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Cervical cancer screening in France

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Abstract

In France, as in other European countries the incidence and mortality rates of carcinoma of the cervix uteri indicate a clear decrease in invasive cancers. Opportunistic screening has spread and, presently, approximately 60% of the female population undergo a regular cytological test. This rate increases up to 80% in the younger age groups and decreases to 20% after the age of 60 years. In 1990, intervention procedures were defined at a consensus conference; the major recommendations were to screen all women exclusively by cervical smears, for ages 25–65 years over a 3-year period. Guidelines on the quality control of cervical smear taking and reading were published by the national agency of evaluation of health intervention (ANAES). Since 1990, four population-based, organised pilot programmes, have been implemented in Isère. Doubs, Bas-Rhin and Martinique. These programmes evaluate the participation rate (from approximately 20–80% depending upon the age and the geographical area), the rate of abnormal tests (0.2–3%), according to the laboratories, the cancer detection rate (0.04%–0.15%) and some other quality indicators. Recently (November 1998) a law was passed stipulating that the screening test will be free of charge when performed in agreement with the national recommendations. A specific organisation for cytological quality control will be implemented. An effort to better identify and to include the screening process the women in the population who are not yet participating has to be made.

Keywords: Cervical cancer screening; France; Opportunistic; Organised; Recommendations; Quality control; Guidelines

1. Introduction

In France, the estimated incidence rate of carcinoma of the cervix uteri is 10/100 000 and the mortality rate 4.6/100 000 (standardised for the European population). Such rates represent nearly 4000 new cases a year and 2000 deaths. As in many other European countries, mortality from cervical cancer has been in decline, at least since the 1950s. More recent incidence data are available, but these data also indicate a clear decrease of invasive cancers for women aged over 40 years. There is no decline in younger women where approximately 400 new cases have been observed, each year, since the 1980s. On the other hand, the incidence of carcinoma *in situ* is increasing in all age groups, as shown in Fig. 1 [1]. In women under 25 years, only 0.5% of invasive cancer has been observed.

In France, prior to 1990 there was no organised mass screening programme, but opportunistic screening had already become fairly widespread, correlating with the appearance in the 1960s of oral and intra-uterine contraceptives. At present, 6 million cervical smears are taken each year, mostly by gynaecologists. This number is large enough to offer a good coverage of the target population. However, 40% of the French women have never had a cervical smear test. This rate increases up to 50% in women older than 55 years and 80% after the age of 60 years [2]. In contrast, most women under 55 years have a cytological test annually.

The intervention procedures for cervical cancer screening were defined at a consensus conference held in Lille in 1990. The major recommendations were to screen all women, exclusively by cervical smears, in the age group 25–65 years, every 3 years following two

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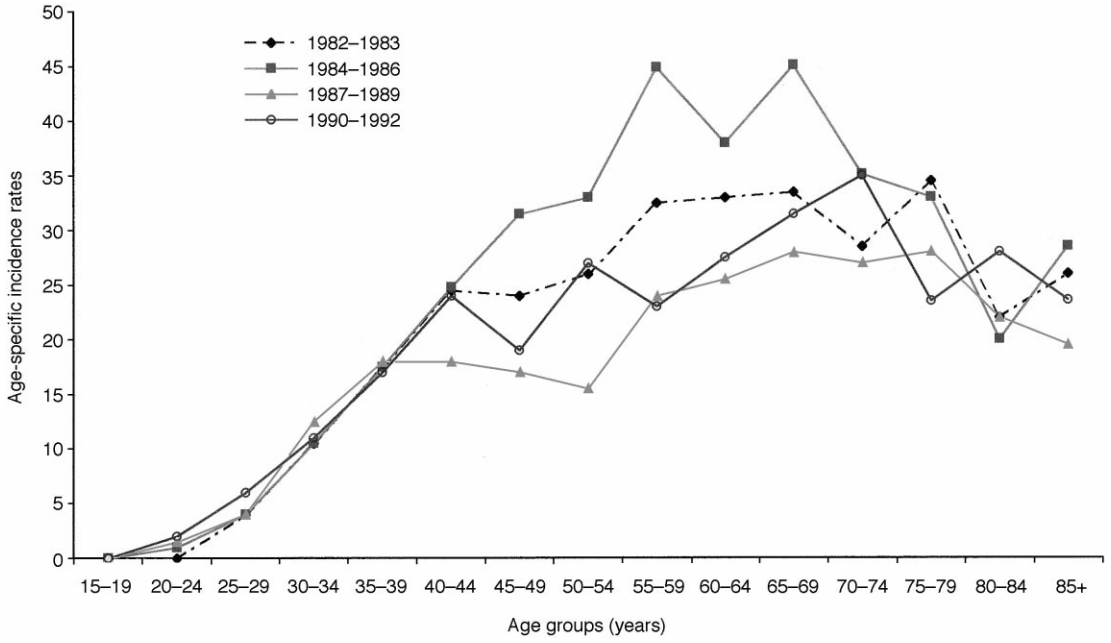

