

# CERVICAL CANCER SCREENING

RESULTS OF A FOUR AND HALF YEAR STUDY IN A RURAL AREA OF GHANA. (JAN. 1988 TO JULY 1992)

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## ABSTRACT

From January 1988 to July 1992 cervical smears were taken from a total of 4053 women at the Catholic Hospital at Battor in the Tongu District of the Volta Region of Ghana.

Staining, grading and classification of the slides were done according to the Papanicolaou's method.

Three thousand nine hundred and thirty-three (97.04%) of the smears taken were negative, 67 (1.65%) were suspicious and 53 (1.31%) were positive. There were no positive findings among women below the age of 24 years. Of the positive results the highest prevalence was among women in age group 50 and above (58.49%), grande multiparae of parity 5 and above (62.26%), and rural dwellers (37.74%).

Cervical intraepithelial neoplasia has also been shown in other studies to be related to advanced age, high parity and rural residence and women with lower socio-economic status.

Mass population screening for pre-invasive cervical cancer may not yet be feasible and cost-effective in our population because of other priority health needs. However, selective screening of those women at highest risk, namely women of advanced age, high parity and low socio-economic status is advisable as a preventive measure against later development of invasive cervical carcinoma. Recommendations are made for the establishment of a selective cervical cancer screening program in Ghana.

**KEY WORDS:** Cervical Cancer, Pap Smear Screening

## INTRODUCTION

The problem of cancer in general, and of genital cancer in particular cannot be over-emphasized. Cancer occurs in the genital tract with great frequency.

Cancer of the cervix is the most frequent genital malignancy occurring among women in developing countries [2,4,8] and also among women worldwide [1,2,3,4]. Junaid for example found it to be the commonest cancer in the Nigerian female [2].

Fortunately, the genital tract is readily accessible to direct physical examination as well as cell and tissue study. The unique accessibility of the cervix, has permitted intensive investigations of cervical cancer through application of simple diagnostic procedures especially in developed countries. Diagnosis of cervical cancer can now be established at an early stage of the disease and this has permitted treatment by techniques and methods which can lead to cure of many patients.

National Programs that promote mass cytological screening for early detection of cervical carcinoma are currently not available in Ghana. Hence the prevalence of pre-invasive cervical carcinoma in the Ghanaian population is not known. A Cervical-cancer screening program was, however, started by a Catholic Mission Hospital at Battor, a rural hospital in the Tongu District of the Volta Region of Ghana in January 1988.

This paper reports on the results of a four and a half year screening period from January 1988 to July 1992. It will determine the prevalence of pre-invasive carcinoma in the population attending the hospital as well as examine the role of known risk factors such as age, parity and socio-economic status. Recommendations will be made for the establishment of a cervical cancer screening program in Ghana.

## PATIENTS AND METHODS

During the 4½ years study period, records show that Cervical smears were taken from 4053 women of 20 years of age or more reporting to the hospital. The following clinical details of patients were recorded: Age, Parity, Marital Status, Age at first pregnancy and living area i.e. Rural or Urban. Smears were taken by one of the authors (BKF) using an unlubricated bivalve speculum and Ayre's spatula.

Preparation and staining of the collected cervical cells was done according to the Papanicolaou method by a trained technician. Evaluation of the slides were done independently by the 2 authors who are both trained gynaecological cytologists. Individual results were compared, reviewed and graded according to the



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Papanicolaou classification. Slides found on repeat review to be false-positive after treatment of concomitant genital tract infections were eliminated from the study. Smears graded as Pap V suggesting a microcarcinoma were similarly excluded.

Statistical analysis was performed using Epi info program. The Cornfield method for determining Odds Ratio (OR) and Confidence Interval (CI) was used. A P-value of less than 0.05 was considered statistically significant.

## RESULTS

A total of 4053 cervical smears were taken from the women. Three thousand two hundred and sixty two (80.48%) of the slides were graded Pap I; 671 (16.56%) Pap II; 67 (1.65%) Pap III and 53 (1.31%) Pap IV. Thus 3933 (97.04%) of the smears were negative, 67 (1.65%) suspicious and 53 (1.31%) positive.

## AGE DISTRIBUTION

Table I presents Pap smear results according to the clients age distribution. No positive findings were noted among women below the age of 24 years. Of the positive results, 8 (15.09%) were in the 25-39 years age group, 8 (15.09%) in the 40-49 year group and 31 (58.49%) in the 50 and above age group.

The risks of cervical cancer in the 40-49 age group and in the age group 50 and above were 5.23% and 76.26% respectively, when compared to women in the 25-39 age group. Patients in the 40-49 age group therefore were more likely than those in the 25-39 age group to

have a positive Pap smear (OR=5.23, 95% CI=1.78-15.34). Patients in the age group 50 and above were at highest risk of having positive Pap smear (OR=76.26, 95% CI=32.82-183.58). These differences were statistically significant (P<0.05).

## PARITY DISTRIBUTION

Table II presents the distribution of Pap smear findings by parity. Only 1 (1.89%) Nullipara and 2 (3.78%) Primiparae had positive results. Eleven (20.75%) multiparae and 33 (62.26%) Grande multiparae had positive Pap smears. The risk of a positive Pap smear among Primiparae when compared to Nulliparae was not statistically significant (OR=1.76, 95% CI=0.09-103.97, P=0.54).

Multiparae were more likely than Nulliparae to have a positive Pap Smear (OR = 7.70, 95% CI.1.11 - 331.6). Grande Multiparae were at highest risk of having a positive Pap smear (OR=58.47, 95% CI=9.71-2381.16). These differences were statistically significant (P<0.05).

