

# Early diagnosis of breast and cervical cancer in women from the municipality of Guarapuava, PR, Brazil\*

DIAGNÓSTICO PRECOCE DO CÂNCER DE MAMA E COLO UTERINO EM MULHERES DO MUNICÍPIO DE GUARAPUAVA, PR, BRASIL

DIAGNÓSTICOS PRECOZ DE CÂNCER DE MAMA Y DE CUELLO UTERINO EN MUJERES DEL MUNICIPIO DE GUARAPUAVA, PR, BRASIL

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## ABSTRACT

The objective of this study is to identify the frequency in which the early diagnosis of breast and cervical cancer takes place in the municipality of Guarapuava, Paraná. A cross-sectional study with population basis was carried out including 885 women with the minimum age of 18 years old, in the period from October to December of 2006. The sample calculation considered the trust level of 95% and the error margin of 3%. The software Statistica version 7.1 was used for the data analysis, considering the level of significance of 5%. Breast self-examination was performed by 63% of the interviewees and clinical examination by 49%. The mammography was performed by less than one fourth of the sample. The prevention of cervical cancer was practiced by most of the women (80%). The conclusion was that the studied women from the sample perform preventive exams of breast cancer with less frequency, when compared to cervical cancer preventive exams.

## KEY WORDS

Breast neoplasms.  
Uterine cervical neoplasms.  
Women's health.  
Nursing.

## RESUMO

O objetivo desta pesquisa é identificar a frequência com que é realizado o diagnóstico precoce do câncer de mama e de colo uterino no município de Guarapuava, Paraná. Realizou-se estudo transversal de base populacional, incluindo 885 mulheres com idade mínima de 18 anos, no período de outubro a dezembro de 2006. Considerou-se nível de confiança de 95% e margem de erro de 3% para cálculo amostral. Utilizou-se o software Statistica versão 7.1 para a análise dos dados, considerando nível de significância de 5%. O auto-exame das mamas foi realizado por 63% das entrevistadas e o exame clínico em 49%. A mamografia foi realizada por menos de um quarto da amostra. A prevenção do câncer de colo uterino foi praticada pela maioria das mulheres (80%). Conclui-se que as mulheres da amostra estudada realizam exames preventivos de câncer de mama com menos frequência, se comparado ao exame preventivo de colo de útero.

## DESCRIÇÕES

Neoplasias da mama.  
Neoplasias do colo do útero.  
Saúde da mulher.  
Enfermagem.

## RESUMEN

El objetivo de esta investigación fue identificar la frecuencia en la realización de diagnóstico precoz de cáncer de mama y de cuello uterino en mujeres del municipio de Guarapuava-Paraná-Brasil. Se realizó estudio transversal sobre base poblacional de 885 mujeres con edad mínima de 18 años en el período de octubre a diciembre de 2006. Se consideró un nivel de confianza del 95% un margen de error del 3% para el cálculo de la muestra. Se utilizó el software Statistica versión 7.1 para el análisis de los datos, considerándose un nivel de significatividad de 5%. El autoexamen mamario es realizado por el 63% de las entrevistadas, y el examen clínico por el 49%. Menos de un cuarto de la muestra se efectuó mamografías. La prevención del cáncer de cuello uterino fue practicada por la mayoría de las mujeres (80%). Se concluyó en que las mujeres de la muestra estudiada realizan exámenes preventivos del cáncer de mama con menor prevalencia en comparación al examen preventivo de cáncer de cuello de útero.

## DESCRIPTORES

Neoplasias de la mama.  
Neoplasias del cuello uterino.  
Salud de la mujer.  
Enfermería.

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## INTRODUCTION

Cancer is considered a severe public health problem around the world<sup>(1)</sup>. In Brazil, this disease is progressively affecting women at increasingly young ages and with rising mortality rates<sup>(2)</sup>. In 2008, the estimated number of new uterine cervix cancer cases was 18,680, with an estimated risk of 19 cases for every 100 thousand women, while the expected number of new breast cancer cases in Brazil was 49,400 in 2008, with an estimated risk of 51 cases for every 100 thousand women<sup>(1)</sup>.

Today, tumors represent the second cause of death in Brazilian women, with breast cancer ranking first, followed by lung, colon and rectal and uterine cervix cancer<sup>(3)</sup>. This profile is similar to developed country, except with regard to uterine cervix cancer, for which Brazil still displays ratios as high as in developing countries<sup>(4)</sup>. Therefore, new early breast cancer diagnosis and treatment practices are urgently needed<sup>(5)</sup>.

