"A REVIEW PAPER OF THE CERVICAL CYTOLOGY DIAGNOSIS SERVICES AT THE DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY LABORATORIES UNIVERSITY OF NAIROBI-(1996 – 2007)."

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INTRODUCTION

Invasive Cancer of the Cervix is considered a preventable disease because cancers of the Cervix develop slowly through pre-cancerous changes to invasive cancer in about 10-15 years. Pap smear screening for the early detection of cancer of the cervix contributes to early successful treatment.

The Obstetrics and Gynaecology cervical cytology laboratory was opened to serve reproductive health research projects and training. Later in June 1996, it was opened for community healthy service, under Income Generating Activities (IGA), University Project up to date. To date, the number of women referred by health workers and on individual self request for Pap smear findings has increased. This project Endeavour's to evaluate the quality, co-ordination of the services and the pattern of Pap smear findings.

OBJECTIVE

The specific objectives were to:-
• Describe trends of the number of Pap smear tests done over the years.
• Determine the proportion of clients who came on self request to those who were referred by Healthcare Pro viders;
• Estimate the Pap smear information recovery rate.
• Determine the proportion of the request forms from clinicians which were adequately filled
• Determine proportion of Pap smear specimens which were satisfactorily collected.
• Indicate the pattern of Pap smear report findings.

STUDY DESIGN

The study design was retrospective. The population included were reports for women, who have had Pap smear done whether referred by health providers or by self request, between June 1996 and December 2007. Those women who have been tested through the research project were excluded.

METHODOLOGY

A questionnaire was used to collect clients' information from the Laboratory request and report form.

RESULT

The request for Pap smear tests increased over the decade from 1996 to 2007 (4284). The highest requests were obtained in 2005 (794). The average self request percentage was only 21.0% Against the referred requests by Health Workers which was 79.0%.
However recovery of patient information of year 1996 to 2004 was scarce, while information for 2005 to 2007 was adequate for analysis. Therefore for further analysis was done for year 2005 to 2007.

It is important to fill the patient pertinent information on the Pap smear request form. The indicators includes: (Age, Parity, Date of last menstrual period, Date of last delivery (year) and method of family planning in use or ever used.
The frequency of age indicated was 90%, the frequency of parity indicated was in 73.6% while the frequency of the last menstrual date indicated was in 72.7% and the date of last delivery was indicated only in 49.7 % (table 5).

The majority came to have a Pap smear because of routine check up (57.6%). Other reasons included: Abnormal bleeding, Fibroid, Vaginal pelvic infection, Cervical erosion, but 18.3% did not the Provisional diagnosis indicated (table 7).

The majority of clients (65.2%), the state of the Cervix clinical observation was not indicated by the health providers. The other clinical observation indicated included: Normal (21.5%), Bleeding (3.7%), Inflammation (3.0%),erosion, (2.3 %), abnormal discharge (1.8%) and others.

A total of 2161 cases were recorded. The Pap smear information recovery rate was 98.5% (2128).

The percentage of samples which were satisfactory for analysis was impressive with over 97.6% being satisfactory.

The pattern of Pap smear findings indicates that: A total of 2075 cases were analysed. Normal 46.0 % (955), Reactive / Inflammatory / Benign (953) 45.9%, ASCUS: (80), 3.9% AGUS (10) 0.5%, LSIL (41) 2.0%, HSIL (28)1.3 % and CaCX (8) 0.4%. The prevalence of HPV on Cytology was noted and is inclusive in abnormal clusters (LSIL, HSIL and CaCX).

CONCLUSION

There was steady increase in number of Pap smear tests done at the Laboratory over the decade indicating awareness and importance of Pap smear screening. There was low Pap smear self request indicating need for increased public education. The proportion of satisfactory samples received was impressively high indicating that if health providers are properly trained, there will be no need for repeat Pap smear tests therefore, reducing costs and inconvenience of the clients. The prevalence of abnormal Pap Cytology (LSIL HSIL and (CaCX) was 4.0%, a figure similar to previous local studies.

