

## QUANTITATIVE STUDY OF ONCOTIC CYTOLOGIES PERFORMED IN PIAUÍ DURING THE PERIOD FROM 2017 TO 2021

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**Abstract: INTRODUCTION:** Cervical cancer (CCU) is a relevant issue within public health, as it is the third most common neoplasm in women, this type of cancer is predominantly caused by HPV infection, responsible for approximately 70% of cervical cancers. Taking into consideration that approximately 85% of CC cases occur in women with low education and economically vulnerable, the number of cancer cytology tests can serve as an indicator of inequity in a given region. **OBJECTIVE:** To analyze, through a secondary database, the number of oncotic cytology tests performed between 2017 and 2021 in the state of Piauí. **Methodology:** This is a retrospective quantitative research obtained from the IT department of Brazil's single health system (DATASUS). In the research, the place of residence of the women undergoing the exams was considered and cytology tests carried out between 2017 and 2021 were selected, regardless of whether the exam was normal, indeterminate or altered. Results and Discussion: During the period from 2017 to 2021, 246,222 oncotic cytology tests were reported in Piauí. From 2017 onwards there was an increasing trend in the number of tests carried out, obtaining these quantities during the studied period: 2017(7240); 2018(64351); 2019(77842); 2020(33184);2021(63605). There was a tendency towards the growth of these exams since 2017, which was discontinued during 2020 and resumed in 2021. It was found that the age group with the highest adherence was the 35-39 years and 40-44 years with 31,922 and 31,323 collections respectively. **CONCLUSION:** The need to carry out more studies of this nature is highlighted, as they strengthen CCU control policies and enable more effective monitoring of vulnerable population groups. In this sense, they become the basis for implementing specific actions aimed at audiences with lower adherence and greater inequity.

**Keywords:** Epidemiology, Colpocytological Examination, Cervical Cancer. Primary Health Care.

## INTRODUCTION

Cervical cancer (CC) is a relevant issue within public health, as it is the third most common neoplasm in women, this type of cancer is predominantly caused by persistent infection with oncogenic subtypes of HPV (human papillomavirus). ), which is sexually transmitted and its infection is responsible for approximately 70% of cervical cancers. Taking into consideration, that approximately 85% of CC cases occur in low-income countries, mainly women with low education and economically vulnerable, who face barriers to accessing primary health services. In this sense, the quantity of oncotic cytology can serve as an indicator of inequity in a given region. (LOPES et al., 2019).

Primary prevention of cervical cancer in primary care includes promoting the use of condoms, administering the HPV vaccine and implementing health promotion programs. On the other hand, secondary prevention of this cancer focuses on early diagnosis, which is facilitated through screening methods such as the Pap smear (known as Pap smear or PPCU). This exam is specifically aimed at women, aged between 25 and 64, with the purpose of early detection of possible anomalies.

The purpose of PPCU is to detect precursor lesions of cervical cancer that must be treated before they become an invasive carcinoma. If detected early, such injuries are treatable with a high chance of cure. Furthermore, this exam has the ability to detect cervical cancer in its early stages, a period in which treatment is most effective. (RICO et al., 2013)

Primary Health Care (PHC) is a fundamental component of health systems and plays a crucial role in the control of cervical cancer (CC). However, the persistence of high

mortality rates associated with this disease is linked to deficiencies in the health system, barriers to access to screening and insufficient coverage. Furthermore, to improve CCU control, it is necessary to consider factors that complicate this process, such as institutional discrimination on ethnic grounds and women's cultural, sexual and gender values. (JOHNSON et al., 2016; BRZOSKA et al., 2021). Another of these challenges is the social stigma that prevents many women from accepting the collection of Pap smears (PPCU) by male professionals. This reluctance results in lower uptake of this test, particularly in areas where there is a shortage of female healthcare professionals available to perform the procedure. (CERQUEIRA et al., 2023).

Given the relevance of the Pap smear for the prevention of cervical cancer and its relevance as an indicator of inequity, the objective of this work is to analyze, through a secondary database, the number of oncotic cytology tests performed in the period from 2017 to 2021 in the state of Piauí.