Although breast cancer is considered a cancer with a good prognosis if diagnosed and treated duly, mortality rates remain high in Brazil, very probably because the disease is diagnosed in advanced stages<sup>(1)</sup>. Cervical cancer prevention is also possible, as it tends to evolve slowly, with detectable pre-clinical phases and a considerable cure potential in comparison with other cancer types<sup>(6)</sup>. In Brazil, however, many women have already reached an advanced disease stage when the diagnosis is reached, limiting the possibility of cure. This problem can partially be explained by irregular test coverage in countries without organized screening programs. While one part of the female population submits to screening several times, another part has never been screened<sup>(6)</sup>.

It is estimated that a reduction in uterine cervix cancer by about 80% can be achieved by screening women between 25 and 65 years of age with the pap smear and treatment of pre-cancerous lesions with a high potential to become cancer or carcinoma in situ. Therefore, the organization, comprehensiveness and quality of the screening program need to be guaranteed, as well as patient follow-up. Drugs regulation agencies from different countries, including the USA and Brazil, have recently approved the commercial distribution of the first vaccine developed to prevent the most common infections causing genital condyloma (HPV 6 and 11) and uterine cervix cancer (HPV 16 and 18). In the future, the incorporation of the vaccine against HPV can represent an important tool to control uterine colon cancer<sup>(1)</sup>.

Health problem prevention can be primary or secondary. The role of primary prevention is to modify or eliminate risk factors, while secondary prevention comprises diagnosis and early treatment of cancer<sup>(7)</sup>. Early breast can-

cer diagnosis includes mammogram and clinical breast exam, while secondary uterine cervix cancer prevention has concentrated on screening sexually active women through the pap smear<sup>(8)</sup>.

It should be highlighted though, that early breast cancer diagnosis is connected with women's access to information, raising their awareness on the breast self-exam, the clinical exam and the mammogram<sup>(1)</sup>. New feasible screening strategies for countries with budget difficulties have been studied as, until date, mammograms have been recommended for women between 50 and 69 years of age only as an effective method for early detection<sup>(1)</sup>. For uterine cervix cancer, on the other hand, the most effective control approach is still screening through pap smears<sup>(9)</sup>.

The high mortality rates due to breast and uterine cervix cancer reveal the small coverage of population screening services for these illnesses<sup>(10)</sup>. On the other hand, the good prognosis for breast cancer when detected early and the efficacy of the pap smear to prevent uterine cervix cancer justify research to identify female population characteristics and their relation with positive conducts regarding these practices. This knowledge can support actions by health professionals, especially nurses, and effectively contribute to improve the quality of women's health care.

This research aimed to identify the frequency of early breast and uterine cervix cancer diagnoses among women aged 18 years or older living in Guarapuava-PR and to analyze the variables associated with this practice.

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## MÉTODO

This population-based cross-sectional study was carried out in Guarapuava-Paraná between October and December 2006. According to data by the Brazilian Institute of Geography and Statistics (IBGE), collected in 2003, the city population was estimated at 166,897 in 2005<sup>(11)</sup>. Only women aged 18 years or older were studied, estimated at 67,597 in 2005, also according to the IBGE.

Sample size was calculated using *Statdisk* version 8.4, at a 95% confidence level, 3% error margin, based on a population of 67,597 women, estimating the sample size as 885 women. The women were selected through simple random sampling. Guarapuava comprises 20 neighborhoods and the number of women in each neighborhood was known, according to IBGE data. To reach the sample size, proportions were calculated and the women were drafter per street and house number, at proportions adequate for each neighborhood.

A structured questionnaire was applied, containing 66 open and closed categorical and scale questions, addressing identification, life habits, health care, reproductive health and physiotherapy. For this paper, questions on identification,

health care and reproductive health were taken into account. The questionnaire was submitted to a pre-test in a pilot sample of 30 women so as to adapt the instrument.

The economic class variable was based on the Brazilian Economic Classification Criterion, developed by the *Associação Brasileira de Empresas de Pesquisa*<sup>(12)</sup>, comprising seven classes (A1, A2, B1, B2, C, D and E) and based on the ownership of consumption goods. Class A1 corresponds to families with a mean income of 22 minimum wages, A2 13, B1 eight, B2 five, C two and a half, D one point two and E little more than half a minimum wage.

