

## RESEARCH ARTICLE

# Is the Phone Call the Most Effective Method for Recall in Cervical Cancer Screening? - Results from a Randomised Control Trial

Rima Marhayu Abdul Rashid<sup>1,2\*</sup>, Majdah Mohamed<sup>2</sup>, Zaleha Abdul Hamid<sup>2</sup>, Maznah Dahlui<sup>1</sup>

### Abstract

**Objective:** To compare the effectiveness of different methods of recall for repeat Pap smear among women who had normal smears in the previous screening. **Design:** Prospective randomized controlled study. **Setting:** All community clinics in Klang under the Ministry of Health Malaysia. **Participants:** Women of Klang who attended cervical screening and had a normal Pap smear in the previous year, and were due for a repeat smear were recruited and randomly assigned to four different methods of recall for repeat smear. **Intervention:** The recall methods given to the women to remind them for a repeat smear were either by postal letter, registered letter, short message by phone (SMS) or phone call. **Main Outcome Measures:** Number and percentage of women who responded to the recall within 8 weeks after they had received the recall, irrespective whether they had Pap test conducted. Also the numbers of women in each recall method that came for repeat Pap smear. **Results:** The rates of recall messages reaching the women when using letter, registered letter, SMS and phone calls were 79%, 87%, 66% and 68%, respectively. However, the positive responses to recall by letter, registered letter, phone messages and telephone call were 23.9%, 23.0%, 32.9% and 50.9%, respectively ( $p < 0.05$ ). Furthermore, more women who received recall by phone call had been screened ( $p < 0.05$ ) compared to those who received recall by postal letter (OR=2.38, CI=1.56-3.62). **Conclusion:** Both the usual way of sending letters and registered letters had higher chances of reaching patients compared to using phone either for sending messages or calling. The response to the recall method and uptake of repeat smear, however, were highest via phone call, indicating the importance of direct communication.

**Keywords:** Cervical cancer - screening - recall - intervention - uptake - Malaysia

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### Introduction

Cervical cancer is the second most common cancer among Malaysian women. It is well known that cervical cancer is highly preventable since regular cytology screening of the cervix enables the detection of pre cancerous lesion. For decades, health promotion for women had been emphasized on cervical cancer screening other than screening for breast cancer, yet the uptake of Pap smear which is the cervical screening promoted in Malaysia has not been satisfactory. The percentage of women ever had Pap smear had increased from 26-43% in 1996-2006 (Malaysia., 2006), however majority were done among those aged 30-49 years old, most were through opportunistic screening. The uptake of Pap smear among women above 50 years old which is the group with the highest incidence of cervical cancer (Lim and Halimah, 2004) was very low. This was the contributing factor why there was no significant reduction of cervical cancer in

Malaysia (Sankaranarayanan et al., 2001; WHO, 2005).

The importance of cervical screening could not be emphasized more; studies had proven that reduction in incidence and mortality of cervical cancer are possible with large scales cervical screening by cytology testing (Canfell et al., 2006; Cancerresearchuk.org, 2012), which allows detection of pre cancerous lesions, diagnosis of early stage of cervical cancer and thus early treatment.

Realizing the urgency to increase the uptake of Pap smear, besides enhancing the promotion of Pap smear screening for women above 35 years old, the call-recall system for Pap smear screening had been piloted in one of the suburban district which aimed to improve regular participation of women for cervical and breast cancer screening. Women aged 20 years and above had been identified through the database of the department of statistics and had been invited by letter to come for Pap smear and CBE (clinical breast examination) at any clinics near their residence area. In 2008, a total of

<sup>1</sup>Department of Social and Preventive Medicine, Faculty of Medicine, University Malaya, <sup>2</sup>Family Health Development Division, Ministry of Health Malaysia, Kuala Lumpur, Malaysia \*For correspondence: rimamarhayu77@gmail.com

137,603 women (Malaysian and resided in Klang) had been invited for Pap smear and a total of 17,368 came for the test. These women will be invited again to repeat Pap smear in the following years, also by letter. This call and recall program of women for Pap smear is called the SIPPS (Sistem Informasi Program Pap smear/Pap smear Program Information System) Program. The ministry of health is challenged by not only the respond to the first invitation but also for repeat Pap smear. This study aimed to introduce other methods of recall for women who are due for repeat Pap smear, besides the current invitation by letter.

