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Analysis of papanicolaou test results not collected by patients, period between 2007 and 2009: documentary study

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ABSTRACT

Aim: To evaluate the population coverage for Papanicolaou tests and to analyze the results not collected by patients at a Family Health Center in Fortaleza, CE - Brazil. **Method:** Retrospective research conducted via the analysis of exams archived between 2007 and 2009. **Results:** The population coverage of preventive examinations was below the desired goal, as 1346 examinations were performed per year, corresponding to population coverage of 60%. The presence of *Lactobacilli* sp. was related to the presence of mild inflammation ($p = 0.000$). *Gardnerella vaginallis* was related to the absence of mild inflammation ($p = 0.000$). The presence of *Trichomonas vaginallis* had no relation to light ($p = 0.041$) or moderate inflammation ($p = 0.022$). In all test results where low-grade intraepithelial neoplasia (CIN I) was found, the HPV was present. **Conclusion:** The number of women not returning to receive the test results made the monitoring, completeness and continuity of the care difficult.

Descriptors: Women's Health; Uterine Cervical Neoplasms; Vaginal Smears.

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INTRODUCTION

Cervical cancer is a major cause of death of women in developing countries like Brazil, despite having a good chance of prevention and/or cure if diagnosed early, through the Papanicolaou test. It is estimated that 95% of women living in developing countries have not undergone this examination. In many developing countries, there is limited access to healthcare and consequently low rates of screening with the Papanicolaou test. This increases the risk of women developing cervical cancer[1].

With regard to the states of Brazil's northeastern territory, Ceará ranked fifth among the nine northeastern states for the number of estimated cases in 2010, with a gross rate of 19.3 cases per 100,000 women. In 2010, 860 new cases of Cancer of the Cervix (CCU) per 100,000 women were estimated in the state of Ceará[2]. In Fortaleza, the state capital of Ceará, mortality rates of cervical cancer in women are gradually increasing. The mortality rates per year are as follows: 4.1/100,000 in 2000, 4.7/100,000 in 2001, 5.4/100,000 in 2002, 5.0/100,000 in 2003, 3.7/100,000 in 2004 and 5.0/100,000 in 2005. The ratio of cervical and vaginal Papanicolaou tests performed on women aged 25 to 59 years old to the population of this age group has been observed to be unstable in the recent years: 0.19 in 2000, 0.23 in 2001, 0.24 in 2002, 0.20 in 2003, 0.18 in 2004, 0.25 in 2006 and 0.26 in 2007[2].

One of the causes of the low preventive impact is the delayed use of health services by women at risk, this results in a lack of monitoring and treatment for the women who were screened[1]. In Brazil, another factor involved is that the monitoring is not done according to the prescribed standards, but only at the occasional demand for health services determined for different reasons than testing for cervical cancer [3]. The lack of knowledge concerning the exam and the fear associated with its implementation are also related to this[4].

A high percentage of Papanicolaou test results are not collected by patients and remain at health facilities, and as a consequence the results are not known by women concerned. This is a phenomenon that has been described in some studies as an obstacle to the control of cervical cancer[5].

In a study performed with 250 women, 221 were undergoing a second or further examination. Of these, 13 (5.8%) were reported as not having returned to the unit to obtain their final result. Of those who did not return, 12 (92.3%) justified such behavior as being due to personal reasons. However, amongst the 208 (94.1%) who returned, 17 (8.17%) stated they had not presented their exam results to any professional, due to personal (41.2%) or institutional problems (58.8%)[6].

Amongst the personal reasons cited by women, for not having returned to obtain their result, the following were observed: "I've changed my address" (n = 4), "because I didn't" (n = 1), "forgot" (n = 1), "I was careless" (n = 1) and "I received the medicine at the first consultation" (n = 1). With regard to the justification from the patients who received the result but did not show them to any professional, the following reasons were noted: "self-indulgence", "I forgot", "I was working", "I did not know I needed to show to someone", and institutional – "the employee was away", "the result was not ready" (n = 9), "I was unable to get a file", "the public health unit was on strike" and "there was no doctor"[6].

Personal reasons were the main contributors to the women not returning for the result in this study. This might be easily circumvented, according to testimony. However, among the factors cited to justify the fact that they did not show the test result to a professional, institutional reasons prevailed. Institutional barriers cited by women reveal service disorganization and poor access to care upon a return visit[6].