RECOMMENDATION

1. There is need for increased public education to promote Pap smear self requests. There is need to continue training of health care providers in proper collection of Pap smears. There is need for expansion of the facility so as to cater for the increased Pap smear testing demand.
2. There is need for joint effort by the UON, KMTC and NPHLS-MOH to assist Histology / Cytology Higher Diploma Graduates to set up cytology services. KMTC has been conducting training in Higher Diploma in Histology /Cytology. So far approximately 77 Technologists have graduates from this programme and are posted in different Health facilities all over Kenya. It is general knowledge that majority of them are not doing any Cytology work. This is a resource that can be exploited
3. A structured and effective consultative program can be put in place to support the Cyto- Technologists in the field. In addition a national external Quality Assurance program can be set up in consultation with the University of Nairobi.
4. It is passionate to emphasize the importance of other simple inexpensive methods of screening for cervical cancer. These includes Visual Inspection; with Acetic Acid (VIA) and with Lugo's Iodine (VILLI). The methods can be used at the lowest level of the Health care system, by trained nurse / midwife. Abnormal or suspicious evaluation can then be referred for further testing in the laboratory. The accuracy of VIA /VILLI is at acceptable levels of sensitivity and specificity.

RESULT

Table 1: The trend of Pap smear test requests by years between 1996 to 2007.

Years	Frequency	Valid Percent	Cumulative Percent
1996	6	.1	.1
1997	9	.2	.4
1998	34	.8	1.1
1999	112	2.6	3.8
2000	120	2.8	6.6
2001	318	7.4	14.0
2002	380	8.9	22.8
2003	535	12.5	35.3
2004	609	14.2	49.5
2005	792	18.5	68.1
2006	625	14.6	82.7
2007	744	17.4	100.0
Total	4284	100.0	

Table 1 shows that there was a steady increase in the number of Pap smear done at the University of Nairobi. Department of Obstetrics and Gynaecology Cytology Laboratory during the of 1996 to 2007. A total of 4284 reports were retrieved.

Table 2: The number of pap smear requests referred by health workers versus those on self request (between 1996 – 2007)

Source	Frequency	Valid Percent	Cumulative Percent
Referred by HP	3387	79.1	79.0
Self request	897	20.9	100.0
Total	4284	100.0	

The majority of the women who came for Pap Smear test were referred by Health Providers (79.1%) and only (20.9%) had self request.

Table 3. Yearly Pap Smear Request data collected between 2005 - 2007

	Frequency	Percent
2005	792	36.6
2006	625	28.9
2007	744	34.4
	2161	100.0

The data collected between years 1996 -2004 had a lot of information missing, but data collected from years 2005-2007 was adequate for analysis and so, further analysis was done for these three years (table 3). **A total of 2161 cases were retrieved.**

Table 4. Pap smear information on the recovery rate

	Frequency	Valid percent
Recovered	2128	98.5
Not recovered	33	1.5
Totals	2161	100.0

Table 4: shows that the recovery rate for pap smear information **was 98.5% (2128)**, while 1.5% (33) was not recovered. This indicated that there is need to improve on test information recording and filing in the cytology laboratory.

Table 5: The frequency for indicator of Age, Parity, Last Menstrual date and Date of the last delivery.

	Indicated	Not indicated	TOTAL
Age	1944 (90.0)	217 (10.0)	2161 (100.0)
Parity	1590 (73.6)	571 (26.4)	2161 (100.0)
Menstrual period	1570 (72.7)	591 (27.3)	2161 (100.0)
Last delivery	1075 (49.7)	1086 (50.3)	2161 (100.0)

It is important to fill the patient pertinent information on the Pap smear request form. The indicators includes: (Age, Parity, Date of last menstrual period, Date of last delivery (year) and method of family planning in use or ever used.

The frequency of age indicated was 90%, the frequency of parity indicated was in 73.6% while the frequency of the last menstrual date indicated was in 72.7% and the date of last delivery was indicated only in 49.7 % (table 5).

Table 6: The percentage of the Method of Family Planning Method in use or ever used indicated.

	Frequency	Valid Percent
IUCD	262	12.1
Pills	152	7.0
BTL	148	6.8
Depo Provera	126	5.8
Norplant	77	3.6
Natural	61	2.8
Condoms	17	.8
Implant	2	.1
Herbal	1	.0
Nil	509	23.6
TAH / N/A	96	4.4
Data not collected	710	32.9
Total	2161	100.0

Table 6 shows that 32.9% of the request forms did not have this information on the method of family planning. 23.6% of the clients were not using any contraceptives.

IUCD was used by 12.1%, while others were minimally used -Pills (7%), BTL (6.8%), Depo Provera (5.8%), and Norplant (3.6%).The trial effective contraceptive use was 35.4%.