### Materials and Methods

This study had been reviewed and approved by the ethics committee of the University Malaya Medical Centre (UMMC) and has been approved by National Medical Research Register (NMRR) (registration number NMRR-10-111-7315).

Recruiting the population of women who attended the invitation for Pap smear under the SIPPS program, a randomized controlled study had been conducted to select the most effective way of recall method in getting women to come for repeat Pap smear. Women who had Pap smear in the previous year and is due for repeat screening were given recall either through telephone call, phone messages or registered letter or the usual recall by letter.

The list of 1239 women aged 20-65 years who were due for a repeat smear had been extracted from the database at the district health office where the SIPPS pilot had taken placed. Applying the exclusion criteria (women diagnosed with abnormal smear in first Pap smear), a total of 1106 women were eligible for this study. However, one thousand women had been randomly selected by computer-generated number and 250 women were then randomly assigned to the four different methods of recall (Figure 1).

Recruitment took place approximately for two months from 30<sup>th</sup> of May 2011. The patients who received any type of recall were given the same information that they will have to come for a repeat smear within a month from the date the recall was made or sent (from 30<sup>th</sup> May 2011 till 1<sup>st</sup> July 2011), irrespective of the type. They were allowed

to make a call to set for another appointment date if they were unable to turn up within the given period to any of the eight community clinics listed in the Klang area. The time for data collection was allowed up to 8 weeks after the period given because some of the patients who called, requested to come for Pap smear on the following month. The participants were asked to repeat their smear at the respective clinic they came to by the research assistant as soon as informed consent has been acquired once they came to the clinic. All the research assistants were blinded to the intervention to prevent bias. The women were followed up whether they registered at any of the clinics under Klang health district for repeat Pap smear over the duration of 8 weeks, beyond which they will be called by telephone to ask why they have not attended a repeat smear. Two attempts were made to reach each patients. One call during office hours and a repeat call after office hours if unable to be reach during the first attempt. Patients who were unable to be reached were assumed to had received the recall sent to them.

### Intervention

Personal letters of recall similar to the invitation letter were sent to the patients in the postal letter and registered letter group. The same personal message was sent through SMS to those in the SMS group. Similarly, the same personal messages were conveyed through the phone call made to the women in the phone call group. The messages contained the patients' identification card (IC) numbers, patients' names and current addresses, the dates (approximately within 1 month from the date of recall) that they were supposed to repeat the screening, the list of clinics that they can go to and phone numbers that they can call to re-schedule appointment if they necessary. Considering the time taken for letter to reach each woman, letters were sent three days earlier than sending messages via SMS and making telephone calls. This was to ensure that the women in each intervention arms received the recall within the same week. The time frame set for all recalled women to come for a repeat smear were 8 weeks.

### Sample size calculation

Calculation of the sample size was done using OpenEpi Program based on a population-based RCT done in Sweden (Eaker et al., 2004) at  $\alpha$  of 0.5 and power of 0.8, outcome of those unexposed and exposed were 1.3% and 9.2% respectively. The ratio of unexposed to exposed was 1. The significance level of statistics test done is at 95% confidence interval level. The null hypothesis is rejected when  $p < 0.05$ . The minimum sample size for both experimental group and the control group is 149. Taking correction factor at 50% (according to the current response of patients to the first invitation in the SIPPS program itself) of non-response and drop-out, the minimum sample size required was 223 participants per intervention but in this study we had rounded the figure to 250 women in each group.

### Outcome measurement

To assess whether the method of recall is able to reach the women and recalled them for a repeat smear,

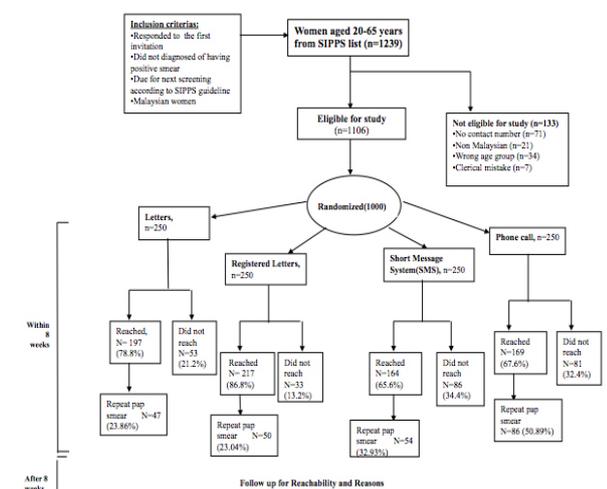


Figure 1. Flow Chart of the Study

the number and percentage of women responded to the intervention irrespective whether they did repeat smear was observed. Respond to intervention included when the women came to the clinic or if they called the clinic and gave feedback that they had received the recall. The number and percentage of women who did repeat smear was also observed and reasons for not doing smear were recorded.

