

**PREVALENCE OF ABNORMAL CYTOPATHOLOGICAL AND ANATOMOPATHOLOGICAL TESTS OF THE UTERINE CERVIX PERFORMED IN THE STATE OF MARANHÃO**



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## **ABSTRACT**

The objective of this study was to identify the prevalence of abnormal cytopathological and anatomopathological tests of the cervix performed in the State of Maranhão. This is a descriptive study, with a quantitative approach, carried out with public data from the Department of Informatics of the Unified Health System. The sample consisted of altered cytopathological and anatomopathological tests of 240,193 women from the State of Maranhão in 2022. There was a prevalence of young women, aged 35-39 years, who had undergone the test in the previous year. Satisfactory suitability for cytopathological analysis was observed, with negative results in the cytopathological report, endometrial cells in only 0.005% of the sample, and representativeness of the transition zone. Prevalence of normality at cervical inspection. According to the analysis of the altered cytopathological reports, there is a prevalence of atypical squamous cells of undetermined significance. Of all the women who underwent the Pap smear, 997 women had alterations. The histopathological profile presents, mostly, young adult patients, between 40 and 44 years old, whose histopathological report determined the prevalence of benign lesions, but still showed the prevalence of another neoplasm involved. These women were referred for this test through altered cytopathological results, where biopsy was the most performed procedure and the sample of the material was satisfactory as to the adequacy of the collection. It is concluded that, although most of the sample was within normal limits, a small portion presented benign lesions and should therefore be monitored annually.

**Keywords:** Cervical neoplasms. Health promotion. Routine diagnostic tests. Pap smear.

## INTRODUCTION

Malignant neoplasms, also known as malignant tumors or cancers, are a group of diseases that have a direct impact on abnormal cell growth, with a high potential for invading and diffusing other cells or parts of the body, in addition to the site of origin. There are more than 100 different types of cancers that affect humans, but not all tumors are classified as cancerous (malignant), as there are also benign tumors that do not have metastatic potential (BRASIL, 2020; BRAZIL, 2022).

The uterus is a fibromuscular organ, with an inverted pear shape, located in the pelvic cavity. It receives the fallopian tubes in the lateral and more bulging region (cranial) and continues to the lower part until it reaches the vagina, with which it usually forms a 90-degree angle. The cervix has a cylindrical conformation and measurement ranging from 2.5 to 3.0 cm. At its upper extremity, it continues with the uterine body, and at its lower extremity, morphologically conical, it ends with a protrusion in the upper portion of the vagina, which is the vaginal portion of the cervix (PEREIRA PRIMO; FERNANDES; SILVA FILHO, 2022; SINGER; KHAN, 2017).

Cervical cancer (CC) is one of the most prevalent neoplasms, resulting in increased morbidity and mortality among women. In 2012, 527,624 new cases were discovered and 265,653 deaths were recorded worldwide (TOMASI *et al.*, 2015). In Brazil, excluding non-melanoma skin tumors, CC is the third type of cancer that most affects the female population. For the year 2022, 16,710 new cases were estimated, which represents a risk considered to be 15.38 cases per 100 thousand women, 780 of which are located in the State of Maranhão (BRASIL, 2021).

Since it is an eradicable pathology, there are two methods for its control: vaccination against the *Human Papillomavirus* (HPV) and constant screening for the discovery of precancerous lesions through the Pap Smear, also known as Pap smear or Cervical Cancer Preventive (PCCU) or Oncotic Cytology Test (ECHO). In addition, the public health system in Brazil offers both free of charge, although there is still no effective impact on mortality (TEIXEIRA; MARTINS, 2022).

PCCU is the test used to identify lesions preceding CC, due to its high precision and effectiveness when used in screening programs (TOMASI *et al.*, 2015). Furthermore, it is understood as the main way of screening for cervical cancer and needs to be performed in at least 80% of women with an active sexual life (TEIXEIRA *et al.*, 2020). Thus, a determining factor is the vulnerability of the PCCU technique, where there may be errors in

the collection and interpretative subjectivity of the slides, generating indications that the sensitivity and specificity of cervicovaginal cytology may alter according to the region analyzed and adversely affect the results of the preventive strategy (FONSECA *et al.*, 2014).

The method of screening for cervical cancer and its precursor lesions should have an interval between examinations of three years, after two negative examinations, with an annual interval. The PCCU collection should start from the age of 25 for women who have already had sexual activity, and should continue until the age of 64 and be interrupted when, after this age, women have at least two consecutive negative tests in the last five years. For women over the age of 64 who have never undergone the PCCU, two tests should be performed with an interval of one to three years. If both are negative, these women may be exempted from additional tests (CARDOSO *et al.*, 2020).

