Study of the women overdue for a smear test in a general practice cervical screening programme

PAUL MEADOWS, BSc, MSc
Medical Student, University of Bristol

SUMMARY. Of the 1527 women aged 30–59 years in one general practice who were eligible for a cervical smear examination 196 (12.8%) were overdue for the test. These women were contacted randomly by post or in person to ascertain their reasons for not responding to the practice screening programme. Of 118 women contacted personally 47% had no major objection to the smear test but had a low view of its priority. A further 24% gave incorrect reasons for thinking a smear test was unnecessary while 29% had strong reasons for not wanting to attend and probably never would. Social and medical factors from the medical records were also examined and compared with those of a group of age and sex matched controls. It was found that women overdue for a smear test lived in more 'socially stressed' areas and used their general practitioner much less than the controls. The theoretical upper limit for smear uptake in the practice was calculated to be around 96%. To help achieve this we need to ensure: (1) that all women understand that the test is to detect a stage before cancer; (2) that some women receive more counselling; and (3) that promotional material is directed at the families of women at risk.

Introduction

SCREENING programmes have been shown to reduce mortality from carcinoma of the cervix[1-4] but a high proportion of women with cervical cancer have never had a smear test.[5-7] The abandoned national recall system at Southport was not very effective,[8] and the government has now asked family practitioner committees to computerize cervical call and recall, using software developed by the Exeter Family Practitioner Services computer unit.

General practitioners themselves can organize effective cervical screening; Standing and Mercer[9] achieved a 94% uptake of those eligible in the 35 to 64 years age range while Briscoe and Woods[10] reported an 84% uptake in the 25 to 60 years age group. Two studies have shown that 60% of women who have never had smear test would prefer a midwife[11] or practice nurse[9] to carry out the test. There has been little quantitative work on reasons for non-uptake of cervical screening, though Standing and Mercer[9] and more recently King[12] have attempted to study this problem. An earlier study by Hodes[13] looked at 99 women who refused a test out of a total of 430 but these women were restricted to those aged 35–39 years.

The purpose of this study was to try to discover why women overdue for a smear test had not taken advantage of the service offered and to find generally applicable improvements for the screening service. A semi-structured interview or questionnaire covering the following points was used:

- Did the woman remember receiving a reminder?
- Did she broadly know what the test was and what it was for?
- Could she identify why she had not attended for a smear test?
- Was there anything further the surgery could do to make it easier for her to have a smear test?

© *Journal of the Royal College of General Practitioners*, 1987, 37, 500-503.

Other features of the population overdue for a smear test were derived from practice notes or from the patient's address.

Method

Practice

This study was carried out from December 1986 to February 1987 in a Bristol general practice with 9251 patients, including 1691 women aged 30–59 years. The practice has its own computer and appropriate smear recall dates (year and quarter) are recorded when results are received from the laboratory. Early each quarter the computer produces personalized recall letters for every woman whose smear test is due in that quarter. At the same time the patient's notes are checked and a prompt is placed on the continuation sheet. In addition, each quarter a different five year cohort is selected and women who are more than one quarter overdue are identified. In this way repeated reminders are sent to defaulters. This system has been in operation for more than three years for women aged 35–59 years. Thus, women under 35 years of age are not sent recall letters or reminders.

The practice has three male and two female doctors together with two practice nurses covering morning and afternoon sessions. Since all these staff take smears patients have a flexible choice for a smear appointment. The practice has achieved a smear uptake rate of about 87% of eligible women aged 30–59 years (Table 1). The rate has risen by 6% per annum since active call was started.

Study

The practice computer was used to identify the women in the 30–59 years age group eligible but overdue for a smear test. The 196 women were randomly allocated to two groups to see if personal or postal contact affected either the reasons given for being overdue or subsequent smear uptake.

Every woman was sent a Women's National Cancer Control Campaign cervical screening leaflet and a personalized covering letter signed by her general practitioner explaining that the practice was interested in knowing why she had not attended for a smear test. Sixty-eight of the women were also sent a questionnaire, numbered for identification, which they were asked to fill in and return in the stamped addressed envelope provided.

The remaining 128 women were told in their covering letter that a student doctor would be telephoning in a few days to arrange an appointment to talk to them if they had no objection. When they were telephoned it was pointed out that the interview would not be upsetting or take long. Some agreed to make appointments while others found it convenient to continue the conversation on the telephone and a semi-structured interview was conducted on that basis. The remainder agreed to be sent a questionnaire. Women with no telephone were sent a covering letter giving a time at which the student doctor would visit them, pointing out that they could cancel this if they wished. If no contact could be made on these visits a questionnaire was left with an explanatory note.

The computer was also used to generate a list of 196 age and sex matched controls. The following six variables were analysed for each case/control pair using the Wilcoxon matched pairs test: the 'social stress' of the areas in which the women lived, the number of consultations with a general practitioner in the last

Table 1. Smear uptake rate in the study practice at 31 December 1986 by age group.

