

An Evaluation of a Pap Smear Service in a Rural General Practice — L London



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Curriculum vitae

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Summary

It is recognised that cervical cytology (PAP) screening can play an important role in the prevention of morbidity and mortality due to cervical cancer. The PAP smear service provided at a rural Medical Benefit Fund practice in the Western Cape was evaluated based on review of 205 smears taken over the period June 1987 to December 1990. High incidences of cytological abnormalities were found amongst a predominantly "Coloured" population. Despite covering less than 10% of female patients, the efficiency of the service in terms of follow-up and intervention was high. Reasons are advanced for the need to direct screening at women who do not receive PAP smears from State clinics. This study reinforces the argument that there is an important role for opportunistic PAP screening by general practitioners for patients who would otherwise never receive adequate cytological screening. A call is made for State laboratory facilities to be made available for this purpose as part of a concerted preventive campaign against cervical cancer.

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KEYWORDS:

Cervix Dysplasia; Cytology;
Women, working; Physicians,
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Introduction

Cancer of the Uterine Cervix represents one of the important preventable public health problems in the world today,¹⁻⁵ particularly amongst women in the third world¹⁻⁴ and amongst working class women.^{2,3,6,7} Studies in South Africa have confirmed that cancer of the cervix is common amongst African women⁸⁻¹⁰ and is increasing amongst "Coloured" women.¹¹ Despite the potential for Papanicolou smears (PAP smears) to prevent the development of cancer of the cervix^{1,3,6,7,12-18} and to drastically reduce health care costs due to the disease,^{5,13,17,19} it appears that many South African women who are most at risk do not have access to PAP screening.^{5,13,16,17,20} However, PAP smear services may be fraught with operational difficulties^{9,21,22} and should be constantly monitored and evaluated to ensure their effectiveness.^{1,23,24}

PAP smears in South Africa are provided by both public sector health facilities and private sector general and specialist practitioners, yet little quantitative data is available on the distribution of PAP smears.²¹ There is evidence that fee-for-service reimbursement in the private health sector does not encourage preventative health measures amongst those patients who cannot afford it.^{25,26} The role of general practitioners in the prevention of cervical cancer has not been explored in South Africa to date. Evidence from the United Kingdom suggests that family practitioners can play an important role in providing a preventative service for cervical carcinoma.^{6,22,26,27-29}

The Food Workers Medical Benefit Fund (FWMBF) runs a full-time

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general practice in Paarl for workers in the food processing and packing industry, of whom the majority are "Coloured" women employed seasonally. Starting in 1987, the clinic has provided a PAP smear service for women who are unable to obtain their smears from the local municipality clinics or who prefer to attend the FWMBF clinic for their

Early detection drastically reduces costs.

PAPs. This service was not intended to replace existing services providing PAP smears but to supplement in situations where access to State services proved to be difficult for the patient. Since 1988, the clinic has made use of a register to ensure thorough recall of women when a follow-up smear is indicated.²⁸ For smears of normal cytology requiring routine follow-up, the FWMBF clinic followed a policy of repeating the smear within a year on women who were receiving their first ever smear, and within three years for all others. For smears of abnormal cytology, laboratory guidelines for follow-up were followed. Cytological analysis of smears was performed free of charge at the Department of National Health and Population Development laboratory until its closure in February 1989 and at Groote Schuur Hospital Cytology laboratory thereafter. This study was undertaken to review the service offered to women eligible to use the clinic during 1987-1990.

The objectives of the study were to:

1. Describe the pattern of PAP smear

utilisation amongst women attending the FWMBF clinic.

2. Describe the incidence of abnormal cytology and associated abnormalities.
3. Evaluate the efficiency of the service offered in terms of follow-up and intervention.

The study concentrated on measures of process and not on outcome, since morbidity and mortality would have been beyond the scope of the evaluation. The study therefore sought to evaluate efficiency rather than effectiveness of the PAP smear service provided.

Material and Methods

Evaluation of PAP smear service efficiency was performed by record review of all PAP smears taken at the FWMBF clinic from June 1987 to December 1990. Information on age, date of smear, cytology result and follow-up outcome was recorded for all smears. Follow-up was defined in

terms of (a) whether the patient received further colposcopic examination or definitive treatment at Provincial gynaecology services for an abnormal smear, or (b) whether they returned within the time period recommended by the cytology laboratory services for a follow-up smear. Smears were taken according to standard technique.^{1,27} For a random sample of 30 smears taken at the FWMBF practice during the study period, assessment was made of the indication for taking the smear.