## METHODOLOGY

This study consists of retrospective documentary research of a quantitative nature. It is important to highlight that documentary research involves the analysis of databases, directly accessible documents or indirect documentation resulting from the collection of data from official and/or private posts available in one or more sources. (BATIPSTA; MORAIS, 2016). In turn, quantitative research can be characterized as a type of investigation that is based on the analysis of data related to variables that have a high potential to establish associations or correlations between them. (ESPERÓN, 2017).

Data collection was carried out electronically through the platform of the IT department of Brazil's unified health system (DATASUS), which provides data from the

Information and Notifiable Diseases System – SINAN. Within DATASUS, the information was specifically taken from the Cancer Information System – SISCAN database (which has data on the cervix and breasts). The variables analyzed were: number of cytology tests between 2017 and 2021, age groups, types of changes recorded and municipalities with the highest number of cytological collections. It is important to highlight that the data collected was processed by creating spreadsheets in Excel. Subsequently, graphs were generated that simplified data analysis, providing a clearer understanding of epidemiological and clinical information related to cervical cancer screening.

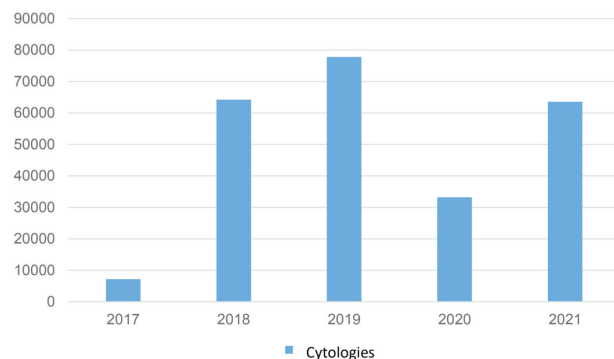
As we only used information already available to the public, provided by the Ministry of Health through DATASUS, it was not necessary to undergo ethical assessment for this study, as established in CNS Resolution 466/12.

## RESULTS AND DISCUSSION

During the period from 2017 to 2021, a total of 246,222 cytology tests were reported throughout Piauí. The analysis of the collected data revealed some important data. In a first analysis, it is noteworthy that between 2017 and 2018 there was a notable growth trend in cytology tests in Piauí. This evolution reflects the progressive commitment to preventive health provided by primary care and adhered to by the population.

At the beginning of the period under analysis, in 2017, the number of cytology tests performed was 7,240. However, year after year, it was possible to observe a significant increase in this statistic. In 2018, the number rose to 64,351 cytology tests, and the growth trend continued in 2019, with 77,842 tests performed. In 2020, with the advent of the coronavirus pandemic, there was a considerable decline in the number

of cytologies, which resulted in only 33,184 cytologies, however this drop was reversed in 2021, the year in which the number rose to 63,605, as shown in the graph 1.

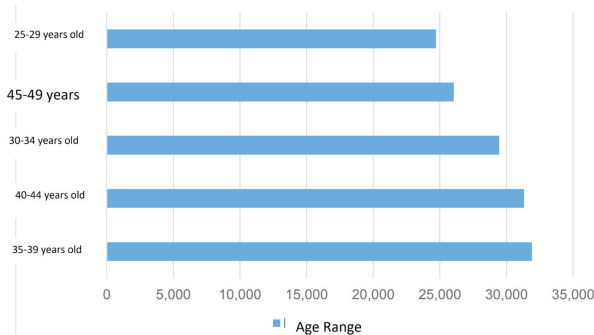


Graph 1 – Quantitative Cytologies year by year from 2017 to 2021

This progression in the number of cytologies, interrupted in 2020 and resuming strongly in 2021, indicates that awareness about the importance of performing the Pap smear as a means of screening for cervical cancer is growing stronger. Furthermore, these growing data may portray an increase in the supply and accessibility of health services and screening promotion programs, reflecting a joint effort by managers and the population to improve the health of Piauí.