Given these problems, this study aimed to identify the percentage of Papanicolaou tests performed and the number of results not collected from a Family Health Center ("Centro de Saúde da Família – CESAF", in Portuguese) in Fortaleza. An analysis of the reports

of these examinations is given during the period from 2007 to 2009.

METHOD

This is documentary research with a quantitative approach, performed in a Family Health Center (CESAF), located in a neighborhood on the outskirts of the city of Fortaleza. The unit belongs to the Regional Executive Secretary IV; a Family Health Strategy (ESF) team has worked here since August 2006.

The Regional Executive Secretary IV has a population of 288,162 people and a population of women of childbearing age numbering 102,103[2]. The CESAF surveyed has thirty micro-areas of coverage, accounting for a total of approximately 1,599 families. Only nine micro-areas have a Community Health Agent (ACS).

For a rough calculation of the estimated number of women of childbearing age belonging to the area regarding the CESAF surveyed was calculated. We initially calculated the number of people covered by the institution using an estimate of approximately four people per family (4 x 1,599 = 6,396 persons). Then, we used the percentage of women of childbearing age, as defined by the population in the Regional Executive Secretary IV (approximately 35%). Thus the number of women of childbearing age assisted at the CESAF surveyed (6,396 x 35% = 2,238 women in childbearing age).

Besides the family health team, two nurses work with a workload of 20 hours per week, with two more on duty at weekends. At this location, the Papanicolaou test is performed by a doctor during the morning shift, on Tuesdays and Wednesdays, and by nurses from Fridays to Sundays. In addition, the nurse performs three examination rounds in the intermediate period, four shifts in the afternoons and on Saturdays. Thus, the Papanicolaou test is performed in twelve shifts a week due to demand, except for those performed within the population covered by the EFS team. At this location, the Papanicolaou test is performed in twelve shifts a week, both by doctors and nurses.

The data regarding the number of tests, performed during the period from 2007 to 2009, was collected from data in the computer system of the health care service. Subsequently, the results of tests performed in the period from 2007 to 2009 and which were not received by users of the service until the first fortnight of March 2010, which were still included in the exam file archive were evaluated. In total 924 tests were analyzed.

In relation to exam results, the following variables were analyzed: Age, date of examination, inflammation process, microbiology and cellular changes. This study sought to present the descriptive data, which were properly recorded in a pre-coded standard form for data entry on computer and then entered into a database created in the *Statistical Package for the Social Sciences* (SPSS) version 17.0, a computer application. The frequency distribution of the variables collected was tailored to the analysis.

RESULTS

According to the data obtained from the institution's computer system, 4,038 examinations were performed between 2007 and 2009. An average of 1346 scans per year, 112 tests per month and 28 scans per week were performed. As the institution has 12 shifts per week where Papanicolaou tests are performed, this suggests an average of 3.4 tests performed per shift.

Considering the estimated number of women of childbearing age (2,238), we suggest 80% coverage, which is equivalent to 1,790 examinations. The number of tests performed in the institution corresponds to coverage of 60%. From the total number of tests performed in the three years, 924 (22.8%) were performed within the institution until the first half of March

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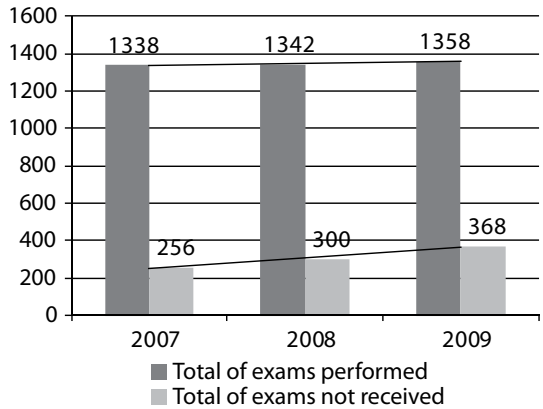
2010, with an average of 308 examinations held annually.

The number of tests performed and with results not received by users of the service rose during the three year period, 19.1% in 2007, 22.4% in 2008 and 27.1% in 2009, a relative increase of 43.75% in the period between 2007 and 2009, whilst the number of examinations increased only slightly (1.5%).