Table 7: The frequency of Provisional Diagnosis indication

	Frequency	Valid Percent
Routine checkup	1245	57.6
Abnormal Uterine Bleeding	156	7.2
Fibroids	129	6.0
Vaginal Pelvic Infections	87	4.0
Cervical erosion	40	1.9
Infertility investigations	36	1.7
Repeat	30	1.4
CaCX	17	.8
Low abdominal pain	17	.8
Vaginal Warts	4	.2
Ovarian cyst	4	.2
Endometrial hyperplasia	1	.0
Data not collected	395	18.3
Total	2161	100.0

The majority came to have a Pap smear because of routine check up (57.6%). Other reasons included: Abnormal bleeding, Fibroid, Vaginal pelvic infection, Cervical erosion, but 18.3% did not the Provisional diagnosis indicated (table 7).

Table 8: Frequency of the cervical clinical observations indicated.

	Frequency	Valid Percent
Normal	464	21.5
Bleeding	80	3.7
Inflammatory	65	3.0
Erosion	50	2.3
Discharge	39	1.8
Polyp	12	.6
Cyst	12	.6
Atrophic	8	.4
Spotting	7	.3
Lesion	5	.2
Irregular margin	4	.2
Vault	3	.1
Nulliparous	2	.1
Genital prolapse	1	.0
Data not collected	1409	65.2
Total	2161	100.0

Table 8: shows that in the majority of clients (65.2%), the state of the Cervix clinical observation was not indicated by the health providers. The other clinical observation indicated included: Normal (21.5%), Bleeding (3.7%), Inflammation (3.0%),erosion (2.3 %), abnormal discharge (1.8%) and others.

Table 9: The proportion of pap smear collected which were satisfactory for analysis.

	Frequency	Valid Percent
Satisfactory	2128	97.5
Unsatisfactory	53	2.5
Total	2075	100.0

The documentation of laboratory report and patient information, of the pap smear test done between 1996 to 2004 were not available However documents from 2005 to 2007 was available analysis.
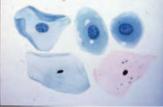
Table 9 indicates the Pap Smear collection was satisfactory in majority of the specimens recorded in the laboratory (97.5%).

Table 10: Pattern of Pap smear report findings on the Cytology Report (n=2075) after removing the unsatisfactory and data not collected)

	Frequency	Valid Percent
Normal	955	46.0
Inflammatory/Reactive/Benign	953	45.9
ASCUS	80	3.9
AGUS	10	0.5
LSIL	41	2.0
HSIL	28	1.3
Ca.CX	8	0.4
Total	2075	100.0

Table 10 shows Normal reports were 955 (46.0%), Inflammatory/Reactive/ Benign results were 953 (45.9%) ASCUS 80 (3.9%), AGUS 10 (0.5%), LSIL 41 (2%), HSIL 28 (1.3%) and CaCX was 8(0.4%). The total abnormal cytology was found to be 4.0% (LSIL, HSIL and CaCX).
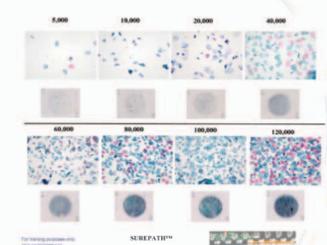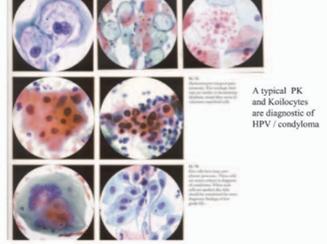
LSIL- HPV Cytopathic effects with w/o CIN 1 change

A typical PK and Koilocytes are diagnostic of HPV / condyloma

HPV changes in squamous cells with or w/o CIN I changes are Classified as **Low Grade Lesions**.
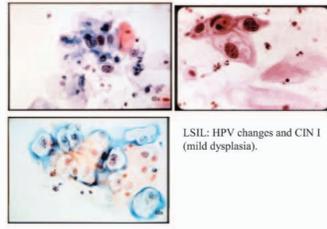
LSIL: HPV changes and CIN I (mild dysplasia).

Dysplasia

Table 11: Patterns of Pap smear reports, according to age of the client.