In the case of atypia of undetermined significance of squamous cells that may not be neoplastic, it is necessary that, for women between 25 and 29 years of age, cytology should be repeated in 12 months and, if it persists, it should be referred for colposcopy. For women aged 30 and over, repeat cytology in six months and, if it is maintained, should be referred for colposcopy. And women with severe comorbidities or when it is not possible to rule out high-grade lesions, refer directly to colposcopy. In case of atypia of undetermined significance of glandular cells or of undefined origin, possibly non-neoplastic or with suspected high-grade lesion, they are also referred directly to colposcopy (BRASIL, 2016a; BRASIL, 2016b).

Squamous cell atypia with low-grade intraepithelial lesion (BSL-BG) for women over 25 years of age should be repeated at six months; and women with GAL-BSL associated with severe comorbidities, with high-grade intraepithelial lesion (AGIL-SLI) and invasive squamous cell carcinoma (IAS), refer directly to colposcopy. And atypia of glandular cells of the adenocarcinoma in situ (AIS) or invasive adenocarcinoma (UA) type, refer to colposcopy (CARDOSO *et al.*, 2020; BRASIL, 2016a; BRASIL, 2016b).

Therefore, the proposal of this study is justified in view of its impact on women's health survival in order to prevent the risk factors that surround the female population in terms of acquiring cervical cancer. Therefore, when performing the PCCU at least once, the result of the last preventive exam is seen to act as a protective factor for the woman, reducing the chances of hospitalization for this cause and, on the other hand, the fact that women have never undergone such an exam demonstrates failures in actions and services

in clinical practice, within the scope of Primary Health Care (PHC), with a view to carrying out the active search for these women, as well as improving women's health care and enabling the generation of indicators that allow subsidizing public health policies, bringing greater performance of professionals in the conduction and adoption of effective therapeutic protocols for the female population (PITILIN *et al.*, 2019).

In order to respond to the objective proposed by the study, the following guiding question was defined: What is the prevalence of abnormal cytopathological and anatomopathological tests of the cervix performed in the State of Maranhão?

Thus, this study aimed to identify the prevalence of abnormal cytopathological and anatomopathological tests of the cervix performed in the State of Maranhão.

## **METHODOLOGY**

Article from the monograph entitled "Prevalence of altered cervical cytopathological and anatomopathological tests performed in the State of Maranhão in 2022" presented to the Nursing Department of Ceuma University (UNICEUMA). São Luís – MA, Brazil. 2023.

This is a descriptive, exploratory, retrospective, cross-sectional study with a quantitative approach. The study was carried out in the state of Maranhão, using the Diseases and Notification Information System (SINAN). The epidemiological variables were made available through the Database of the Department of Informatics of the Unified Health System (DATASUS), Ministry of Health (MS), Health Surveillance Secretariat (SVS).

The study population was given through publicly accessible secondary data related to the prevalence of women who underwent cytopathological and anatomopathological tests of the cervix, whose samples showed altered results, which were performed in the State of Maranhão in 2022. The study sample consisted of 240,193 women who underwent Pap smears in the State of Maranhão during the period from January 1 to December 31, 2022.

The following inclusion criteria were adopted for participation in the study: (1) being Brazilian and residing in the state studied; (2) have alterations in the cytopathological and anatomopathological report; (3) be undergoing the Pap smear at least once a year; (4) have the data notified during the stipulated period; and (5) have all the information available in DATASUS. The following were excluded: (1) records of patients not residing in the State of Maranhão; (2) files with incomplete data.

A self-prepared form was used, based on the request form for requesting the MS test, as an instrument for data collection and containing the following study variables: gender, age group (years); previous cytology; suitability of the sample; cytopathological report; presence of endometrial cells; representativeness of the transition zone (ZT); reason for the examination; cervical inspection; histopathological report; type of referral; type of procedure; adequacy of the collection.

Data collection was carried out with secondary data, publicly accessible, made available for download on the DATASUS website, during the 1st semester of 2023, in January, by the researcher in charge.

The data were stored in *the Statistical Package for the Social Sciences (SPSS)*,<sup>®</sup> version 15.0, for later tabulation and discussion. Data collection was carried out in DATASUS, in which the data are publicly available, online, on the following website: <http://tabnet.datasus.gov.br/cgi/tabcgi.exe?resp/cnv/respma.def>.

Data analysis was performed according to simple descriptive epidemiology, non-parametric and non-probabilistic. The data were presented in tables with absolute and percentage frequencies and prepared using Microsoft Excel<sup>®</sup>, version 2010. Data treatment was performed using univariate statistical analysis.

The ignored data from the research constitute missing data in order to make it difficult to carry out a more accurate and reliable analysis of the total sample of children in this study, as well as other variables. The study complied with the ethical precepts established by Resolution No. 510, of April 7, 2016, of the National Health Council (CNS), which regulates research involving, directly or indirectly, human beings.

In view of the fact that the study was a research with a secondary database in the public domain, the submission of the research project for consideration and approval by the Research Ethics Committee (REC) was not necessary/mandatory.