Regarding the age group most covered by this type of exam, we observed an interesting distribution. The 35-39 age group led the *ranking* with the highest number of exams performed, totaling 31,922. Soon after, the 40-44 age group appears with 31,323 exams, followed by the 30-34 age group, which had 29,453 exams. In fourth place, we find the age group of 45-49 years old, with 26,055 exams, and, finally, the age group of 25-29 years old registered 24,706 exams carried out. It is emphasized that these numbers reflect the most frequent ages among patients who sought this type of exam, which can generate valuable insights for primary care, as they will be able to recognize which age groups present

greater deficits and need greater support.



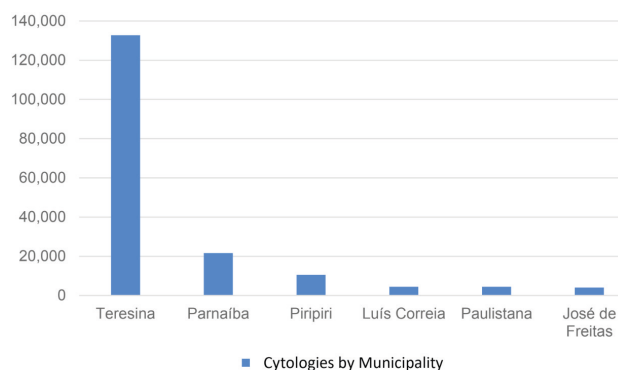
Graph 2 – Age Groups with the highest number of Notifications

It is important to highlight that oncotic cytology reports carried out in Brazil follow the Brazilian Nomenclature for Cervical Reports and its associated guidelines. This nomenclature mainly adopts the following terms to describe exams with altered results: LSIL (Low Grade Intraepithelial Lesion), HSIL (High Grade Intraepithelial Lesion), ASC-US (Squamous Atypia of Undetermined Significance, possibly non-neoplastic), ASC-H (Squamous Atypia of Undetermined Significance, not ruling out high-grade lesion), AGC-US (Glandular Atypia of Undetermined Significance, possibly non-neoplastic), AGC-H (Glandular Atypia of Undetermined Significance, not ruling out high-grade lesion) and CA (Carcinoma). (DE ARAÚJO et al., 2022). This nomenclature plays a fundamental role in the standardization and interpretation of cervical cytology results in the country, providing clear guidelines for identifying relevant clinical conditions. (SOUZA, 2019).

In relation to the number of exams with altered results, a significant total of 8,953 cytological reports that required follow-up or medical interventions were included. This finding highlights the relevance of early detection of abnormalities through screening. Among these abnormalities, 1,657 cases corresponded to low-grade intraepithelial lesions, while 620 were identified as high-

grade intraepithelial lesions, the latter of which requires surgical intervention. (OLIVEIRA et al., 2021).

Analyzing the municipalities of Piauí in the period from 2017 to 2021, it was found that Teresina led, performing the highest number of cytology tests, with a total of 132,765 notifications. In second place was Parnaíba, which carried out 21,623 exams. Third place was occupied by Luís Correia, with 4,482 Pap smear exams, which established a small advantage of just 53 exams over fourth place, which was occupied by the municipality of Paulistana. In fifth place with 4,052 exams, we have José de Freitas.



Graph 3 – Municipalities with the highest number of cytology tests

## CONCLUSION

Given the information presented, it is notable that 2020 recorded the largest reduction in cytology tests, which suggests that Primary Health Care (PHC) may have faced significant challenges in promoting and executing this vital screening procedure. Another possible explanation is that strategies to promote exam adherence have been less effective on the part of health professionals, resulting in a decrease in the number of exams performed during this period.

Furthermore, it is important to highlight that carrying out epidemiological studies like this one plays a fundamental role in identifying the risk factors associated with cervical cancer

(CC). These surveys provide valuable data that can guide health promotion campaigns carried out by APS. Thus, the importance of these studies lies not only in understanding the current situation, but also in the ability to strategically target CC prevention and control efforts.

It is therefore emphasized that epidemiological studies of this nature not only

strengthen CC control policies, but also enable more effective monitoring of vulnerable population groups. They constitute the basis for implementing specific actions aimed at these populations, as well as age groups with lower adherence to prevention programs, with the aim of improving the health of communities and reducing the impact of cervical cancer.

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