Fig. 1. Trends in cervical cancer incidence by age groups, France 1982–1992.

negative smears and to perform systematic quality control and evaluation of the results. At that time, no specific budget was allocated to screening. Following this conference, the 'association française d'évaluation de qualité en cytologie cervico-vaginale' was created and guidelines on the evaluation of quality of cervical smears were published [3]. All the pathology laboratories are responsible for the cytopathological readings and must follow the national guidelines. At present, there is no other type of guidelines and no accreditation is required. Since 1990, organised programmes have been implemented in various areas (départements) of France including the entire population of the area. We will describe briefly only four.

2. Population and methods

2.1. The Isère programme

The Isère region (Fig. 2) initiated the first screening programme in 1990 which included breast, cervical and colon screening tests for women aged 50–69 years. General practitioners or gynaecologists were in charge of taking cervical smears every 3 years, giving the haemoccult, and referring women to the radiologist for mammography. An invitation letter was also sent by the health insurance systems, while media advertising was also used. Women with positive smears were invited to go to the gynaecologist for colposcopy, but no maximum time interval was fixed. Specific quality controls were not mandatory for gynaecological examinations or treatments.

All results were collected by a specific structure: the 'office départemental de lutte contre le cancer (ODLC)'. The cancer register was in charge of the evaluation.

2.2. Results

From November 1990 to December 1992, a personal invitation was sent to 97 855 women aged between 50 and 69 years. Of these women, 20 041 cervical smears were taken, 4663 had a test in less than 12 months and 2371 women were not screened. The participation rate, for this first round, was only 22%.

The rate of abnormal results was 1.2% ($n=240$) and was higher in women under 60 years of age, non-adequate results were 1.2% (0.2–3% according to laboratories). Patients with abnormal results were followed-up in 95.7% ($n=230$) of cases, and 17% ($n=41$) of the cases underwent surgery: 5 cases were invasive carcinomas (one was an adenocarcinoma of the endometrium), 25 were high grade squamous intra-epithelial lesions (HSIL) and 8 were low grade squamous intra-epithelial lesion (LSIL). The detection rate was thus, 1.50/00 30/20041 [4].

2.3. The Martinique programme

In 1991, a pilot programme was initiated in Martinique (Caraibes) because of the high cervical cancer incidence rate in this region (25.7/100 000). The target population was women aged 20–65 years, i.e. 48 939 aged 20–34 years, 34 798 aged 35–49 years, and 24 751 aged 50–65 years. A personal invitation was sent to the women by the national health insurance systems,