## **RESULTS**

According to the cytopathological profile of women from Maranhão who underwent the Pap smear test in 2022, there is a prevalence of young women aged between 35-39 years (n=32,180; 13.39%) who underwent this same test in the previous year (n=178,989; 74.51%). For some study variables, there was a sample loss due to the non-attendance of women who had to repeat the collection. Still, for other variables, there was an increase in the sample due to recollection due to contraindication of collection on the day. It is

observed that most of the sample collected in a feasible way presents satisfactory suitability for cytopathological analysis (n=236,094; 98.73%), with a negative result in the cytopathological report (n=227,677; 95.245%), presence of endometrial cells in only 0.005% of the sample, representativeness of the ZT (n=135,400; 55.83%), with screening being the main reason for performing the test (n=236,694; 98.87%). Regarding cervical inspection, prevalence of normality (n=197,372; 81.80%) (Table 1).

**Table 1** – Pap smear profile of women who underwent Pap smears between January and December 2022 in the State of Maranhão. São Luís (MA), 2022. (n=240,193)

<b>Variables</b>	<b>n</b>	<b>%</b>
<b>Age group (years)</b>		
< 9	38	0,015
10-14	396	0,16
15-19	9.518	3,96
20-24	21.077	8,77
25-29	26.061	10,85
30-34	28.854	12,01
35-39	32.180	13,39
40-44	30.188	12,56
45-49	25.521	10,62
50-54	23.638	9,84
55-59	18.899	7,86
60-64	12.687	5,28
65-69	6.695	2,78
70-74	2.898	1,20
75-79	1.053	0,43
> 79	488	0,20
Ignored	02	0,075
<b>Previous cytology</b>		
Yes	178.989	74,51
No	39.164	16,30
Don't know	17.257	7,18
No information on the file	4.783	2,01
<b>Suitability* (n=239,117)</b>		
Rejected	410	0,17
Satisfactory	236.094	98,73
Unsatisfactory	2.613	1,13
<b>Pap smear* (n=239,117)</b>		
THOSE	24	0,01
TO	01	0,0004
AIS	08	0,003
LIE-AG	1.029	0,43
AND	82	0,03
H-ASC	1.006	0,42
ACUO-H	13	0,0054
LIE-BG	2.078	0,86
AND-N	258	0,10
ASC-US	3.903	1,63
ACUO-N	14	0,0058
Other Neoplasms	01	0,0004
Negative	227.677	95,245
Unsatisfactory	3.023	1,26

<b>Presence of endometrial cells* (n=239,117)</b>		
Yes	13	0,005
No	00	0,0
Ignored	239.104	99,995
<b>Representativeness of the ZT** (n=242,479)</b>		
Yes	135.400	55,83
No	104.722	43,18
Ignored	2.357	0,99
<b>Reason for the examination** (n=239,378)</b>		
Tracing	236.694	98,87
Repetition***	1.159	0,48
Follow-up	1.525	0,65
<b>Lap inspection** (n=241,281)</b>		
Normal	197.372	81,80
Absent****	7.417	3,07
Changed	29.426	12,19
Not Viewed	7.066	2,94

Source: TABNET/DATASUS, 2022. CEI = Invasive squamous cell carcinoma. AI = Invasive adenocarcinoma. AIS = Adenocarcinoma in situ. SLI-AG = High-grade intraepithelial lesion. AGUS = Atypical glandular cells of undetermined significance, possibly of high grade. ASC-H = Atypical squamous cells, possibly high grade. ACUO-H = Atypical cells of undetermined origin, possibly high grade. ISL-BG = Low-grade intraepithelial lesion. AGUS-N = Atypical glandular cells of undetermined significance possibly non-neoplastic. ASC-US = Atypical squamous cells of undetermined significance. ACUO-N = Atypical cells of undetermined origin, possibly non-neoplastic. ZT = Transition zone. \*There was a sample loss due to the non-attendance of women who had to repeat the collection. \*\*There was an increase in the sample size due to recollection due to contraindication of collection on the day. Altered exam: ASCUS/LIE-BG. Congenital anomalies or surgically removed.

According to a comparative analysis of the clinical-epidemiological and laboratory profile with the altered cytopathological reports of these women, there is a prevalence of *Atypical squamous cells of undetermined significance*, also known as ASC-US (n=3,903; 1.63%), followed by IHL-BG, in young adult women, of childbearing age, between 35 and 39 years old (n=542; 0.22%) (Table 2).