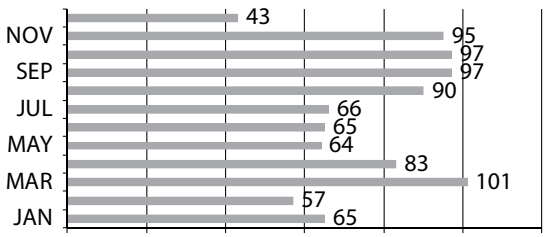
Graph 1 - Distribution of the total cytopathology tests not received in the years 2007-2009.



Source: by authors.

Upon the analysis of data concerning the total number of tests not received by the users, one can observe that there are variations according to the month of the year. A lower number in December is received and the highest percentage is noted in March (**Chart** 2).

Graph 2 - Distribution of total exams not received during the 2007-2009 triennium. Fortaleza-CE.



Source: by authors.

The ages of the women who did not return to the health center to receive smear test results ranged from 10 to 83 years, with an average age of 34.6 (± 13.6) between 2007-2009. Patients aged less than 35 years old represented the majority of non-returning patients (56.6%).

Analysis of the reports retained in the institution revealed that cervico-vaginal colonization was mainly by cocci and bacilli (56%), followed by lactobacilli (22.6), Gardnerella (21%), candida (7.7%) and Trichomonas (1.4%). Only 5.3% of these reports showed a severe inflammatory process.

Cellular changes were present in only 14 (1.5%) reports, low-grade intraepithelial neoplasia (CIN I) was most frequent (42.9%). In all reports containing cellular alterations, no lactobacilli were found (p = 0.005), but cocci and bacilli were present (p = 0.001) (**Table 1**).

Table 1 - Relationship between abnormal tests and microbiological agents described. Fortaleza, 2007-2009.

Microbiological Agents Found	CELULAR ALTERATION				p
	Present (n=13)		Not present (n=911)		
	N	%	N	%	
Lactobacilli (n=209)	0	0,0	209	22,9	0,05
Cocci & Bacilli (n=518)	13	100,0	505	55,4	0,001
Candida (n=71)	1	7,6	70	7,6	0,9
Gardnerella (n=194)	0	0,0	194	21,2	0,06
Trichomonas (n=13)	0	0,0	13	1,4	0,66

Source: by the authors

We observed that 61.5% (n = 08) of abnormal tests were from women up to 34 years of age.

DISCUSSION

The World Health Organization (WHO) has declared that coverage of 80% of the female po-

pulation is required, to achieve an epidemiological impact on the frequency and distribution of the CCU [1]. Although it was not possible to obtain primary data related to the specific coverage of the examination in the institution we studied, we estimated coverage of 60%.

Although this percentage is below that recommended by the WHO, it is higher than those found in another area of Fortaleza, where the coverage was 11.17% in 2007[5]. Other Brazilian capitals have coverage levels of 54.1% for women of 25 to 49 years old who were examined at intervals of up to one year in São Luís and Maranhão[7].

As the institution we studied performed 12 shifts a week where Papanicolaou tests are conducted, a total of 3.4 tests per shift is verified. This is suggested to be a low number of tests performed per shift. One hypothesis for this low value may be due the fact that examination is also available during a third shift (night), and as this is a new service, demand is still low. This may be reducing the number of tests performed per shift, compared to the quantity conducted during the week. Of the total tests performed during the three years, 924 (22.8%) tests were performed in the institution until the first half of March 2010, with an average of 308 examinations held annually. It should be noted that in areas other than the application of Papanicolaou tests, this health unit is being under--utilized; approximately 23% of the results of these examinations are not received by women. These data contrast with those found in a study conducted in the city of Pelotas, in the state of Rio Grande do Sul. This studied 1,404 women in which 10.3% of the patients did not know the result of their last Oncotic Cytology (CO) test, regardless of when it was performed. In the area of public health, this figure reached 8.1%, whilst in health insurance or private services the figure was 3.2%[8].

A study in Fortaleza, in 2006, found that 8.97% of the women interviewed had not received the result of their last examination [9]. This value is similar to those found in a survey conducted at a Family Health Center in Fortaleza, Ceará, belonging to the Regional Executive Secretary II. This unit had a rate of 24% retained examinations[5].