Classification of cytology results was done according to World Health Organisation (WHO) guidelines and is reported in terms of the Cervical Intra-epithelial Neoplasia (CIN) system.¹

Analysis

Interquartile ranges were estimated according to methods outlined in Slove and Anderson for grouped data.²⁹ As measures of association, Odds Ratios were calculated with

Table 1. Age distribution of PAP smear users 1987-1990, women patients in 1990 and female workforce in 1987

	Median Age	Interquartile Range	Range
PAP Smear Users 1987-90 (n = 205)	38	29 - 45	19 - 64
Women Patients 1990 (n = 1032)	31	23 - 44	16 - 76
Female Workforce 1987 (n = 1635)	29	24 - 38	16 - 69

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Table 2. PAP smears and Proportion of coverage of workforce and patient population.

Time Period	PAP Smears	Rate per Female Workforce	Rate per Female Patients
June 87 - Dec 87	11	0,6%	1,3%
Jan 88 - Dec 88	73	4,3%	8,8%
Jan 89 - Dec 89	74	3,9%	9,6%
Jan 90 - Dec 90	47	2,3%	4,6%

95% confidence intervals according to Fleiss.²¹ Statistical significance of differences in proportions were calculated using a X^2 statistic or, where cells were too small, by means of Fisher's exact probability.

Results

There were 205 smears taken at the FWMBF clinic during the period under investigation, of which 10 results were still outstanding at the time of record review. Table 1 gives the age distribution of women receiving PAP smears at the FWMBF clinic and lists the distribution of female patients attending the clinic in 1990 and the distribution of the age of the female workforce in 1987 (latest accurate figures available).²²

Table 2 lists the numbers of smears taken each year and the proportion these constituted of the female workforce and of the female patient population, respectively. Denominators for workforce size from 1988 are estimates based on 1987 data.

Table 3 lists the indications for PAP

smears amongst a random sample of 30 women and Table 4 describes cytological abnormalities found amongst 195 smears for which results were available at the time of review. An abnormality rate (including severe dysplasia or worse) of 1% of all smears and 1,2% of all first smears was found.

Evidence of Human Papilloma Virus Infection was noted in 4 smears (2,4%). Other abnormalities

(including lesser degrees of dysplasia or atypia) amounted to 18,9% of first smears and 20,5% of all smears.

All 9 smears with evidence of intra-epithelial neoplasia (CIN 1 or worse) were reported after February 1989 by the Groote Schuur laboratory. Of the 101 smears processed by the State laboratory prior to its closure, none were reported as having evidence of CIN or invasive carcinoma. (Fisher's exact test: $p < 0,05$)

Of the 4 women requiring follow-up for abnormal cytology on their first smear (for CIN 1,2 or 3), all were successfully recalled and follow up established. Three patients underwent colposcopy at a local State Gynaecology service and two subsequently underwent hysterectomy. The fourth patient received a follow-up smear according to laboratory recommendations and is still being followed-up. Three patients whose initial smear cytology was reported as normal had CIN 1 on their second smear and are due to receive follow-up smears. The patient

Table 3. Indication for PAP smear amongst a random sample of PAP smear users

Indication for PAP	Number of PAP's
Presence of a Gynaecological Problem	11 (37%)
Attendance for an unrelated Medical Problem	12 (40%)
Specifically requested a PAP smear	2 (7%)
Reason Unstated	5 (17%)
TOTAL	30 (100%)

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Table 4. Cervical Cytology amongst PAP results (n = 195)

Cytology	First Smears	Second Smears	Third Smears	All Smears
Normal	135 (80%)	15 (60%)	1 (100%)	151 (77%)
Mild or Moderate atypia	29 (15%)	6 (24%)	-	35 (16%)
Mild dyspl (CIN 1)	2 (1,5%)	4 (16%)	-	6 (3%)
Moderate dyspl (CIN2)	1 (0,6%)	-	-	1 (0,5%)
Severe dyspl (CIN 3)	1 (0,6%)	-	-	1 (0,5%)
Invasive Carcinoma	1 (0,6%)	-	-	1 (0,5%)

with invasive carcinoma was referred to hospital but refused follow-up.

Of the 29 women with atypia on cytology on their initial smear, 16 received a follow-up smear by the end of 1990 and only 9 women had missed appointments for their follow-up smears. However, the follow-up pattern of women with normal smears was significantly poorer. Of the 10 women who were due for a follow-up smear by the end of 1990, only 3 had received a follow-up smear by the end of 1990. This difference was statistically significant (Fisher's exact test 1 tailed: $p < 0,05$).