Table 2 – Clinical-epidemiological and laboratory profile of cervicovaginal cytopathological tests of women in the State of Maranhão who underwent it in 2022. São Luís, Maranhão, 2022. (n=239,117)

Variáveis	Quantidade de exames	CEI	AI	AIS	LIE-AG	AGUS	ASC-H	ACUO-H	LIE-BG	AGUS-N	ASCUS	ACUO-N	Outras Neoplasias	Negativo	Insatisfatório
<b>Sexo*</b>															
Feminino	239.117	24	01	08	1.029	82	1.006	13	2.078	258	3.903	14	01	227.677	3.023
<b>Faixa etária (anos)*</b>															
< 9	38	00	00	00	00	00	00	00	00	00	01	00	00	34	03
10-14	396	00	00	00	00	00	00	00	08	00	05	00	00	378	05
15-19	9.518	00	00	00	09	01	11	00	178	05	147	01	00	9.037	129
20-24	21.077	00	00	00	43	02	31	00	288	16	342	00	00	20.069	286
25-29	26.061	01	00	00	83	02	55	00	285	20	375	02	00	24.897	341
30-34	28.854	00	00	01	106	10	85	01	276	35	431	01	00	27.546	362
35-39	32.180	02	00	02	164	16	117	02	271	35	542	01	00	30.651	377
40-44	30.188	05	00	01	152	19	121	00	265	43	478	03	00	28.794	307
45-49	25.521	04	01	04	123	08	115	01	200	40	380	02	00	24.337	306
50-54	23.638	00	00	00	107	11	128	01	147	41	440	00	00	22.492	271
55-59	18.899	03	00	00	113	05	138	02	80	14	346	03	01	17.929	265
60-64	12.687	03	00	00	61	01	102	00	58	05	225	01	00	12.026	205
65-69	6.695	02	00	00	39	03	59	02	20	05	125	00	00	6.338	102
70-74	2.898	02	00	00	17	03	25	02	08	01	52	00	00	2.740	48
75-79	1.053	01	00	00	07	01	15	02	05	01	16	00	00	983	22
> 79	488	01	00	00	11	00	07	00	01	00	12	00	00	448	08
Ignorado	02	00	00	00	00	00	00	00	00	00	00	00	00	02	00
<b>Citologia anterior*</b>															
Sim	178.989	12	01	05	776	67	758	08	1.450	214	2.925	11	01	170.581	2.180
Não	39.164	08	00	02	112	10	124	00	378	28	659	00	00	37.276	567
Não sabe	17.257	03	00	00	120	05	111	01	167	17	254	01	00	16.334	244
Sem informação na ficha	4.783	01	00	01	31	00	19	04	100	02	89	02	00	4.478	56
<b>Adequabilidade*</b>															
Rejeitada	410	00	00	00	00	00	00	00	00	00	00	00	00	00	410
Satisfatória	236.094	24	01	08	1.034	82	1.009	13	2.089	261	3.915	14	01	227.643	00
Insatisfatória	2.613	00	00	00	00	00	00	00	00	00	00	00	00	00	2.613
<b>Representatividade da ZT** (n=242.479)</b>															
Sim	135.400	13	01	07	854	80	819	11	1.843	256	3.324	12	00	128.180	31
Não	104.722	11	00	01	186	02	192	02	249	05	597	02	01	102.808	666
Ignorado	2.357	00	00	00	00	00	00	00	00	00	00	00	00	00	2.357
<b>Motivo do exame** (n=239.378)</b>															
Rastreamento	236.694	23	01	08	1.016	81	988	12	2.059	256	3.856	14	00	225.390	2.990
Repetição***	1.159	00	00	00	04	00	08	00	17	04	27	00	00	1.078	21
Seguimento	1.525	01	00	00	16	02	16	01	19	01	36	00	01	1.406	26
<b>Inspeção do colo** (n=241.281)</b>															
Normal	197.372	13	00	05	741	59	687	08	1.626	203	2.856	11	00	188.921	2.242
Ausente****	7.417	01	00	00	15	01	30	01	17	01	64	00	00	7.138	149
Alterado	29.426	09	00	03	258	22	277	04	427	56	952	03	00	26.901	514
Não visualizado	7.066	01	01	00	25	01	20	00	30	01	52	00	01	6.787	147

**Source:** TABNET/DATASUS, 2022. CEI = Invasive squamous cell carcinoma. AIS = Adenocarcinoma in situ. SLI-AG = High-grade intraepithelial lesion. AGUS = *Atypical glandular cells of undetermined significance, possibly of high grade*. ASC-H = *Atypical squamous cells, possibly high grade*. ACUO-H = *Atypical cells of undetermined origin, possibly high grade*. ISL-BG = Low-grade intraepithelial lesion. AGUS-N = *Atypical glandular cells of undetermined significance possibly non-neoplastic*. ASC-US = *Atypical squamous cells of undetermined significance*. ACUO-N = *Atypical cells of undetermined origin, possibly non-neoplastic*. ZT = Transition zone. \*There was a sample loss due to the non-attendance of women who had to repeat the collection. \*\*There was an increase in the sample size due to recollection due to contraindication of collection on the day. Altered exam: ASCUS/LIE-BG. Congenital anomalies or surgically removed.

