions by lay health-care workers are also promising. However, these findings relate to screening in developed countries and their relevance to developing countries is still unclear.

RHL Commentary by Chumworathayi B

1. Introduction

Among cancers affecting women, cancer of the cervix ranks only second to breast cancer. It is a preventable disease, but yet in 2008 it accounted for 530 000 newly diagnosed cases and 275 000 deaths worldwide (1). More than 80% of these cases occurred in the low- and medium-income countries in South and South East Asia, sub-Saharan Africa, and South and Central America (1).

Five-year survival rates of 60%–70% have been reported in developed countries after cervical cancer diagnosis (2, 3, 4); however, in low- and middle-income countries the rates are between 25% and 50% (5). These indicate that cervical cancer is still the major public health problem in the world, especially in under-resourced settings. Vaccines against the human papillomavirus (HPV) – the main causative agent of cervical cancers – have been developed, which has a tremendous potential impact for the new generations. However, even if a high vaccine coverage is attained secondary prevention measures such as screening and treatment are still needed because currently available vaccines are effective against only 70%–80% of all oncogenic HPV types.

Nowadays, there are three major cost–effective cervical cancer screening methods to help reduce its incidence: cervical cytology (Papanicolaou or Pap smear); visual inspection with acetic acid (VIA); and human papillomavirus (HPV) testing. However, to date these have been found to be effective primarily in developed countries as their implementation requires a reliable health infrastructure.

Cervical cancer screening programmes have been difficult to implement in developing countries owing to lack of resources. A requirement for such programmes is that they need to be sustainable. Otherwise, the screening programme would not help decrease cervical cancer incidence in the future. For effective prevention, it is important that 70%–80% of targeted women (aged 30–60) are covered once every five years, or at least once in their lifetime. In addition, 100% of the test-positive cases must receive treatment before the process of prevention is completed.

Regrettably, the uptake rates of cervical cancer screening by eligible women remains stubbornly below 80% even in developed countries such as England (6), where many efforts to reduce cervical cancer prevalence
have been made. Information is still needed to establish what can be done to increase this uptake rate. The objective of this Cochrane review was to assess the effectiveness of interventions aimed at women to increase the uptake of cervical cancer screening.

2. Methods of the review

This Cochrane review was last updated in 2011(7). Randomized controlled trials (RCTs) and cluster RCTs of universal, selective or opportunistic cervical cancer screening were sought. Participants were all women eligible to participate in a cervical cancer screening programme as defined by the entry criteria for that programme. Women due or overdue were all considered for inclusion. Interventions were all measures intended for women who were eligible for screening. Interventions aimed at communities, such as mass media campaigns and those aimed at health-care professionals, were excluded as they have been considered in other Cochrane reviews.

The search strategy was comprehensive and included unpublished studies without any language restrictions. All titles and abstracts retrieved by electronic searching were examined independently by the four review authors. The studies which clearly did not meet the inclusion criteria were excluded and copies of the full text of potentially relevant references were obtained. The eligibility of retrieved papers was assessed independently by two review authors. Disagreements were resolved by discussion between two review authors and when necessary by a third review author. Reasons for exclusion are documented in the review. The risk of bias tool was applied independently by two review authors and differences resolved by discussion. Results of meta-analyses were interpreted in the light of the findings with respect to the risk of bias. An assessment of heterogeneity and reporting biases was also done. The data are presented clearly in both text and tables.

3. Results of the review

A total of 38 RCTs (involving 159,728 women) published between 1987 and 2007 fulfilled the inclusion criteria of the review. Statistically significant findings were as follows: compared with controls, those who received an invitation letter [relative risk (RR) 1.44, 95% confidence interval (CI) 1.24–1.67], a telephone call (RR 2.16, 1.70–2.74), a letter with open invitation to make an appointment (RR 1.61, 95% CI 1.15–2.26), a letter with fixed appointment (RR 1.80, 95% CI 1.04–3.11), a letter invitation with telephone follow-up (RR3.14, 95% CI 1.97–5.01), or pooled invitation (RR 1.65, 95% CI 1.44–1.90) were more likely to come for screening. In other comparisons, an invitation letter from the general practitioner of the participant was more effective than an invitation letter from programme coordinator (RR 1.13, 95% CI 1.05–1.21), as was a telephone invitation compared with an invitation letter (RR 1.32, 95% CI 1.15–1.53). Also, a letter with a fixed appointment was more effective than a letter with open invitation to make an appointment (RR 1.57, 95% CI 1.43–1.72).

