

# Cervical screening in general practice: call and recall

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**SUMMARY.** Regular universal screening for cervical cancer is associated with a considerable reduction in the disease. However, opportunistic screening has tended to reach groups at low risk and miss those at high risk from the disease. This study assessed the cost-effectiveness of a call and recall system for cervical screening which was set up in one general practice.

The practice age-sex register and records were used to monitor the screening status of women patients. Of the eligible population aged 36–60 years 70% were found to have been screened in the previous five years. The remainder were offered an appointment for a cervical smear and 57% attended following this invitation. Three smears out of 110 undertaken were reported as showing marked dyskaryosis or cervical intraepithelial neoplasia grade III. The estimated cost per case identified was £366.

A call system in general practice can increase the uptake of cervical screening among women at risk. It is a relatively cost-effective method of preventing cervical cancer.

## Introduction

THERE is widespread scepticism among general practitioners about the effectiveness of screening for cervical cancer. However, in the Nordic countries different trends in morbidity rates are associated with the effectiveness of each country's prevention programme. In Iceland nearly 100% of the eligible population is screened every two to three years and in 1980 the incidence of cervical cancer had fallen to less than one third of the level recorded in 1965. In Norway where only 5% of the female population undergo regular screening, the incidence in 1980 was 115% of that recorded in 1965. In Denmark where 40% of the population is screened every three to five years the incidence over the same 15 years fell by about one third.<sup>1,2</sup> The figures suggest a rising incidence of potential disease which is being controlled with variable effectiveness by different policies of secondary prevention.

Cook and Draper analysed trends in cervical cancer in Great Britain<sup>3</sup> and in some age groups they found a large increase in the incidence of carcinoma *in situ*. They report that a potential increase in cervical cancer incidence and mortality may have been partially prevented as a result of screening. However, over the period 1968–80 deaths from cervical cancer in England and Wales fell by only 15% from 2434 to 2068.<sup>4</sup> It has been estimated by Knox that with effective screening 77% of these deaths could have been prevented.<sup>5</sup>

Why then is a widely available screening service relatively ineffective in preventing cervical cancer? The distribution of the disease varies with age, social class and civil status. Incidence increases with age, 94% of deaths occurring in women over 35

years of age,<sup>4</sup> and is higher among the lower socioeconomic classes and among widows and divorcees.<sup>6</sup>

For most women in Britain cervical screening is carried out by general practitioners although some women attend local authority family planning or well women clinics, and some obtain smears from hospital gynaecologists. Screening is often initiated by doctors opportunistically and is offered largely when it is convenient for the doctor, with family planning or perinatal services. A few general practitioners call patients specifically for screening. When screening is provided opportunistically or on demand from patients, it tends to reach those who have a low risk of mortality from cervical cancer. More than 50% of smears are obtained from women under 35 years of age while over 90%<sup>7</sup> of those who die may never have been screened for the disease.

In order to identify patients at risk and increase their uptake of screening services general practitioners must acknowledge that many of the women most at risk do not know that cervical cancer is preventable,<sup>8</sup> that screening is available from their general practitioner or that it must be repeated at intervals.<sup>8</sup> In addition many women prefer to be examined gynaecologically by another woman.<sup>9,10</sup>

The aim of the study was to determine the cost-effectiveness of a call system for women aged 36–60 years at risk from cervical cancer who had not undergone screening in the previous five years.

## Method

In 1983 a two partner practice serving a population of nearly 5000 people in Thames Ditton, Surrey, recruited a nurse/midwife and sponsored her training for the Certificate in Family Planning. A well woman clinic was started in which family planning, cervical screening and antenatal services were provided by a doctor and the nurse working together. A poster was placed in the waiting room to inform patients of this service.

In 1985 a state enrolled nurse was recruited for three months by the practice on a half-time basis. Using the age-sex register the nurse identified women aged 36–60 years. Those who had undergone a hysterectomy were identified from the patient records and excluded from the population at risk. The records of the remaining eligible population were used to audit the number of women who had been screened for cervical cancer in the past five years. Two women were found to have had mild abnormalities with no follow up. These women and the women who had not been screened in the past five years were sent a letter offering an appointment for screening with the practice nurse. Letters were sent out from January to March starting with the oldest women and progressing downwards through the age groups. The number of women responding to the letter and the number attending for screening were noted. Abnormalities among the smears taken were recorded using a protocol to ensure adequate follow-up. The cost to the practice of the smear taking and administration was estimated.

## Results

The audit showed that 70% of the eligible population of women had been screened for cervical cancer in the previous five years (Table 1). The percentage of women who had been screened was inversely related to age.

**Table 1.** Number and percentage of the eligible population who had been screened for cervical cancer in the previous five years.