Age (years)	Number (%) of women			
	Total in cohort	Eligible for smear[a]	Smear carried out	Smear overdue
30–34	311	309	292 (*94.5*)	17 (*5.5*)
35–39	345	333	299 (*89.8*)	34 (*10.2*)
40–44	315	298	261 (*87.6*)	37 (*12.4*)
45–49	256	221	191 (*86.4*)	30 (*13.6*)
50–54	236	192	163 (*84.9*)	29 (*15.1*)
55–59	228	174	125 (*71.8*)	49 (*28.2*)
Total	1691	1527	1331 (*87.2*)	196 (*12.8*)

[a]Excludes women not sexually active, re-registering elsewhere, receiving hospital treatment for neoplasia or other serious illness or who have had a hysterectomy.

five years, the number of months since the last consultation, the number of years registered with the practice, the approximate distance of home from the surgery, and the number of problem summary items on the patients' computer records. This last variable is an unbiased if imperfect measure of morbidity presented to the general practitioner by both cases and controls. The measure of social stress used was taken from a factor analysis carried out by Avon County Council[14] on census data for 196 geographical address areas within Avon, each covering about 4000 inhabitants. A more socially stressed area has a greater positive measure.

Statistical analysis of the six variables was carried out for the following groups: (1) all women contacted, (2) all those personally contacted, (3) those personally contacted who replied, (4) those personally contacted who did not reply, (5) all those contacted by post, (6) those contacted by post who replied, and (7) those contacted by post who did not reply.

Results

Of the 196 women 13 were excluded from analysis (three from the postal sample and 10 contacted personally) — five women had had smear tests elsewhere in the last five years and the remaining eight thought that they were up to date but had had their last smear test more than five years previously according to laboratory records. Seven of these eight women appeared to have confused other gynaecological or obstetric procedures with a smear test.

Of the 65 women in the group contacted solely by post only 20 replied (31%) and five made an appointment for a smear test in the four weeks after receiving the questionnaire. Of the 118 women contacted personally 107 replied (91%) and 18 appointments for a smear test were made in the following four weeks. Forty eight of the replies resulted from personal visits, 30 from telephone interviews, and 29 returned the questionnaire. Ten of those personally contacted were not willing to talk to the student doctor or to return the questionnaire and one woman was abroad for the duration of the study.

Eighty of the 97 respondents aged 35 years or over who were contacted personally said that they remembered getting their recall letters. Most women knew what the smear procedure was but no one volunteered that the test was to detect a pre-cancerous state. Twenty one women made suggestions for practice improvements to give a better uptake. Eight women (including three aged under 35 years) thought reminders should be sent, five thought that appointment times should be sent and five said that late evening or Saturday appointments for smear tests would be helpful.

Reasons for non-uptake

Replies from the women contacted personally are shown by reason for non-uptake and age group in Table 2. If two reasons such as 'postmenopausal' and 'too busy' were given the reply was classified under 'postmenopausal' because this might have reduced the woman's perceived need for a smear test. Thirty nine women appeared to have no objection to the smear test itself, while 17 could probably be persuaded to overcome their fears. Thus of the 118 women 56 (47%) were likely to attend for a smear test if they could give it increased priority (Table 2). Twenty eight of the 118 women (24%) gave an incorrect reason for thinking a smear test was unnecessary (Table 2). Twenty three women felt very strongly that they did not want a smear test (Table 2) and, including the 11 women who failed to reply, 34 women (29%) were therefore extremely unlikely to attend for a smear test.

Sixty six of the 107 women who replied and 34 of the 45 women over 49 years old who replied had never had a smear test. Of these 34 women 13 clearly thought a smear test was unnecessary and this was the main difference in response between those who had had a smear test at some time and those who had not. Replies from women contacted by post alone were excluded because it was felt that the relatively few replies might distort the overall balance of observed responses.

Table 2. Number of women contacted personally giving reasons for non-uptake of smear test by age group.

Reason given	Age (years)			
	30–39	40–49	50–59	Total
No objection/minor objection				
Forgot/not got round to it/not thought about it much	11	7	8	26
Worried about results	2	2	6	10
Too busy	2	4	3	9
Embarrassed	1	3	0	4
Dislike medical things	1	2	0	3
Look after family rather than self	1	2	0	3
Unaware overdue	0	1	0	1
Incorrect objection				
No symptoms	1	5	4	10
Low risk lifestyle	2	4	0	6
Only one partner	1	0	2	3
Postmenopausal	0	0	3	3
Not now sexually active	0	0	2	2
Doctor–patient communication	0	0	2	2
Waiting for an appointment	1	0	1	2
Major objection				
Severely embarrassed/ test too uncomfortable	2	1	7	10
Grief	1	1	2	4
Depression	0	1	2	3
Concurrent illness	0	1	1	2
Do not want a test	0	1	1	2
Hate medical things	1	0	1	2
Total	27	35	45	107
Non-respondents	3	2	6	11

Characteristics of overdue women

The social class cross-section of the women contacted by post and personally may be judged by the distribution of women according to the 'social stress' of their address area as shown in Table 3. It can be seen that the distribution of the women in the two groups was very similar.