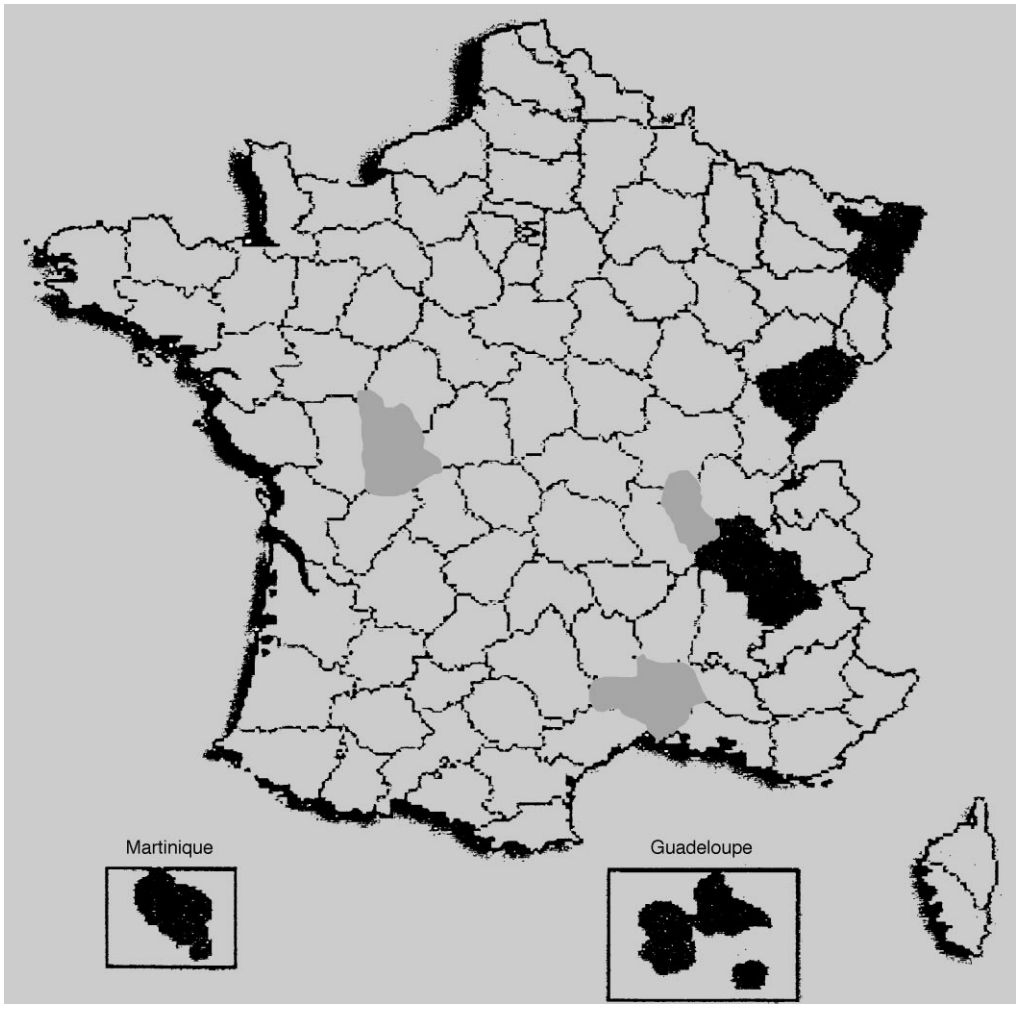

Fig. 2. Areas of pilot cervical screening programme in France.

every 3 years, while media advertising was also used. Cervical smears were taken by gynaecologists and general practitioners and were sent to the pathology laboratories of the island. All women with positive smears were recalled for colposcopy, without any fixed time interval. The cancer registry was in charge of the data collection to estimate the detection rates. Specific quality controls were not mandatory either for the pathology laboratories or the gynaecological examinations and treatments.

2.4. Results

The results after 7 years [5] showed a low participation rate, regardless of the age group: respectively 20.2%, 16.3% and 21.7% for the first and 16.4%, 19.7%, 22.6% for the second round, in spite of the advertised campaign and personal invitations. But when opportunistic screening was included, the coverage rate reached 50% for the 20–65 year age group. During the first 5-year period of the campaign 291 cancers were diagnosed, of which 61 were detected after screening. Among these 61 cases, 54% were *in situ* carcinoma.

2.5. The Doubs and Bas-Rhin programmes

In 1993 and 1994, two other programmes were initiated: one in the Doubs region and the other in the Bas-Rhin (Fig. 2). The aim of these programmes was to evaluate the already existing spontaneous screening, to increase the participation rate, to implement quality control for smear taking and reading and to insure high quality in every step of the screening procedure. Finally, the objective was to ensure the application of the Lille consensus conference [6,7].

The target population of the two programmes was women aged 25–65 years, living in the respective area. No invitation was sent to women under 50 years, but personal letters were sent by the insurance health structure to older women. An information campaign based on TV, radio advertisements and health professionals was conducted only periodically. General practitioners

Table 1
Coverage rates by age groups in Bas-Rhin and Doubs after 3 years

	Bas-Rhin		Doubs	
Age groups (years)	Target population in 1994	Coverage rate (%)	Target population in 1993	Coverage rate (%)
20–24			20 056	65
25–29	40 084	81.5	18 572	70
30–34	39 296	80.0	17 887	69
35–39	38 642	75.8	18 052	65
40–44	36 271	73.4	18 181	61
45–49	27 888	73.1	14 994	56
50–54	24 169	62.8	11 913	48
55–59	24 175	51.3	12 301	37
60–64	24 422	37.0	12 311	26
25–64/20–64	254 947	69.4	144 267	57