In the analyses, health ratios (prevalence), chi-square test, association tests and correspondence analysis were used. Statistica 7.1 and SAS 9.1 were used for data analysis. All descriptive levels were set at 5%.

The research proposal was submitted for evaluation to the Permanent Ethics Committee for Research involving Human Beings at *Universidade Estadual do Centro-Oeste* (UNICENTRO), Guarapuava-PR, and received a favorable opinion, registered as No 0140/2006, to accomplish the research between October 2006 and September 2007. The interviewees signed a free and informed consent term in compliance with Ministry of Health Resolution 196/96 for research involving human beings. Besides the researchers, ten previously trained third-year students from the physiotherapy course at UNICENTRO served as interviewers.

## RESULTS

As demographic characteristics can permit reflections on health care, next, some statistical data are presented regarding the research participants' demographics.

Among the 885 interviewed women, the mean age was 41 years, with a minimum of 18 and a maximum of 86 years.

The women in this study were married (67%), had finished primary education (55%), were housewives (47%) or general service workers (13%) and gained either no monthly income (47%) or between one and three Brazilian minimum wages (37%). Six percent of the interviewees received aid from religious and/or public social projects, not reaching the amount of one minimum wage.

In 21% of the cases, women were the sole responsible for sustaining their family, against 56% for men. On the average, families contained four people and the number of inhabitants per residence ranged between one and eleven. The socioeconomic ranking based on the Brazilian Criterion<sup>(12)</sup> weighs the family head's education level and people's purchasing power. In the sample, 40% belonged to class C, 32% class D, 5% class E, 3% classes A1 and A2, 6% class B1 and 14% class B2.

Most women (60%) used the Unified Health System (SUS) when they needed care, 34% had a private health insurance and 6% used private care. The women self-assessed their health condition as follows: 14% excellent, 40% good, 27% moderate, 13% regular and 6% bad.

When asked about gynecological visits, 43% consulted this specialist once per year, 10% every six months, 17% irregularly and 4% in case of any symptom only. Almost 26% of the women did not consult a gynecologist.

Most women (63%) had already or practiced the breast self-exam, 24% of whom did it every month and 39% irregularly. Little less than half of the women (49%) had already been submitted to a clinical breast exam by a physician, 28% of whom once per year and 21% sporadically.

Only 24% of the interviewed women had already done a mammogram, 8% of whom did it once per year, 1% every six months and 15% irregularly. Table 1 shows the relation between mammogram frequency and age.

**Table 1-** Frequency distribution of mammogram per age range - Guarapuava, PR - 2006

Age	Irregularly	Every six months	Once per year	Total number who did	Had never done a mammogram
between 18 and 28	08	0	0	08	198
between 29 and 38	20	02	09	31	160
between 39 and 48	50	05	22	77	141
between 49 and 58	34	02	26	62	87
between 59 and 68	19	01	0	26	50
between 69 and 78	04	0	03	07	28
between 79 and 86	02	0	01	03	07
SUBTOTAL	137	10	67	214	671
TOTAL					885

Approximately 80% of the women had done a pap smear, 50% of whom once per year, 4% every six months and 26% irregularly

Less than 10% of the study sample did not take any measure for early tumor diagnosis. On the opposite, 17% of the women underwent the four tests addressed in this

research. Correspondence analysis revealed a trend for women who undergo one preventive test to do all tests, and for women who do not undergo one not to do any.

Age and economic level significantly influence the performance of the four tests, as shown in Table 2.

**Table 2** - Frequency of elderly breast and uterine cervix cancer diagnosis and significant associated variables - Guarapuava, PR - 2006