A study in a UBS in Fortaleza on the failure of women to receive the results of UCC prevention tests identified barriers in the dynamics of the service that hindered women's access to a return visit. As an example, the number of women undergoing cytological collection was two times the number of vacancies allocated to return the follow-up service; therefore, 50% of women end up without continuity of care. There was no indication of an active search for women with results suggesting a requirement for intervention or guidance such as cases of carcinoma *in situ,* on the behalf of the unit[5].

These problems complicate the monitoring, completeness and continuity of care in this area, contributing to the persistence of a serious problem, which would allow intervention in more advanced stages of disease.

With regard to microbiological findings, we identified the presence of cocci and bacilli in 56% and Lactobacillus sp in 22.6% of reports analyzed. These are not infections that require treatment - unless the patient mentions any symptoms - as they are considered normal findings and part of the vaginal flora (10). Analysis of the distribution of the inflammatory process identified cocci, bacilli and Gardnerella as the main etiological agents of this process, and they account for 99.6% of the results obtained.

Candida sp, the fungus responsible for vaginal candidiasis was present in 7.7% of patients. Sexual intercourse is not considered to be the main route of transmission, as these organisms may be part of the endogenous flora in 50% of

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asymptomatic women and its identification in cytological tests does not allow the diagnosis of a clinical infection and therefore does not justify treatment.

In contrast, the Trichomonas vaginallis, present in 1.4% of the reports, is transmitted mainly through unprotected sex and its identification is sufficient to require treatment of both the woman and partner. This parasite may modify the outcome of the screening. If cellular morphological changes are identified, one should perform the treatment and repeat cytological tests to assess whether symptoms persist[10].

The fact that a woman who tested positive for Trichomonas vaginallis may not have returned to CESAF to obtain test results contributes to the progression of the disease; preventing receipt of the appropriate treatment. Ignoring these symptoms can lead a woman to infect her partner through sexual contact.

Despite the fact that low grade epithelial lesions (CIN I + Human Papilloma Virus - HPV) can suffer a spontaneous regression, the Ministry of Health recommends that the patient should return to CESAF in six months to repeat the Papanicolaou test [10]. In this study, the cellular changes were present in 13 cases (1.4%) with CIN I and HPV being the most frequent alterations at a rate of 33%. According to the Brazilian National Cancer Institute ("Instituto Nacional do Cancer – INCA", in Portuguese), increasingly early sexual activity, multiple partner practices and even the lack of knowledge about susceptibility to HPV infection via unprotected sex, may result in the rate of eight (61.5%) of the changes being diagnosed in women aged up to 34 years old[10].

The Atypical Squamous Cells of Undetermined Significance (ASCUS) were observed at a rate of 31% of the cellular changes described in the reports. The rate of Atypical Glandular Cells of Undetermined Significance (AGUS) accounted for 8% of the changes. These cytological alterations require accurate assessment and monitoring, so it is recommended that cytological tests are repeated after six months [10]. The rates of CIN II and CIN III represented 15% of the histopathological examination results. In these cases, the Ministry of Health recommends immediate referral for colposcopy, for histopathological confirmation that there is no invasion of connective tissue[11].

CONCLUSION

It has been observed that the number of tests performed annually has not reached the total of 5,760 (which is the expected number of tests, if there are ten tests per shift being made) in any of the years surveyed. This suggests that there is low service coverage and that there is a need for improved screening programs for the population of high-risk groups. Although there was a small increase in the number of tests performed over the three years, there was an increasing rate of examination results not returned to patients by the health service. The spontaneous demand for the service and misinformation concerning the exam, among other factors contribute directly to the installation of this situation.

The nurse, as the professional who performs more Pap tests in this institution, should improve the quality of care through guidelines concerning the steps of the Papanicolaou test and how it's performed. We must implement educational activities based on the prevention and control of cervical cancer. We must also provide lectures with in the community to answer questions and myths about cytology and also discuss the harm caused to women's health, if she does not return to the health service to obtain the results of cytological tests. The aim is to diagnose the disease in its early stages and to

attract the largest possible number of women, especially those in the age group with greatest risk of cervical cancer, to undergo screening. These actions may have the effect of reducing the rate of examination results retained at CESAF.

It is evident that the health program against cervical cancer needs to increase the number of tests performed. However, this increase is not enough to make the quality of care better regarding the detection of cervical cancer in its early stages.

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