Compared with controls, women who received patient education (miscellaneous) were more likely to come for screening (RR 1.92, 95% CI 1.24–2.97), as were those who received face-to-face education through home visits (RR 2.33, 95% CI 1.04–5.23). Compared with mass media education, lay health outreach workers were more effective in persuading women to come for screening (RR 1.70, 95% CI 1.24–2.33). Finally, compared with controls, women in pooled counselling groups (RR 1.23, 95% CI 1.04–1.45), women with access to health promotion nurse (RR 1.18, 95% CI 1.10–1.26), or those approached through intensive recruitment drives (RR 1.59, 95% CI 1.24–2.06) were more likely to uptake screening.

4. Discussion

The review authors concluded that there was sufficient evidence from good quality RCTs to support the use of invitation letters and/or telephone calls for increasing the uptake of Pap tests (smears). There was some
evidence to suggest that educational interventions may also increase Pap smear uptake. Educational materials, informing women of the gender of the smear taker, using a health promotion nurse, and interventions by lay health-care workers also appeared to be promising.

4.1 Applicability of the results

The findings of this review relate to screening interventions in developed countries and their relevance to developing countries is still unclear. There is substantial evidence that women in developing countries respond to invitations and education interventions differently from women in developed countries (8, 9).

4.2 Implementation of the intervention

Most developing countries do not have sufficient resources to maintain a well-organized cervical screening programme. The infrastructure needed for cervical cancer prevention must be established by a national responsible body. Where funding is lacking, external funding may be requested, and local lay health volunteers may be recruited to send and follow-up invitations or implement educational interventions targeted at women. Thailand is a good example of using such workers effectively. The country deploys approximately one person for every ten houses in a village. In all settings that implement a screening programme, it is critical that treatment also be available. When there is high screening coverage, there also is likely to be high referral for colposcopy too. This can create a bottle-neck situation which must be anticipated in every setting. Hence, training and provision of these specialists must be planned for before launching a screening programme.

The success of any screening programme depends on its ability to identify, reach, and screen the defined target population, and treat or refer those who test positive. First, at the community level, short communiques must be used to ensure awareness within the target group of women – i.e. every sexually active woman older than 25 years. Second, at the primary care level, a database of the target women must be established so that women who have not been screened within the recommended period of time usually 5 years) could be identified. Third, the identified women should be targeted with one or more selected interventions. Fourth, screening may be done at the primary care level. If the targeted women do not come for screening within the recommended period of time e.g. 6 months), reminders should be sent. Fifth, at the secondary level, the women who test positive should be treated by trained health-care providers (e.g. cryotherapy treatment) or the women should be referred for colposcopy, biopsy, or loop-electrosurgical excision (LEEP). Follow-up of these cases may be done at this level or the women could be referred back to the primary level for follow-up. Finally, at the tertiary level, when cervical cancer is suspicious or diagnosed, the patient must be referred to higher medical facilities for surgery (radical hysterectomy with pelvic lymphadenectomy) or radiotherapy/chemotherapy. During the first few years, there will be an increase in newly diagnosed cases due to increase in asymptomatic cases being found, but after that, there will be a decrease of such cases due to the prevention effect of screening (10).

4.3 Implications for research

The review authors have commented thoroughly on this issue (7), and this author agrees with them. In under-resourced settings, a few important remaining research questions are: (i) How to set up a reliable list of all target women who should be screened or re-screened? (ii) After uptake of screening, how to ensure that all positive women are treated? (iii) How to set up an effective population-based cancer registry for assessing the effectiveness of a screening/prevention programme over the long run. Further research could also be done on the effectiveness of visual inspection with acetic acid (VIA) by female nurses and rapid HPV testing using the self-swab method in women in developing countries. Answers to these questions would help to establish an effective cervical cancer prevention programme in developing countries.

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