## RESIDENCE

Table III presents Pap smear findings according to place of residence. Twenty of those women with positive findings 20(37.74%) were rural dwellers whilst 27 (50.95%) were urban dwellers. Patients from rural areas were more likely than those from urban areas to have a positive Pap smear (OR=2.40, 95% CI=1.29-4.45). This difference was found to be statistically significant (P<0.05).

TABLE 1: FACTORS RELATED TO POSITIVE PAP SMEARS

Factors	Total No Women	Pap smears				Odds Ratio	95% CI	Pvalue
		Positive		Negative*				
		N	%	N	%			
<b>Table I: Age</b>	<b>Distribution</b>							
≤ 24	479	0	(0)	479	(11.98)			
25-39	2783	8	(15.09)	2775	(69.38)	1.00		
40-49	539	8	(15.09)	531	(13.27)	5.23	( 1.78-15.34)	0.00
≥ 50	172	31	(58.49)	141	(3.52)	76.26	(32.82-183.5)	0.00
Not Known	80	6	(11.32)	74	(1.85)			
Total	4053	53		4000				
<b>Table II: Parity</b>	<b>Distribution</b>							
0	949	1	(1.89)	948	(23.70)	1.00		
1	1079	2	( 3.78)	1077	(26.93)	1.76	(0.09-103.97)	0.54
2-4	1366	11	(20.75)	1355	(33.88)	7.70	(1.11-331.60)	0.01
5	568	33	(62.26)	535	(13.37)	58.47	(9.71-2381.1)	0.00
Missing	91	6	(11.32)	85	(2.12)			
Total	4053	53		4000				
<b>Table III: Residence</b>	<b>Distribution</b>							
Urban	3017	27	(50.94)	2990	(74.75)			
Rural	932	20	(37.74)	912	(22.80)	2.40	(1.30-4.50)	0.00
Missing	104	6	(11.32)	98	( 2.45)			
Total	4053	53		4000				

CI = confidence interval

Negative\* (N=4000) includes number of smears evaluated as Pap III (N=67)

## DISCUSSION

The results of this preliminary study suggest that pre-invasive cervical carcinoma is a major problem in the population investigated; thirteen out of every 1000 women are likely to have a positive cervical smear. As has been noted in developed countries, pre-invasive cervical carcinoma in this study is also associated with increasing age and parity. Rural dwellers, presumably because of their lower socio-economic status also has a higher prevalence of positive smears [5,6]. This latter association, however, will need to be further investigated in order to determine whether there are other variables and aetiological factors. A major limitation of this study is that only Pap smear evaluation was used. Ideally simultaneous colposcopy to confirm Pap smear findings is necessary. However, a colposcope was not available in the hospital. Coppleson *et al* (1971) showed in their study that exfoliative cervical cytology and colposcopy each alone gave 93% and 92% positive results respectively; whilst when combined 98% positive results were obtained in the 321 cases they investigated [7]. Olatunbosun *et al.* (1991) demonstrated that up to 80% of cases of cervical neoplasia can be identified if cervical biopsy is performed in women with both positive cytology and colposcopy findings. This reduced the rate of unnecessary cervical biopsies [8]. The main drawback when cytology results alone are used as an indication for cervical biopsy is the rather high rate of false-positive and false-negative results. False-positives lead to high rates of cervical biopsies whilst false-negatives result in women with cervical neoplasia being overlooked and therefore missing treatment at an early stage of the disease. Colposcopic directed biopsy has also been clearly shown to be a more accurate method of determining cervical pathology. Staff and Mattingly (1973) found colposcopic directed biopsy to be 85% accurate [9]. Odell (1973) managed 34 cases of carcinoma in-situ and 19 cases of dysplasia by colposcopically determined punch biopsy and electro-cauterization of the lesions [10]. In this study therefore where only Pap smears were used, the true incidence of pre-invasive cervical cancer may be missed on account of the high rate of false negatives and false positives associated with this screening method. From these facts, simultaneous colposcopy or colposcopy to confirm the diagnosis in positive or doubtful Pap smears is extremely important. Efforts must be made to include Colposcopy in such screening programs.

In developing populations such as ours with other numerous urgent priority health needs in the Primary Health Care sector of the health delivery system, mass population screening for pre-invasive cervical cancer may not yet be feasible and cost-effective. Nevertheless, the groups of women at highest risk of cervical cancer, namely women of advanced age, high parity and low socio-economic status, need to have selective screening done periodically as a preventive measure against later development of invasive cervical carcinoma. We would like to recommend that similar Pap smear screening program should start in the two Teaching Hospitals in Ghana, namely the Korle-Bu Teaching Hospital in Accra and the Komfo Anokye Teaching Hospital in Kumasi with the support of the Ministry of Health.

To conduct these screening programs, the centres should have:

1. Well-trained Cyto-technologists and histopathologists.
2. Colposcopy facilities and colposcopists as well as Treatment facilities such as Conization, Loop Electro-surgical Excision Procedure (LEEP), Cryosurgery and Electrocautery.

These two centres could also serve as referral and training centres to regional and district hospitals. Furthermore, they could become the bases for initiating public health education programs in collaboration with the Ministry of Health. Such programs can raise the level of awareness of women, particularly those at greatest risk, about cervical cancer and the necessity and advantages of Pap smear screening. Public health education programs are also necessary to address the many cultural misconceptions about cervical cancer and its treatments such as hysterectomy and radiotherapy.

In conclusion, we have reported a high prevalence of pre-invasive cervical cancer in a rural population of Ghana and have demonstrated its relation to risk factors such as age, parity and possibly low socio-economic status. We have emphasized the need for at least selective Pap smear screening of women at risk and made recommendations for the establishment of a cervical cancer screening program in Ghana.

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