Of the oncotic alterations observed and diagnosed, the altered exams were referred for anatomopathological analysis, better known as oncotic histopathology or simply biopsy. Of all the women who underwent the Pap smear, 997 women had alterations. Thus, the histopathological profile of these women shows a prevalence of young adult patients, aged between 40 and 44 years (n=150; 15.04%) whose histopathological report showed a prevalence of benign lesions (n=349; 35.0%), but still had a prevalence of another

neoplasm involved (n=226; 22.66%). These women were referred for this test by means of altered cytopathological results (n=391; 39.21%), where biopsy was the most performed procedure (n=796; 79.83%) and the sample material was satisfactory in terms of the adequacy of the collection (n=990; 99.29%) (Table 3).

Table 3 – Histopathological profile of women with altered oncotic cytology during the period from January to December 2022 in the State of Maranhão. São Luís (MA), 2022. (n=997)

<b>Variables</b>	<b>n</b>	<b>%</b>
<b>Age group (years)</b>		
15-19	03	0,30
20-24	30	3,0
25-29	74	7,40
30-34	86	8,62
35-39	145	14,54
40-44	150	15,04
45-49	126	12,63
50-54	113	11,33
55-59	90	9,02
60-64	68	6,82
65-69	39	3,91
70-74	35	3,51
75-79	18	1,80
> 79	20	2,08
<b>Histopathological report</b>		
THOSE	44	4,41
TO	05	0,50
AIS	02	0,20
NIC III / Carcinoma in situ	130	13,03
NIC II	38	3,81
NOTHING AND	196	19,65
Another neoplasm	226	22,66
Benigno	349	35,0
Unsatisfactory	07	0,74
<b>Routing type</b>		
Altered cytopathological result	391	39,21
Lesion suggestive of cancer (cytopathological not performed)	358	35,90
Normal/benign cytopathological result	248	24,89
<b>Type of procedure</b>		
Biopsy	796	79,83
EXCISION of ZT – see and treat	04	0,40
- Exérese da ZT – pós-biopsy	03	0,30
Conization	72	7,22
Other	122	12,25
<b>Suitability</b>		
Satisfactory	990	99,29
Unsatisfactory	07	0,71

Source: TABNET/DATASUS, 2022. CEI = Invasive squamous cell carcinoma. AI = Invasive adenocarcinoma. AIS = Adenocarcinoma in situ. CIN = Cervical intraepithelial neoplasia. ZT = Transformation Zone.

## DISCUSSION

According to the study carried out in 138 municipalities in Brazil, which corroborates the data of this study, in the last three years, the coverage of the Pap smear test presented a prevalence of 66.5% in young women aged 18 to 39 years. With the increase in age, there was a significant increase in this coverage (MADEIRO; RUFINO, 2022). The development of type AI cervical cancer shows an increase in its incidence from the age of 30 onwards, with a new peak at the age of 60. It can be diagnosed in women between 35 and 44 years of age, and the average age at diagnosis is 50 years (COSTA; BEZERRA; SILVA, 2021). Neoplastic development rarely occurs in women under 24 years of age. Most cases are diagnosed in stage I and screening is less efficient in detecting them (OLIVEIRA; CROSS; CORREA, 2022).

The Ministry of Health recommends performing the PCCU every three years after two negative results with a one-year interval between exams. In this study, 74.51% of the women had the result of a previous cytological test, which favors follow-up. Even so, the implementation of educational and public health measures, in addition to sexual education programs and periodic Pap smears, as recommended by the Ministry of Health, contributes to the therapeutic management, as well as to the clinical follow-up of women, in order to avoid low adherence to the screening test during mandatory periods (RIBEIRO *et al.*, 2021). Thus, in a study carried out in Alto Uruguai Gaúcho, it was found that, when evaluating the results of cytopathological tests, of the 62,280 cases, 2,049 (3.3%) presented some cervicovaginal cytological alteration. Of these, 1,094 (53.4%) corresponded to squamous cell LSI-BG (BACKES *et al.*, 2014). Sample collection, when performed satisfactorily, has repercussions on the release of the Pap smear report in a timely manner in order to allow an early diagnosis and, if indicated, effective treatment.

Persistent HPV infection is responsible for 99% of CC cases. There are several types of HPV, with types 16 and 18 accounting for about 70% of CC. HPV infection is a necessary but not sufficient factor for the development of uterine cervical cancer. Most of the time, cervical HPV infection is transient and regresses spontaneously, between six months and two years after exposure (BRUNI *et al.*, 2019). In an ecological study carried out in Brazil between 2011 and 2020 which aims to analyze the impact of HPV vaccination on morbidity and mortality due to cervical cancer, although no significant correlation was found between vaccination and morbidity, the negative relationship between vaccination coverage and mortality suggested a protective effect of immunization, corroborating the

literature that highlights the efficacy of the vaccine in preventing this cancer (SOUZA *et al.*, 2024).

The presence of endometrial cells in this study was mostly ignored, making it difficult to make a more accurate diagnosis. However, the finding of these same endometrial cells in cervicovaginal smears has been a cytological discovery that has been gradually increasing over the decades. Its presence in the collected material is clinically important, as it may be associated with high-grade cervical and endometrial disease and cancer (CARVALHO *et al.*, 2021; HOLUB; VARGAS; BIETE, 2020; MARQUES *et al.*, 2011). The absence of ZT is not enough to classify the sample as insufficient, however, it was observed that ZT is more present in women under 49 years of age and, therefore, more mature women require constant monitoring for early identification of any alteration (MONTEIRO *et al.*, 2022; DIAS *et al.*, 2011).