The results of the analysis of the six variables for all women contacted and those contacted personally compared with the controls are shown in Table 4. The results for women contacted by post only are not shown but they broadly followed those of the women contacted personally. Table 4 shows that there were no significant differences between cases and controls in either the number of years registered at the practice or the distance they lived from the surgery. Cases lived in more socially stressed areas than controls and this difference was more significant for the group personally contacted who replied than for the whole of that group. Therefore those who replied were from more socially stressed areas than those who did not. The number of consultations in five years and the time since the last consultation both showed that the cases used their general practitioners much less than the controls. The women contacted personally who did not reply had a lower average rate of consultation than the women contacted personally who did reply. However, compared with the controls this was less statistically significant, probably because of the small number not replying. The comparison of the number of summary items shows that the cases had significantly fewer items recorded than the controls.

Table 3. Distribution of women by the 'social stress' of their address area.

Social stress of address area[a]	Rank of address area within Avon based on social stress measure	Number (%) of women	
		Contacted by post ($n=65$)	Contacted personally ($n=118$)
1.81	11	2 (*3.1*)	2 (*1.7*)
1.72	12	12 (*18.5*)	32 (*27.1*)
1.42	15	2 (*3.1*)	6 (*5.1*)
1.10	21	0 (*0.0*)	4 (*3.4*)
0.54	38	8 (*12.3*)	14 (*11.9*)
−0.03	61	2 (*3.1*)	1 (*0.8*)
−0.09	69	15 (*23.1*)	27 (*22.9*)
−0.23	97	6 (*9.2*)	13 (*11.0*)
−0.38	115	0 (*0.0*)	2 (*1.7*)
−0.45	129	0 (*0.0*)	2 (*1.7*)
−0.59	152	9 (*13.8*)	7 (*5.9*)
−0.65	169	7 (*10.8*)	2 (*1.7*)
−0.73	175	2 (*3.1*)	6 (*5.1*)

n = total number of women. [a]A more socially stressed area has a larger positive number.

Discussion

Two points of administrative importance were highlighted by this study. First, hospital follow-up of treatment with repeat smear tests may not always be better than that available through a well organized practice. For example, two of the patients considered to be ineligible for the study attended a colposcopy clinic with cervical intraepithelial neoplasia. One with a requested smear recall of six months had an outpatient appointment for 12 months. The other had a requested smear recall of 12 months but by 15 months no outpatient appointment had been arranged. In these cases the patients' general practitioners did not know whether outpatient attendance was continuing or if they should arrange follow-up smear tests. Secondly, the fact that seven women apparently confused other procedures with a smear test emphasizes that patients need to be told clearly what has been done and what has not been done in any medical procedure. In a laparoscopic sterilization, for example, the patient might assume that a smear has been taken. A personal smear record such as that used by Bloomsbury Health Authority and the Family Planning Association[15] may help avoid confusion.

Women overdue for smear tests seem to consult their general practitioners less than those who have regular screening and this would be consistent with the view that they cope with or conceal their morbidity, though the possibility that they may actually be healthier cannot be excluded.

It was found that 28 (24%) of the 118 women may be amenable to some additional advice and information while 56 women (47%) may attend for a smear test if they can give it increased priority. It became apparent during the study that women of all ages discuss cervical smear tests with their husbands, sisters or daughters and also at work. Perhaps educational or promotional material should also be aimed at the family members, for example, 'Make sure your mum/wife has a smear test'.

The reasons for previous refusal of the 18 women contacted personally who had smear tests in the four weeks following this intervention were: forgot/not got round to it (7 women), worried about the result (5), no symptoms (3), look after family

Table 4. Wilcoxon matched pairs comparison of women overdue for a smear test (cases) and matched controls.