### Data analysis

SPSS for Windows (version 16.0) was used for data entry and all analyses. The  $\chi^2$  test was used to compare the groups at baseline in terms of age groups and race. The  $\chi^2$  test and the binary logistic regression, where appropriate, were used to analyse the relation of age group and race to uptake for a repeat Pap smear at 8 weeks between the 4 groups. The main outcome variable for this study was the uptake rate in each intervention.

## Results

The SIPPS program only recorded patient's name, identification number, home address, age and ethnicity of women. The age and ethnic groupings of recruited women were of no significant difference. Based on the response rate of each recall method, 78.8% of the women who had been sent a letter had actually received the letter, 86.8% of the women in the registered letter arm had received the registered letter, 65.6% women had received phone messages while 67.6% of the women had received the phone call. The uptake of Pap smear and the proportion of the recall that reached the patients are showed in Figure 1. The reasons for not responding to the recall are displayed in Figure 2.

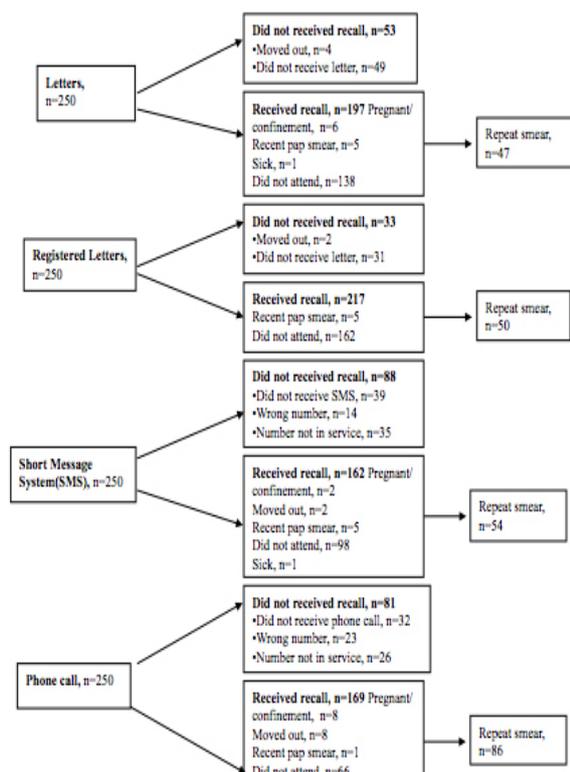


Figure 2. Outcome of Each Recall Method

**Table 1. Characteristics of Women in Klang Involved in the RCT of Call/Recall System to Enhance Compliance With Cervical Cancer Screening (N=250)**

Characteristics	Interventions			
	Letter	Registered letter	SMS	Phone call
Age groups				
<25	12 (22.6)	9 (17.0)	13 (24.5)	19 (35.8)
25-34.9	77 (22.5)	89 (26.0)	90 (26.3)	86 (25.1)
35-44.9	92 (28.0)	88 (26.8)	77 (23.5)	71 (21.6)
45-54.9	43 (25.0)	38 (22.1)	40 (23.3)	51 (29.7)
55-65	26 (24.8)	26 (24.8)	30 (28.6)	23 (21.9)
Race				
Malay	169 (23.6)	188 (26.3)	179 (25.0)	180 (25.1)
Chinese	34 (26.6)	27 (21.1)	33 (25.8)	34 (26.6)
Indian	43 (30.1)	34 (23.8)	34 (23.8)	32 (22.4)