Although the Pap smear test is extremely important for women's health, there is an over-screening, as women are looking for the test in an interval of less than one year, so the development of strategies that allow greater monitoring of the target population for CC screening would be of significant growth, such as, for example, the implementation of organized screening (TEIXEIRA *et al.*, 2020). When conducting a study in a municipality in Paraná during the COVID-19 pandemic, it was possible to observe that the number of uterine cervical inspections evaluated as normal overlapped with those diagnosed as altered (RIGON *et al.*, 2022).

After the cytopathological diagnosis, it is necessary to refer the patient according to the lesions found. In a cross-sectional study conducted in a microregion composed of seven municipalities in Mato Grosso do Sul, Brazil, a large part (78%) of low-grade non-neoplastic lesions are referred and 21% of lesions that should be referred are treated at the primary level (FARIAS; BARBIERI, 2016). And due to AG-ILI, which is indicative of malignant neoplasms, referral for colposcopy becomes necessary for the timely diagnosis of AGL-ASL (GALVÃO, 2022). Through colposcopy and biopsy, more accurate results are obtained regarding the identified lesions, allowing us to treat them more effectively.

Due to the alterations found in the cytopathological examination, as well as the alterations suggestive of cervical cervix seen through the inspection of the uterine cervix, it is of great importance that the histopathological patterns are monitored and reported satisfactorily, providing rapid access to the diagnosis and possible therapeutic plan. A study conducted with data from the Cancer Information System (SISCAN) of women who

underwent histopathological examination of the cervix in the Unified Health System (SUS) from 2014 to 2017, which shows that 262 exams (21.2%) were incorrectly classified as unsatisfactory, of which 11.25% were reclassified as benign lesions, 5.91% as SLI-AG, 1.46% as CEI, 0.24% as AI, and 0.24% as AIS. (OF COURSE *et al.*, 2021). The present study corroborates the data of the previous study in order to address mostly benign lesions and a low incidence of UA and a high incidence of CIN III for the exams that presented alterations.

## CONCLUSION

This study was limited by a bibliographic arsenal with few recent studies, which makes it difficult to carry out a more robust comparative analysis, so as to require new studies in this area, emphasizing the impact of CC on the female population. In addition, there was a sample loss at the first moment of the study due to the non-attendance of women who had to repeat the collection, as well as an increase in the sample at a second moment of the study due to recollection due to contraindication of collection on the day.

The profile of women in this study, which performs gynecological follow-up periodically, was mostly young, of childbearing age, with an active sexual life, maintaining regular control over the performance of the oncotoc cytology test. This test showed a prevalence of women between 35 and 39 years of age, having performed the collection in the previous year. The adequacy profile of the collection carried out in the Health Units, as well as the inspection of the cervix, was mostly satisfactory in order to show results within the normal limit and to have repercussions on the reduction of the time for the release of laboratory reports and on the efficacy of the diagnosis. As for the alterations most frequently found in the examinations during the screening process for cervical cancer, there is the ASC-US, followed by the ISL-BG. Some congenital anomalies of the cervix, such as retroversion, as well as absence of the cervix, were observed in view of surgical removal by means of total hysterectomy.

Women who were referred for anatomopathological examination (biopsy) due to altered cytological results or lesions suggestive of cervical cancer had mostly benign lesions. These were mature women, aged between 40 and 44 years, since the risk for the development of cervical cancer increases with increasing age of the woman, low incidence of UA and high incidence of CIN III (carcinoma in situ). The adequacy profile of the collection of fragments for biopsy was also satisfactory in order to maximize the time for the

implementation of the definitive diagnosis, as well as for the referral of the patient to the appropriate responsible sector in order to intervene early and establish the necessary workup for each patient according to individual needs.

CC is the disease that causes the most morbidity and mortality in the female population, of an eradicable nature, it can be prevented by the HPV vaccine and screened by the oncotic cytology test. Therefore, it is important to strengthen public health policies regarding health promotion and disease prevention actions. Therefore, it is concluded that, although most of the sample was within normal limits, a small portion presented benign lesions and should therefore be monitored annually.

