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Cervical cancer screening in England

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Abstract

Cervical screening in England is provided free of charge by the National Health Service to all women aged 20–64 years. Computerised call and recall was introduced in 1988 and women receive an invitation every 3–5 years. Smears are taken by the local family doctor, by his/her nurse or at community clinics. Approximately 85% of English women have had a smear in the last 5 years. Quality assurance programmes have recently been established for laboratories and colposcopy clinics and lessons have been learned from previous failures of the service. The incidence has fallen from 16 per 100 000 in 1986 to 9.3 per 100 000 in 1997. Mortality is currently falling by 7% per year. © 2000 Elsevier Science Ltd. All rights reserved.

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1. Introduction

Cervical screening in England operates within the context of the National Health Service (NHS). The NHS offers healthcare, which is free, at the point of delivery, to all British subjects resident in the UK. It is funded from general taxation and all but a very few of the British population are registered with the NHS. Funding is given from central Government to local health authorities which then commission hospitals to provide smear reporting and colposcopy follow-up services. The programme is locally organised, but nationally co-ordinated, in the four territories of the UK. England is by far the largest territory of the UK, with a population of some 48 million people and is divided into eight health regions at a sub-national level.

Both incidence of and mortality from cervical cancer in the UK are high for a developed country. Within the European Union, UK rates have been second only to Denmark. There is a distinct north/south bias across the UK, with the south of England having the lowest incidence rate within the UK. This corresponds to the most affluent area of the UK.

Cervical screening began in the UK in a rather haphazard manner in the early 1960s. There were notable successes in some areas, such as Aberdeen in Scotland, which has been well reported [1]. However, in England and Wales, by the mid-1980s there was no discernible impact on mortality rates, which had been declining steadily from the mid-1950s. As far as incidence rates were concerned, incidence had been declining in older age groups, but by this time had begun to rise in the younger women aged 25–44 years [2].

In 1988, it was decided that a nationally specified cervical screening programme would be established to absorb the various local programmes which existed and ensure that screening took place at an equitable level across the country. According to the latest figures, we now have, in England and Wales, approximately 2700 cases of invasive cervical cancer per year, with nearly 19 000 cases registered of carcinoma *in situ* (CIS), and approximately 1200 deaths [3,4]. The changes introduced in 1988 consisted chiefly of the introduction of computerised call and recall for the target population, the introduction of proficiency testing for laboratory staff and the establishment of the clear objective of reducing mortality. The target population in the UK is women aged 20–64 years who are screened at least every 5 years. More than half the health authorities in England invite women every 3 years and in Scotland screening invitations are timed so that women have their last smear at the age of 60 years.

Currently in England, the programme costs around approximately €200 million, of which almost half is spent on target payments for general practitioners (GPs) for smear taking [5]. Of the remainder, laboratory reporting takes some €54 million, colposcopy some

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€40 million and the administration of the call and recall system around €9 million. Approximately 4 million women a year are screened in England for this amount which works out at approximately €52 per woman screened. It is interesting to note that this is a very similar cost per woman screened to the breast screening programme and probably a similar number of lives are saved. The women are, however, generally younger and therefore more life years are gained. There is also the additional benefit of preventing cancers. However, because many more women have to be screened, the costs per life saved are much greater than for breast screening. This may be a function of the different way the two screening programmes operate in the UK, with the breast screening programme being more streamlined.

In England, there are some 15 million women aged 20–64 years of whom almost 14 million are eligible. The remaining million women who are ineligible are largely those who have had hysterectomies or are for other reasons without a cervix (such as a congenital malformation).

2. Population and methods

The local health authority holds details of all patients registered with the NHS. From this database, a list is produced of the eligible women which is sent to the family doctor. The doctor then 'cleans the list', removing women for whom screening would be inappropriate, such as those who are terminally ill, and noting any changes of address. The screening programme, or sometimes the GP, then issues the invitation. Most smears are taken by the family doctor or by the nurse within the general practice. The latest figures show that 84% of smears are taken in general practice, with 7% being taken in gynaecology clinics, 5% in community clinics and the remaining 4% taken in various locations, which includes the private sector.

Smears are taken using an extended tip spatula. A bimanual pelvic examination is not included since it has not been shown to benefit asymptomatic women [6]. Human papilloma virus (HPV) testing is not currently included and the smear is a conventional Papanicolaou (Pap) smear. However, both liquid-based cytology and HPV testing are under consideration for possible future introduction.