Age (years)	Number (%) of women	
	Eligible	Screened in previous 5 years
56-60	99	55 (56)
51-55	100	63 (63)
46-50	104	65 (63)
41-45	131	97 (74)
36-40	199	163 (82)
Total	633	443 (70)

Of the women sent a letter offering an appointment for cervical screening 63% responded (Table 2). On receiving the letter some women responded with the information that they had not had sexual intercourse and were not at risk from cervical cancer. These women are included among the refusals. Fifty-seven per cent of the women attended for a smear test (Table 2).

Of the 37% of patients who did not respond to the letter some were subsequently found to have moved away. The proportion of patients who failed to respond varied between age groups and was highest in the group aged 41-45 years (Table 2).

After the study 87% of eligible women aged 36-60 years in the practice population had received cervical screening in the previous five years. The remaining 13% are being sent a second letter of invitation.

**Table 2.** Response of women to letter offering an appointment for cervical screening.

Age (years)	Number of letters sent	Number (%) of responses	Number of refusals	Number (%) attending appointment
56-60	45	30 (67)	4	26 (58)
51-55	37	19 (51)	3	16 (43)
46-50	39	24 (62)	3	21 (54)
41-45	34	15 (44)	1	14 (41)
36-40	37	33 (89)	0	33 (89)
Total	192	121 (63)	11	110 (57)

### Cytology results

Of the 110 smears taken from women attending after receipt of the first letter 84 were normal, nine showed inflammation, 10 showed mild dyskaryosis, and three showed moderate dyskaryosis. Smears from three patients showed marked dyskaryosis or cervical epithelial neoplasia grade III — one patient had no prior smear result recorded, one had had a normal smear reported six years previously and the third had had a smear taken in 1983 which showed moderate inflammatory changes. This latter patient was one of the two women who were recalled because of abnormalities in smears taken in the previous five years.

### Costs

The cost of smear taking and administration for the practice was approximately £600. The family practitioner committee reimbursed the practice through item for service payments and 70% reimbursement of salaries for practice staff. The cost to the National Health Service includes smear taking, administration and laboratory processing and the Department of Health

and Social Security estimate the cost of this to be £4.00-£15.40 per smear taken with a mean of £10.00. The total cost of the call programme to the NHS is therefore likely to be approximately £1100.

The three patients with marked dyskaryosis were treated by laser therapy or cone biopsy and the cost of this is difficult to estimate. However, if they are prevented from developing cervical carcinoma they will have cost approximately £366 per case identified. Had their disease progressed to clinical carcinoma treatment would certainly have cost more.<sup>11</sup> The benefits in terms of human suffering, although difficult to measure, must also be taken into account.

### Discussion

The practice population is relatively small and conclusions must be drawn with caution. Information from a poster and the availability of a doctor and nurse resulted in screening of 70% of the eligible women aged 36-60 years. However, the uptake was inversely related to risk, since risk increases with age. An effective system of recall and a first letter of invitation increased the screening level to 87%.

The percentage of women who responded positively to the letter was lower than the percentage already screened opportunistically or on demand. Some women, particularly younger ones, probably required only information and an offer of screening in order to volunteer. However, among those who had not been screened there may have been some women who lacked information and some who had information but who were nonetheless unwilling to undergo the procedure.

The percentage response to the letter varied with age in an unexpected way (Table 2). The best response was from the oldest and youngest age groups. This response was as good or better than the 70% from opportunistic screening. A possible explanation for the poor response from the intermediate groups may be that some women either received letters or were offered appointments during school half-term. Women may give greater priority to their children's needs during school holidays, and consequently have less time available for their own health. This should be remembered when planning cervical screening programmes.

Among the 110 smears taken from those who responded to the letter, three showed marked dyskaryosis or cervical epithelial neoplasia grade III. In England and Wales in 1980 6.8 per 1000 smears were classified as positive.<sup>12</sup> A large proportion of smears in the national sample are from lower risk groups and many smears reported as normal are repeated more frequently than every five years. It is not therefore surprising that smears in this study yielded four times as many positives as smears provided opportunistically or on demand.

Roberts and colleagues<sup>13</sup> have suggested that the NHS cannot afford cervical cancer screening. They estimate that it has cost the NHS £300 000 per life saved in the past 20 years. Two thirds of this cost (£200 000) was derived by multiplying the number of smears taken (40 000) per one life saved by a conservative estimate of £5 for the cost of a smear.<sup>14</sup> This does demonstrate that screening for cervical cancer in the past 20 years has been expensive but how should we extrapolate from this to make decisions about the future? The high cost per life saved reflects the fact that the group with the lowest risk has been screened most intensively. But high cost and low effectiveness is not an inevitable outcome of cervical screening only of an unplanned and poorly distributed service.

The challenge is to plan a service which is distributed systematically and cost effectively to the patients most at risk of death from cervical cancer. General practitioners who already have age-sex registers are in a position to do this. Health

authorities and family practitioner committees are at present arranging to implement computerized call and recall systems based on population registers.<sup>15</sup> When these are operational, all general practitioners will have access to a list of women in their practice who should be invited for screening.

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