	Age categories						Age not Indicated	Total
	<19yrs	20-29yrs	30-39yrs	40-49yrs	50-59yrs	60+ yrs		
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No
Normal	1(0.1)	176(18.4)	303(31.7)	259(27.1)	90(9.4)	38(4.0)	88(9.2)	955
Reactive	2(0.2)	146(15.3)	309(32.4)	272(28.5)	93(9.3)	33(3.5)	98(10.3)	953
ASCUS	0(0.0)	15(18.8)	28(35.0)	17(21.3)	9(11.3)	5(6.3)	6(7.5)	80
AGUS	0(0.0)	1(10.0)	1(10.0)	4(40.0)	2(20.0)	0(0.0)	2(20.0)	10
LSIL	0(0.0)	7(17.1)	15(36.6)	5(12.2)	7(17.1)	3(7.3)	4(9.8)	41
HSIL	0(0.0)	7(25.0)	6(21.4)	6(21.4)	1(3.6)	2(7.1)	6(21.4)	28
Ca.CX	0(0.0)	0(0.0)	1(12.5)	0(0.0)	3(37.5)	2(25.0)	2(25.0)	8
TOTAL	3(0.1)	352(17.0)	663(32.0)	563(27.1)	205(9.9)	83(4.0)	206(9.9)	2075

Table 11: shows that hardly any pap smear were requested for in the age group of 14 – 19 years (0.1 %) but the peak request were found in age group of 30 – 39 years (32.0), It is noted that even clients outside reproductive age had requests for pap smears (13.9%) probably due to symptoms which would lead a doctor to suspect cervical cancer.

Table 12:

	Age categories						Age not Indicated	Total
	<19yrs	20-29yrs	30-39yrs	40-49yrs	50-59yrs	60+ yrs		
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
Normal	1(33.3)	176(50.0)	303(45.7)	259(46.0)	90(43.9)	38(45.8)	88(42.7)	955(46.0)
Reactive	2(66.7)	146(41.5)	309(46.6)	272(48.3)	93(45.4)	33(39.8)	98(47.6)	953(45.9)
ASCUS	0(0.0)	15(4.3)	28(4.2)	17(3.0)	9(4.4)	5(6.0)	6(2.9)	80(3.9)
AGUS	0(0.0)	1(0.3)	1(0.2)	4(0.7)	2(1.0)	0(0.0)	2(1.0)	10(0.5)
LSIL	0(0.0)	7(2.0)	15(2.3)	5(0.9)	7(3.4)	3(3.6)	4(1.9)	41(2.0)
HSIL	0(0.0)	7(2.0)	6(0.9)	6(1.1)	1(0.5)	2(2.4)	6(2.9)	28(1.3)
CA.CX	0(0.0)	0(0.0)	1(0.2)	0(0.0)	3(1.5)	2(2.4)	2(1.0)	8(0.4)
TOTAL	3	352	663	563	205	83	206	2075

Table13: Abnormal Pap smear (LSIL, HSIL, CaCX, report according to age.

Age group (yrs)	Abnormal No.	(%)	Normal No.	(%)	Total No.	(%)
<19 yrs	0	(0.0)	3	(100.0)	3	(100.0)
20-29	14	(4.0)	338	(96.0)	352	(100.0)
30-39	21	(3.2)	642	(96.8)	663	(100.0)
40-49	11	(5.4)	552	(94.6)	563	(100.0)
50-59	10	(4.9)	195	(95.1)	205	(100.0)
60+	6	(7.2)	77	(92.8)	83	(100.0)
Age not indicated	12	(5.8)	194	(94.2)	206	(100.0)

There was an increase in abnormal cytology with increasing age with the highest in the age group of over 30-39 (21 cases) having the highest cases.

Technical quality

Poor Fixation / staining

Obscuring cellular detail

GOOD FIXATION / STAINING

Proper stain Distribution of cells contaminants

Technical Quality

Lubricant
Plant source

Papanicolaou Stain- objectives
• Nuclear detail
• Cytoplasmic transparency
• Differential staining (nucleus / cytoplasm)

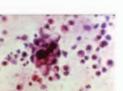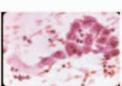Cell Mileau or Background)

Clean, inflammatory, Proteinaceous, mucoid Bloody, hemosiderin necrotic, diathesis.

COLLECTION OF A SUITABLE / ADEQUATE PAP SMEAR CONTRIBUTS TO 75% OF CYTO-INTERPRETESION
SUITABLE + ADQUATE SMEAR = SATISFACTORY SAMPLE