Discussion

There can be little doubt that cervical cytology can play an indispensable role in the early detection of pre-malignant dysplastic lesions of the uterine cervix^{1,9,12,13} and contribute to a reduction in the mortality due to cervical cancer.^{3,5,6,7,9-14,15,17} However, many studies have pointed to the fact that many women in South Africa do

not have access to cervical smear services,^{5,16,17,20} as a result of which, Black South African women tend to present with late stage invasive carcinoma of the cervix.⁵ Because of this, many authors have argued for opportunistic PAP screening of female patients attending health services for visits unrelated to cytological screening,^{5,16,27,28} including routine PAP testing of all women over the age of 20 years admitted to State and Provincial Hospitals.¹⁶

Little data is available on the role of primary care physicians in PAP smear provision. In the United Kingdom, general practitioners are routinely involved in the taking of PAP smears.^{22,24,27-29} In South Africa, it appears that general practitioners in the private sector tend to provide PAP smear services to women of higher socioeconomic class who need it least.¹⁶ It has been argued that the task of taking cervical smears should not be the responsibility of doctors who are frequently too busy.⁵

However, WHO recommendations regard all health care workers with suitable training as appropriate personnel to carry out cervical screening.¹ This would include both primary health care doctors and nurses.

In order to prevent the massive individual and social burden of invasive carcinoma of the cervix, there seems every reason for general practitioners, or their trained staff, to take PAP smears on patients at risk for cervical carcinoma and its precursors.^{5,24,29,34} A pilot study of 100 patients presenting with cervical cancer in Soweto showed that 32 of these patients had first attended general practitioners for their initial symptoms. Of these, there was a delay in the diagnosis in 13 cases as a result of failure by the GP to provide PAP smears.⁹

Table 3 reinforces the argument that opportunistic screening for cervical dysplasia in a general practice is a feasible prospect. The FWMBF clinic was doing PAP smears on roughly one in 11 female patients in 1988 and 1989 with a slight decline in 1990 due to staffing changes. The reasons for uptake of smears at the

Register to ensure recall when follow-up is indicated.

FWMBF clinic in preference to other sources may include easier access, greater explanation, more familiar surroundings and more suitable times of service. These aspects need further documentation.^{6,9} On the other hand, data in Table 2 shows that there were still many women who were

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cytology to non-medical aid patients. However, the experience of the FWMBF Clinic has been that, with State or Hospital facilities providing free laboratory examination at little or no extra cost to their own overheads, the costs to patient and practitioner are minimal. Given the fact that a general practice already provides an appropriate infrastructure, the costs of providing PAP smears are limited to the actual materials, time taken for performance of the smear and the administrative costs required for processing of the smear. In comparison, the financial burden placed on our tertiary health services by patients presenting with cervical carcinoma has been shown to be extraordinarily high^{5,16} and a huge potential exists for PAP smears to save costs in terms of health care expenditure.¹⁶

Conclusion

The value of routine cytological screening of all female patients at risk to cervical cancer should not be underestimated. There is ample evidence that the failings of certain cervical cytology programmes are not attributable to intrinsic problems in the notion of screening for cervical dysplasia, but are due to inadequacies in the organisation of the programmes,^{21,24} and could be addressed by strengthening logistical aspects, rather than cutting back on such programmes.

Ideally, the provision of preventive and promotive services should be a coordinated national programme in which general practitioners' contribution to preventive health care is supplementary to services provided at State clinics and hospitals. This, in turn, implies a serious commitment to the establishment of a National

Health Service.²⁵ Until such a National Health Service is a reality, the value of opportunistic screening by GPs remains one of the most important ways of reaching many women who would otherwise miss the opportunity of having a PAP smear.²⁴ Many General Practitioners are in an ideal position to provide such screening to black working class female patients who either cannot afford private laboratory costs, or do not have access to State clinics.^{20,29} There is also evidence that General Practitioners' attitudes are crucial to encouraging take-up of cervical cytology screening^{6,29} and can play an

Crucial role of general practitioners in promoting uptake and follow-up of PAP smears.

important role in follow-up^{15,22} and in educating and counselling patients to allay fears concerning the test and treatment for abnormalities.^{6,9,22,29} There seems an urgent need for the State to upgrade the capacity of its laboratory facilities as part of a national preventive programme to combat cervical cancer.^{15,16,33}

Services offered free to women at high risk for cervical neoplasia through general practitioners should therefore be integrated with existing state services.^{7,22} Public education on the value of PAP screening is crucial to the success of PAP smear programmes⁹ and there is growing evidence that communities and organised labour would be receptive to the idea of such a campaign for women's health.^{20,40}

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