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## REFERENCES

1. Backes, L. T. H., et al. (2014). Alterações citológicas cervicovaginais no Alto Uruguai Gaúcho, Rio Grande do Sul. *Journal of Medical Sciences*, 23(2), 65-73. <https://doi.org/10.24220/2318-0897v23n2a2525>
2. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Regulação, Avaliação e Controle. Coordenação Geral de Gestão dos Sistemas de Informações em Saúde. (2022). Manual de bases técnicas da oncologia – SAI/SUS – Sistemas de informações ambulatoriais (30th ed.). Brasília: MS. Available at: [http://www.inca.gov.br/sites/ufu.sti.inca.local/files//media/document//manual\\_oncologia\\_30a\\_edicao\\_agosto\\_2022\\_25\\_08\\_2022\\_-\\_26-08-2022.pdf](http://www.inca.gov.br/sites/ufu.sti.inca.local/files//media/document//manual_oncologia_30a_edicao_agosto_2022_25_08_2022_-_26-08-2022.pdf)
3. Brasil. Ministério da Saúde. Instituto Nacional de Câncer José Alencar Gomes da Silva. (2021). Detecção precoce do câncer. Rio de Janeiro: INCA. Available at: [http://www.inca.gov.br/sites/ufu.sti.inca.local/files//media/document/deteccao-precoce-do-cancer\\_0.pdf](http://www.inca.gov.br/sites/ufu.sti.inca.local/files//media/document/deteccao-precoce-do-cancer_0.pdf)
4. Brasil. Ministério da Saúde. Instituto Nacional de Câncer José Alencar Gomes da Silva. (2020). ABC do câncer: Abordagens básicas para o controle do câncer (6th ed., rev. atual.). Rio de Janeiro: INCA. Available at: [http://www.inca.gov.br/sites/ufu.sti.inca.local/files//media/document/livro\\_abc\\_6ed\\_0.pdf](http://www.inca.gov.br/sites/ufu.sti.inca.local/files//media/document/livro_abc_6ed_0.pdf)
5. Brasil. Ministério da Saúde. Instituto Nacional de Câncer José Alencar Gomes da Silva. Coordenação de Prevenção e Vigilância. Divisão de Detecção Precoce e Apoio à Organização de Rede. (2016a). Diretrizes brasileiras para o rastreamento do câncer do colo do útero (2nd ed., rev. atual.). Rio de Janeiro: INCA. Available at: [http://www.inca.gov.br/sites/ufu.sti.inca.local/files//media/document//diretrizes\\_para\\_o\\_rastreamento\\_do\\_cancer\\_do\\_colo\\_do\\_uterio\\_2016\\_corrigido.pdf](http://www.inca.gov.br/sites/ufu.sti.inca.local/files//media/document//diretrizes_para_o_rastreamento_do_cancer_do_colo_do_uterio_2016_corrigido.pdf)
6. Brasil. Ministério da Saúde. Instituto Sírio-Libanês de Ensino e Pesquisa. (2016b). Protocolos da atenção básica: Saúde das mulheres. Brasília: ISLEP. Available at: [http://bvsms.saude.gov.br/bvs/publicacoes/protocolos\\_atencao\\_basica\\_saude\\_mulheres.pdf](http://bvsms.saude.gov.br/bvs/publicacoes/protocolos_atencao_basica_saude_mulheres.pdf)
7. Bruni, L., et al. (2023). ICO/IARC Information Centre on HPV and Cancer (HPV Information Centre). Human papillomavirus and related disease in the world. Summary Report 10 March 2023. Available at: <https://hpvcentre.net/statistics/reports/XWX.pdf>
8. Cardoso, B. C. R., et al. (2020). Principais dificuldades para a realização do exame Papanicolau em mulheres atendidas em uma unidade básica de saúde no bairro Jaderlândia, Ananindeua, Estado do Pará. *Brazilian Journal of Development*, 6(3), 16007-16022. <https://doi.org/10.34117/bjdv6n3-465>
9. Carvalho, J. P., et al. (2021). Determinantes hereditários do câncer ginecológico e recomendações. *Femina*, 49(8), 482-487. Available at: <https://docs.bvsalud.org/biblioref/2021/10/1342418/femina-2021-498-482-487.pdf>