In 1990, target payments were introduced for GPs to encourage them to include their female patients in the screening programme. There are two levels of payment depending on the level of coverage, with nothing being paid below 50%, a low payment for coverage from 50–79%, and a higher payment being reached at 80%. There is nothing between these two levels. Thus, there is a strong incentive for GPs to reach the 80% coverage target. In 1998/1999 in England, 90% of GPs did, in fact, reach the 80% target, 9% were at the lower 50–79% level and only 1% of GPs did not receive any payment at all. There are approximately 15 000 general practices in England. The combined result of computerised call and recall and target payments for general practitioners has meant that coverage has risen rapidly since 1988 to 85.3% (5 year coverage for ages 25–64 years) and is now steady at that level (see Fig. 1). Coverage is calculated starting at the age of 25 years, thus allowing for women to come in for her first time gradually during her first few years of eligibility. Coverage is not uniform across the country, however. There are particular problems in inner cities and in London in particular, where there is a very mobile, and often, a deprived population. Thus, there are still some 13 health authorities in England with coverage below the 80% level.

Opportunistic screening is not generally encouraged except where a woman, who is in the eligible age group but has not had a smear within the last 5 years, presents to the health service, perhaps for antenatal care, or for treatment of a sexually transmitted disease. In these circumstances, the programme would encourage opportunistic screening. The health authority database records the result of all smears whether they are taken opportunistically, in the private sector or following routine NHS call and recall.

Once the smear reaches the laboratory, it will have its primary screening by a cytology screener. These are specially trained individuals who, once qualified, can sign out negative reports. All negative smears are subject to rapid review. Those smears which the cytology screener suspects to be abnormal, are passed to a biomedical scientist for checking. This is a degree-qualified, state-registered individual who, again, will sign out the negative reports and pass the remaining suspected abnormals to the consultant pathologist. The consultant pathologist will make the final report and recommend any management that might be needed. All abnormal

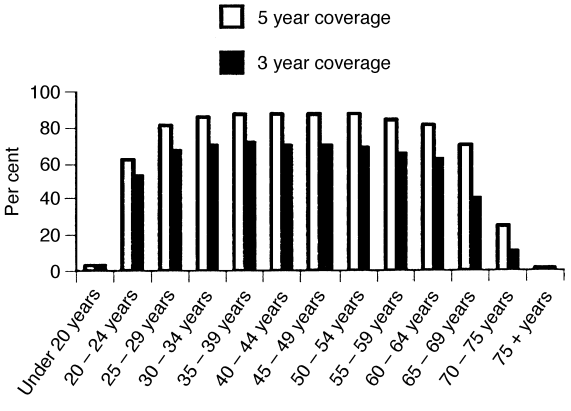

Fig. 1. Coverage 1997/1998 by age. Source: Statistical Bulletin: Cervical Screening Programme England 1997/1998. Department of Health, London, 1999. 25–64 years, 85.3% 5-year coverage; 25–65 years, 68.7% 3-year coverage.

smears must be reported by medically qualified staff. Women whose smears show a low-grade abnormality would normally be expected to have a repeat smear within 6 months. With a high-grade abnormality, it is expected that the patient would be referred immediately. It is also expected that a woman be referred after three borderline/atypical squamous cells of undetermined significance (ASCUS) smears or two mildly dyskaryotic smears. With these repeat smears included, there is a total of approximately 4.4 million smears per year reported by laboratories in England. Approximately 70 000 women with a high-grade abnormality will be referred immediately for colposcopy. Approximately 9% of smears are inadequate and 83.9% totally negative (see Fig. 2).

It is the responsibility of the smear taker to ensure that the woman receives her result. It is recommended that that result should be in writing, but this practice is not universally followed. A great deal of effort has been put in recently to ensure that GPs understand the meaning of the smear test results. In addition, national leaflets have been prepared for the first time to support women in understanding the meaning of an abnormal result and referral for colposcopy. If the result is an inadequate smear, the GP will not be paid and a further smear should be taken as soon as possible. Once the woman is referred, she comes under the care of the local gynaecologist, although the GP is kept informed of her diagnosis and management. There is currently no biopsy register, nor any centralised record of histology reports, although electronic transfer of results is being developed.