**Table 2. Proportion of Women who had a Pap test by Age Group, Ethnicity and Interventions**

Characteristics	Response		p value	OR (CI)
	No N (%)	Yes N (%)		
Age				
<25*	44 (83.0)	9 (17.0)	>0.05	
25-34.9	274 (80.1)	68 (19.9)	>0.05	1.22 (0.56-2.67)
35-44.9	242 (73.8)	86 (26.2)	>0.05	1.76 (0.81-3.83)
45-54.9	121 (70.3)	51 (29.7)	>0.05	1.83 (0.82-4.09)
55-65	82 (78.1)	23 (21.9)	>0.05	1.19 (0.50-2.88)
Ethnicity				
Malay*	569 (79.5)	147 (20.5)		
Chinese	84 (65.6)	44 (34.4)	0.001	2.00 (1.31-3.04)
Indian	100 (69.9)	43 (30.1)	0.011	1.71 (1.13-2.58)
Interventions				
Letter*	203 (81.2)	47 (18.8)		
Registered letter	200 (80.0)	50 (20.0)	>0.05	1.13 (0.72-1.77)
SMS	196 (78.4)	54 (21.6)	>0.05	1.20 (0.76-1.87)
Phone call	164 (65.6)	86 (34.4)	<0.05	2.38 (1.56-3.62)

\*Groups were compared to the first group

The reasons for non respond in the group of women who were given letter and registered letter was either because they had moved out (7.55% and 6.06%, respectively) or because they had not received the letter or registered letter (92.45% and 93.94%, respectively), while the reasons for non respond in the group of women who were given phone messages were wrong number or number not in service (55.68%), besides unknown (44.32%). The findings of non respond in women who were given telephone calls were similar for the women who were given phone message group, with 60.49% wrong number or number not in service and 39.51% did not answer call.

The uptake of Pap smear among women who received recall by letter, registered letter, phone messages and phone call were 23.86%, 23.04%, 32.93% and 50.89%, respectively ( $p < 0.05$ ). Women who received recall via phone call were more likely to repeat Pap smear (OR=2.38, CI=1.56-3.62).

## Discussion

Regular screening of a substantial portion of the population is required for a cervical cancer screening program to have a substantial impact on the cumulative incidence. In a country that has yet to establish an organised cervical cancer screening program such as Malaysia, it is crucial to determine the best option to invite and recall the patients in relation to the uptake rate before the implementation of the program.

In our study, the uptake of Pap smear was highest among women who received recall by phone call at 50.89%, followed by phone messages, letter and registered letter at 32.93%, 23.86% and 23.04%, respectively. The results were similar to a study done in US, which showed that the proportion of women that had been screened were higher in the group that received reminder letter, followed by a telephone appointment call compared to the control group (Vogt et al., 2003). Similarly, Sharon and Parsons (1997) found that the letter of invitation is not sufficient to encourage women who had never or had infrequently undergone a Pap test to come in for cervical cancer screening. The added recruitment methods such as follow-up by telephone and the offer of a specific appointment improved the uptake for screening in the intervention group compared to the control group (Buehler and Parsons, 1997). However, in a study done in UK by Pierce et al. (1989) it was found that women who had a test done before were more likely to attend for a smear test during the study, independently of the recall system used.

In this study, it was also found that letters, irrespective of the type have higher chance of reaching the women. Among the reasons for this observation was because the addresses do not change unless if the patients moved out. On the other hand, phone numbers are frequently changed especially the prepaid numbers. Furthermore, the addresses were copied from the printing on the IC cards but phone numbers were given by the women. Thus there could be mistakes in documenting the phone numbers could be wrongly given since most people do not remember their own number. Some patients could have purposely given false number because they do not want to be bothered in the future.

Our study also showed that even though sending letter and registered letter had higher chances of reaching patients compared to using phone either for sending messages or calling, the uptake of repeat smear was higher with phone call, indicating the importance of direct communication. However, in contrast, in a study in Ottawa by McDowell et al. (1989) it was found that sending a letter and calling patients by telephone for the patients who were due for repeat smears yielded 25.9% and 20.0% compliance rate respectively (McDowell et al., 1989). This may be due to the fact that phone calls provide direct communication with women and gave higher/personal impact than letters. Women are more embarrassed to give negative response during a direct communication during the phone call and they could not ignore the recall for a repeat smear as they could do with letter.

In conclusion, sending letter and by registered letter in general had higher chances of reaching patient compared to using phone either for sending messages or calling. The uptake of repeat smear was associated with phone call, indicating the importance of direct communication. Therefore, it will be better if we can afford to use the phone to invite and to recall patients in a cervical cancer screening program. However, more research is needed to determine the cost effectiveness of different methods of invitation/recall before we can make the decision especially in a country with limited healthcare resources such as Malaysia.

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