Table 2
Cytological results in Bas-Rhin and Doubs

	Bas-Rhin *n* (%)	Doubs *n* (%)
0 Not adequate	5279 (2)	163 (0.12)
1 Normal	105 481 (40.3)	11 2064 (84.8)
2 Nature altering/Inflammation	138 254 (52.8)	
3 ASCUS and AGUS	7934 (3)	17 274 (13.1)
4 Condyloma or CINI	3601 (1.4)	2 137 (1.6)
5 HSIL	1261 (0.5)	495 (0.37)
6 Carcinoma	112 (0.04)	52 (0.04)
Total	261 922 (100)	132 185 (100)

CINI, cervical intra-epithelial neoplasia I; ASCUS, atypical squamous cells of undetermined significance; AGUS, atypical glandular cells of undetermined significance; HSIL, high-grade squamous intra-epithelial lesion.

and gynaecologists were in charge of taking cervical smears. All women with positive smears were invited to go to the gynaecologist who performed colposcopy and, if needed, biopsy. An association including local health professionals and financing partners managed each programme. For data collection, a specific cytology register was created in both areas. Cancer registries were in charge of the evaluation. In fact, a cross-check with the cancer registry enabled the identification of all cancers and HSIL detected within or without the programme.

General practitioners were advised and offered training for taking the smears close to their residence. Quality control of cervical smear taking and regular seminars on reading and cytological standardised classification of the smears were performed.

2.6. Results

In Bas-Rhin, 177 008 women and in Doubs 93 950 women participated in the first evaluation. The results concerning coverage rate are given in Table 1. The data are those of the women aged 25–64 years at the beginning, i.e. in 1993 in Doubs and in 1994 in Bas-Rhin. After 3 years of the survey, 69.4% of the women in Bas-Rhin, and 60.5% in Doubs, had been screened at least once. There was a clear tendency to increase the interval between two testings to the recommended 3-year interval, but still 43.6% of women had a second unnecessary smear within the first 2 years (Fig. 3).

Table 2 gives the cytological results for the smears of these two cohorts of women, irrespective of test periodicity.

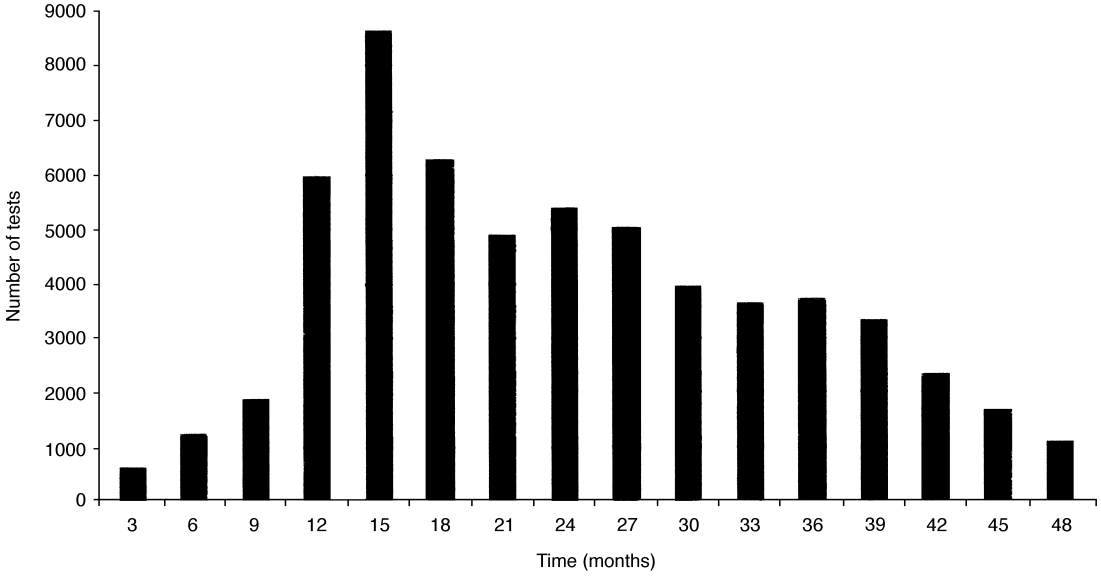

Fig. 3. Periodicity in the cervical smear testing in Bas-Rhin. Women who entered the screening in 1994 and whose smear was close to normal (class 1–2 of Table 2).

The rate of non-adequate slides is low, particularly in Doubs; abnormal smears (squamous intra-epithelial lesion (SIL) + Cancer; groups 5 and 6) represent 2% of the results which is within the accepted standard, and the cancer detection rate of 0.04% is the same in both areas.