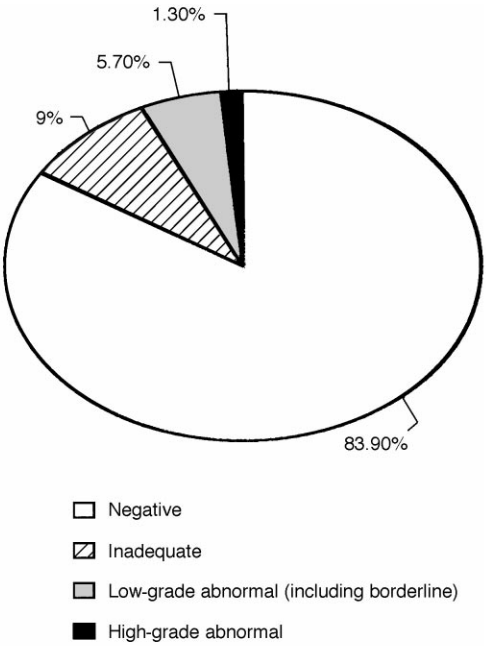

Fig. 2. 1997/1998 Smear results. Source: Statistical Bulletin: Cervical Screening Programme England 1997/1998. Department of Health, London, 1999.

2.1. Quality assurance

A quality assurance system is now being established for the screening programme. Proficiency testing has, until recently, been the sole method of assuring the quality of a laboratory. There have been no checks on colposcopy and smear taking has been very difficult to monitor. Guidelines have now been produced for the various aspects of the screening programme, including the quality of information given to women and the more technical topics such as standards in cytopathology and standards in colposcopy [7–10]. These guidelines have included minimum and maximum workloads where appropriate to ensure that practitioners see a sufficient range of disease to develop their skills to a high level and indicators of pick-up rates for both high-grade and low-grade abnormalities in screening smears [9]. This is all taking place within the structure of the NHS and linking with the cancer registries and cytology training schools which exist in each region.

It is recognised that quality assurance means action as well as data and where problems have been uncovered, they have been dealt with. Unfortunately, this has led to negative stories in the media, which might have damaged the credibility of the screening programme. However, this has not resulted in fewer women coming forward for screening.

Historically, national advertising campaigns for the screening programme have not been undertaken since this has not proved necessary. It was felt that it was something better done at a local level where it could be linked in with any local health campaigns. Whether this should be done is now under consideration as part of a general trend towards more informed choice rather than persuasion to participate. A poster has been produced and sent to all GP practices and public libraries for display. This gives some key messages such as: cervical screening is about prevention, not early detection of cancer, and that the test is not 100% accurate. It encourages women who have symptoms such as abnormal bleeding to report them to their GP. The poster also makes the point that the screening programme is very successful. Recent data show that mortality is falling, now by some 7% per annum and incidence rates have fallen from approximately 16 per 100 000 in England in 1986 to 11.2 per 100 000 in 1993, the most recent year for which definitive data are available [11]. Provisional data suggest that incidence rates had fallen by 1997 to 9.3 per 100 000 [3].

3. Discussion

The cervical screening programme in England is demonstrating the effectiveness of a well-organised Pap smear programme. Approximately 85% of eligible English women with a cervix have had a smear within the last 5 years and both the incidence and mortality are falling. Indeed, it is estimated that the programme is saving approximately 800 lives a year in women under 55 years alone [12]. The major investment in quality assurance over the last 4–5 years aims firstly to ensure that all laboratories and colposcopy clinics meet minimum standards. The next step is to improve the programme further. This includes making the programme more accessible to 'hard to reach' women, such as the homeless and deprived. It also includes ensuring that better information is available to women who are currently participating. With a robust, high-quality programme in place, the NHS can now move on to consider the introduction of new technologies or HPV testing. A sound structure will ensure that such a move can be made in a considered and planned manner, preserving high quality, rather than placing women at risk during the transition period which goes with any new system.

4. Conclusions

The English cervical screening programme is highly organised and is effectively reducing the morbidity and mortality from cervical cancer. It is building in quality assurance to every step of the programme in order to maintain minimum standards and move on to excellence. This forms a solid base from which the scientific and technical challenges of the next decade can be met.

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