	Comparison with all cases ($n=183$)		Comparison with women contacted personally					
			Total ($n=118$)		Those who replied ($n=107$)		Those who did not reply ($n=11$)	
	Controls	Cases	Controls	Cases	Controls	Cases	Controls	Cases
Mean 'social stress' of area	0.21	0.44**	0.28	0.53*	0.26	0.57**	0.47	0.14
Mean number of consultations in five years	22.1	12.8***	21.0	12.0***	20.9	12.5***	22.1	7.2*
Mean number of months since last consultation	4.7	15.3***	5.6	16.3***	5.8	12.4**	3.3	54.6**
Mean number of problem summary items	1.8	1.0***	1.7	1.0**	1.6	1.0**	2.6	1.0
Mean number of years registered	13.7	15.2	14.3	14.8	14.3	14.8	14.2	14.3
Mean distance of home from surgery (miles)	0.65	0.66	0.66	0.67	0.66	0.65	0.72	0.88

n = total number of cases/controls. ***$P<0.001$, **$P<0.01$, *$P<0.05$ for cases versus controls.

rather than self (1), dislike medical things (1) and waiting for appointment (1). None of those women who found the test severely embarrassing, hated medical things, found the test too uncomfortable or who failed to reply has attended for a smear test; surprisingly, many of these women had been through pregnancy and childbirth. It is reasonable to suppose there will always be individuals in any comparable population who feel too embarrassed or that the test is too uncomfortable to come forward for screening and in this study 34 of the overdue women (29%) were extremely unlikely to attend for a smear test. If this pattern of response were repeated in the whole group overdue for a smear test then approximately 4% of those eligible for smear tests would remain overdue. Thus 96% would be a theoretical upper limit for smear uptake in the 30–59 years age group in this practice. In fact, in the 30–34 years age group the smear uptake reached 95% (Table 1) and if these women continued to attend at this rate the problem would disappear.

This study involved considerable effort in reaching the overdue population and in four weeks resulted in only 23 smear appointments from all 183 women, raising the screening rate from 87.2% to 88.7%. It will be interesting to see how many more potential attenders will actually have a smear test and whether any significannt differences emerge between reasons for non-uptake or type of contact (personal or postal) and later smear uptake.

General practice is obviously suited for the main effort in cervical screening. Routine recall can maintain a smear uptake in eligible 30–59 year olds of well over 80%, the level stated by the BMA[16] as necessary to be effective. This study suggests that the maximum level of smear uptake attainable is 96% of those eligible. To help achieve this we need to ensure: first, that all women understand that the smear test is to detect a stage before cancer; secondly, that some women receive more personal counselling; and thirdly, that promotional material is targeted at the families of women at risk.

References

1. Boyes DA, Worth AJ, Anderson GH. Experience with cervical screening in British Colombia. *Gynecol Oncol* 1981; **12:** S43-S155.
2. Day NE. Effect of cervical screening in Scandinavia. *Obstet Gynecol* 1984; **63:** 714-718.
3. Johannesson G, Geirsson G, Day NE. The effect of mass screening in Iceland, 1965–1974, on the incidence and mortality of cervical carcinoma. *Int J Cancer* 1978; **21:** 418-425.
4. Macgregor JE, Teper S. Mortality from carcinoma of cervix uteri in Britain. *Lancet* 1978; **2:** 774-776.
5. Paterson MEL, Peel KR, Joslin CAF. Cervical smear histories of 500 women with invasive cervical cancer in Yorkshire. *Br Med J* 1982; **289:** 896-898.
6. Walker EM, Hare MJ, Cooper P. A restrospective review of cervical cytology in women developing invasive squamous cell carcinoma. *Br J Obstet Gynaecol* 1983; **90:** 1087-1091.
7. Ellman R, Chamberlain J. Improving the effectiveness of cervical cancer screening. *J R Coll Gen Pract* 1984; **34:** 537-542.
8. Pye MJ. Thesis for Membership of the Faculty of Community Medicine, 1984.
9. Standing P, Mercer S. Quinquennial cervical smears: every woman's right and every general practitioner's responsibility. *Br Med J* 1984; **289:** 883-886.
10. Briscoe M, Woods JO. Screening for cervical cancer in general practice. *Ulster Med J* 1984; **53:** 76-79.
11. Cullan DE, Savory JN. Patient preferences for cervical cytology. *Br Med J* 1983; **287:** 329-330.
12. King J. Women's attitudes towards cervical smears. *Update* 1987; **34:** 160-168.
13. Hodes C. Cervical screening — refusal in general practice. *J R Coll Gen Pract* 1972; **22:** 172-175.
14. Anonymous. *Social stress in Avon 1981.* Avon: County Council Planning Department, 1983.
15. Mills A, Cranston A. Failure of the cervical cytology screening programme. *Br Med J* 1985; **290:** 76.
16. Anonymous. *Cervical cancer and screening in Great Britain. Report of the British Medical Association.* London: BMA, 1986.

Acknowledgements

I am grateful to Dr F. Difford, Associate Adviser in General Practice, Dr E.H. Mackenzie, Consultant Cytopathologist and Dr M. Whitfield, Consultant Senior Lecturer in General Practice for their advice in the preparation of this paper, and also to the practice partners, Drs Telling, Davies, Difford, Fornear and Reading, for allowing me to work with them.

Address for correspondence

P.S. Meadows, c/o 326 Wells Road, Knowle, Bristol BS4 2QJ.