Patients with abnormal smears (LSIL, HSIL, and cancer) were included in a systematic follow-up protocol. The follow-up rate, in Bas-Rhin was 90% for the smears giving a result of SIL or cancer. Only 1.5% of HSIL and 4.9% of LSIL were not followed-up, and 0.2% and 0.3%, respectively refused complementary examination.

In Doubs, 98% of abnormal smears of LSIL and HSIL type were followed-up, 86% had a complementary examination (colposcopy or another cervical smear), women without further examination (14%) were treated. Histology was negative in 9.5% of the women with biopsy or surgical excision who represented 96% of the followed-up population [8].

Quality indicators were studied in Bas-Rhin. The comparison between cytological and histological data is given in Table 3: 2.8% of HSIL were, in fact, invasive carcinomas, 0.6% were other histological types of cancer (sarcoma, etc...), and 18.8% of LSIL were histologically cervical intra-epithelial neoplasia (CINII) or CINIII. The total rate of underestimation error, when a complementary examination was performed, was approximately 22%. In contrast, the false-positive rate (leading to unnecessary examination) was 19.9% (426/2138), essentially due to the LSIL diagnosis. When considering only the HSIL and cancer diagnosis the false-positive rate was 9% (91/1015).

The cancer registries of these two areas systematically investigate cases of interval cancers. For invasive and *in situ* cancer after a negative smear all previous smears are revised. More data will be published, further, in order to make a clear distinction between false negative cases and real interval cancers. At present the evolution of incidence does not seem to have been modified by the campaigns.

Table 3
Cytohistological comparisons in Bas-Rhin

	Cytology		
Histology	Carcinoma $n=89$ (%)	HSIL $n=926$ (%)	LSIL $n=1123$ (%)
Invasive carcinoma $n=61$	35 (39.3)	26 (2.8)	0
CINIII + *in situ* $n=632$	36 (40.4)	501 (54.1)	95 (8.5)
CINII $n=290$	0	174 (18.8)	116 (10.3)
CINI $n=709$	0	132 (14.3)	577 (51.4)
Normal ($n=426$)	4 (4.5)	87 (9.4)	335 (29.8)
Other cancers $n=20$	14 (15.7)	6 (0.6)	0

HSIL, high-grade squamous intra-epithelial lesion; LSIL, low-grade squamous intra-epithelial lesion; CIN, cervical intra-epithelial neoplasia.

3. Discussion

In the face of such a heterogeneous situation, new propositions for the optimisation of cervical cancer screening in France were made by the National Cancer Council in 1997.

Analysis of the already implemented programmes has helped to define a new strategy for cervical screening in France taking into account the difficulties and the advantages of the country's specific health structure organisation and the size of the targeted population (17 million).

A national committee is now in charge of editing guidelines and following the cancer cervical screening practice of the entire country (1999).

A new law was voted (November 1998) stipulating that the screening test will be free of charge for all women when performed in agreement with the national recommendations. In the near future, a specific organisation for cytological quality control, based on an accreditation system, will be mandatory for the professional. A group of experts have already been working in this field, using the European guidelines as a baseline. The pathologists on a regional and voluntary basis have initiated a computerised national database of cytological cervical smear results (CRISAP). The participation in this cytological register could become mandatory and thus, these data would serve to organise the follow-up of the abnormal smears (HSIL and cancer), which is of great importance.

1. Regional evaluation will use cancer registry data, pathology laboratory reports and national health insurance registration.
2. Another national committee will be in charge of the information campaign and the training for all cancer screening programmes.
3. Budgets for information, training and management must be allocated by the national health insurance systems and by the Ministry of Health.
4. National evaluation will be done by the national agency for medical evaluation (ANAES), which has already published recommendations for cervical smear testing and follow-up of abnormal smears [9].

4. Conclusions

Opportunistic cervical screening has been widespread in France for a long period to which the decrease in the incidence rate of invasive carcinomas is, at least in part, attributable. However, a further benefit could probably be obtained by better focusing on the screening practice for women over 55 years and by implementing a quality assurance programme for the test itself and the follow-up of women with abnormal smears.

The new proposed organisation, following the EC recommendations, could help to reach such objectives. Public health authorities also intend to decrease the number of unnecessary cervical tests and treatments.

In the future, more investigation is needed regarding the screening of young women (under 35 years) where cervical smear tests, even with a 1-year periodicity, do not seem to be effective. In addition, new procedures for screening tests, such as monolayer preparation system and Papnet testings have to be evaluated, as well as the potential usefulness of human papilloma virus (HPV) detection in increasing the sensitivity of the testing procedures.

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