10. Claro, I. B., et al. (2021). Análise dos motivos de insatisfatoriedade dos exames histopatológicos do colo do útero no sistema único de saúde, Brasil, 2014 a 2017. *Revista Brasileira de Cancerologia*, 67(3), e-081299. <https://doi.org/10.32635/2176-9745.RBC.2021v67n3.1299>
11. Costa, N. M., Bezerra, A. F. B., & Silva, K. S. B. (2021). Histórias de vida de mulheres idosas com câncer de colo do útero: Um olhar para além do adoecer. *Physis*, 31(1), e310118. <https://doi.org/10.1590/S0103-73312021310118>
12. Dias, M. B. K., et al. (2011). A qualidade da coleta do exame citopatológico do colo do útero no Brasil de 2007 a 2010: Uma análise do epitélio representado na amostra [Material técnico-científico]. In Divisão de Apoio à Rede de Atenção Oncológica. Coordenação Geral de Ações Estratégicas. Instituto Nacional do Câncer, Ministério da Saúde. Available at: <https://ninho.inca.gov.br/jspui/handle/123456789/11909>
13. Farias, A. C. B., & Barbieri, A. R. (2016). Seguimento do câncer de colo de útero: Estudo da continuidade da assistência à paciente em uma região de saúde. *Escola Anna Nery, Revista de Enfermagem*, 20(4), e20160096. <https://doi.org/10.5935/1414-8145.20160096>
14. Fonseca, A. J., et al. (2014). Acurácia dos exames citológicos cervicovaginais em Estado de elevada incidência de câncer de colo de útero. *Revista Brasileira de Ginecologia e Obstetrícia*, 36(8), 347-352. <https://doi.org/10.1590/SO100-720320140005061>
15. Galvão, R. O. (2022). Neoplasia intraepitelial escamosa cervical de alto grau: Abordagem ambulatorial. *Femina*, 50(1), 35-50. Available at: <http://docs.bvsalud.org/biblioref/2022/02/1358220/femina-2022-501-35-50.pdf>
16. Holub, K., Vargas, A., & Biete, A. (2020). Radiation-induced lymphopenia: The main aspects to consider in immunotherapy trials for endometrial and cervical cancer patients. *Clinical and Translational Oncology*, 22(11), 2040-2048. <https://doi.org/10.1007/s12094-020-02345-3>
17. Madeiro, A., & Rufino, A. C. (2022). Cobertura e fatores associados à não realização do exame citopatológico do colo do útero entre mulheres brasileiras de 18 a 39 anos. *Journal of Health and Biological Sciences*, 10(1), 1-9. <https://doi.org/10.12662/2317-3076jhbs.v10i1.3521.p1-9.2022>
18. Marques, J. P. H., et al. (2011). Células glandulares atípicas e câncer de colo uterino: Revisão sistemática. *Revista da Associação Médica Brasileira*, 57(2), 234-238. <https://doi.org/10.1590/S0104-42302011000200024>
19. Monteiro, D. S. A., et al. (2022). Limitation of cytology and the impact on reduction of cervical cancer. *DST – Jornal Brasileiro de Doenças Sexualmente Transmissíveis*, 34(1), 1-5. <https://doi.org/10.5327/DST-2177-8264-20223405>



20. Oliveira, B. L. F. P., Cruz, M. M., & Correa, R. M. S. (2022). Incidência do câncer do colo de útero em jovens e o perfil socioeconômico deste grupo nas Regiões do Brasil. *Research, Society and Development*, 11(15), e328111537491. <https://doi.org/10.33448/rsd-v11i15.37491>
21. Pereira Primo, W. Q. S., Fernandes, C. E., & Silva Filho, A. L. (2022). *Ginecologia oncológica – Diagnóstico e tratamento* (1st ed.). Rio de Janeiro: Editora Manole.
22. Pitilin, E. B., et al. (2019). Doença inflamatória do colo do útero: Indicador indireto da saúde reprodutiva da mulher. *Revista de Enfermagem UERJ*, 27(1), e21680. <https://doi.org/10.12957/reuerj.2019.21680>
23. Ribeiro, A. A., et al. (2021). Características sócio-comportamentais, o conhecimento sobre o exame citopatológico e os resultados citológicos de usuárias do serviço único de saúde. *Revista Saúde em Redes*, 7(2), 205-216. <https://doi.org/10.18310/2446-4813.2021v7n2p205-216>
24. Rigon, F. P., et al. (2022). Dados do programa do câncer do colo do útero na pandemia COVID-19. *Arquivos de Ciências da Saúde da UNIPAR*, 26(3), 794-808. <https://doi.org/10.25110/arqsaude.v26i3.2022.8831>
25. Singer, A., & Khan, A. M. (2017). *Singer & Monaghan's - Prevenção do câncer do colo do útero e trato genital inferior - Diagnóstico e tratamento* (3rd ed.). Rio de Janeiro: Editora Revinter.
26. Souza, M. N., et al. (2024). Impacto dos imunobiológicos contra o HPV ao desfecho para a neoplasia maligna do colo de útero no Brasil. *Revista ARACÊ*, 6(4), 16185-16198. <https://doi.org/10.56238/arev6n4-300>
27. Teixeira, J. C., & Martins, C. M. R. (2022). Vacinação contra HPV e rastreamento do câncer de colo uterino com teste de alta sensibilidade: Evidências brasileiras. *Femina*, 50(1), 17-18. Available at: <http://docs.bvsalud.org/biblioref/2022/02/1358217/femina-2022-501-17-18.pdf>
28. Teixeira, M. T. B., et al. (2020). A validação da informação autorreferida sobre realização do exame de Papanicolaou em mulheres assistidas na Atenção Primária à Saúde. *Revista de APS*, 23(2), 410-426. <https://doi.org/10.34019/1809-8363.2020.v23.27747>
29. Tomasi, E., et al. (2015). Estrutura e processo de trabalho na prevenção do câncer de colo de útero na Atenção Básica à Saúde no Brasil: Programa de Melhoria do Acesso e da Qualidade - PMAQ. *Revista Brasileira de Saúde Materno Infantil*, 15(2), 171-180. <https://doi.org/10.1590/S1519-38292015000200003>