Variables	Self-exam		Clinical exam		Mammogram		Uterine cervix	
	N	(%)	N	(%)	N	(%)	N	(%)
18 to 28	112	54.3	77	37.3	8	3.8	140	67.9
29 to 38	124	64.9	108	56.5	31	16.2	177	92.6
39 to 48	150	68.8	118	54.1	77	35.3	190	87.1
49 to 58	98	65.7	85	57.0	62	41.6	127	85.2
59 to 68	53	69.7	34	44.7	26	34.2	55	72.3
69 to 78	15	42.8	11	31.4	7	20.0	18	51.4
79 to 86	2	20.0	3	30.0	3	30.0	4	40.0
	<b>p&lt;0.0002</b>		<b>p&lt;0.0001</b>		<b>p&lt;0.0001</b>		<b>p&lt;0.0001</b>	
<b>Brazilian Criterion</b>								
A1	3	100.0	2	66.6	1	33.3	2	66.6
A2	15	83.3	16	88.8	8	44.4	16	88.8
B1	39	73.5	44	83.0	21	39.6	47	88.6
B2	100	78.7	96	75.5	50	39.3	112	88.1
C	222	62.8	184	52.1	78	22.1	292	82.7
D	157	54.9	88	30.7	53	18.5	211	73.7
E	18	40.0	6	13.3	3	6.6	31	68.8
	<b>p&lt;0.0001</b>		<b>p&lt;0.0001</b>		<b>p&lt;0.0001</b>		<b>p&lt;0.0016</b>	

## DISCUSSION

This population's demographic characteristics arouse reflections on health care. Socioeconomic level seems to be the main determinant of access to gynecological consultations and, consequently, to other secondary breast cancer prevention conducts<sup>(2)</sup>. Women in this study showed low income and education levels, which may have influenced health care practice, particularly regarding early diagnosis and tumor prevention. Low education can be responsible for insufficient knowledge on the pap smear, suggesting that this condition interferes negatively in the accomplishment of early diagnosis and preventive conducts<sup>(10)</sup>. On the other hand, this condition may also be based on health professionals' difficulty to advise women with low education levels on these diseases and their prevention or early detection<sup>(13)</sup>.

The breast self-exam frequency found in this study was 63%. In a research carried out in Pelotas-Rio Grande do Sul in 2002, based on a sample of 879 women between 40 and 69 years of age, the self-exam frequency was 83%<sup>(2)</sup>. This difference can be justified by the average age and education variables. The frequency of monthly breast self-exam was 24% in the first study, against 80% in the second.

In another study of 261 women aged 30 years or older in Botucatu-SP, the prevalence of the self-exam was 79%, although 27% of these women practiced it correctly<sup>(14)</sup>. In this research, carried out in Guarapuava, the quality of self-exams was not assessed. In view of the abovementioned study though, it should be considered that the fact that these women perform the self-exam does not mean that they do it correctly, which may suggest inadequate early breast cancer diagnosis care.

Although all women can do the breast self-exam, it is not part of Ministry of Health recommendations, which emphasize a mammogram at least every two years for women between 50 and 69 years old and an annual clinical breast exam for women between 40 and 49 years of age as the main population screening strategies. All women who go to the health service should be subject to the clinical breast exam as a part of woman's health care, independently of their age range. For women in population group considered at high risk for breast cancer (with a family history of breast cancer in first-degree relatives), an annual clinical breast exam and mammogram is recommended as from the age of 35 years<sup>(1)</sup>.

Forty-nine percent of the interviewees were subject to the clinical breast exam. Similar studies involving 1404 women between 20 and 59 years<sup>(8)</sup> and 879 women between 40 and 69 years of age<sup>(2)</sup> appointed prevalence levels of 76% and 83%, respectively. In the present study, it was verified that not all women were subject to the clinical breast exam during the preventive test, against higher frequencies at basic health units. This may be related to the fact that, at basic health units, in most cases, nurses perform the preventive test. Teaching institutions should reflect on this finding with a view to preparing nursing professionals for health promotion and disease prevention.

In this study, the frequency of mammograms was 24%, close to the prevalence level of 36% in a study with a similar method (home survey), using a database from the 2003 Brazilian National Household Survey (PNAD), including 107,147 women aged 25 years or older<sup>(3)</sup>. As the major part of the study population used the Unified Health System (SUS) and a quarter of the population had already done a specific pre-

vention test like a mammogram, this finding would not be negative, provided that the most susceptible population had this test done at least once a year, which was the case in only 8% of the sample. About 25% of the women older than 50 do not follow recommended periodical screening standards<sup>(15)</sup>. It should be taken into account that older women use health services less, even in developed countries<sup>(16)</sup>. In general, younger women go to health services more frequently, especially for gynecological consultations due to events that are more frequent in this age range, such as pregnancy, contraception and leukorrhea treatment<sup>(10)</sup>.

A study carried out in Taubaté-SP in 2003, involving 643 women, verified that the start age of this screening was 47 years in public and 40 in private services, with a significant difference in type of care<sup>(15)</sup>. In the same study, 25% of the women older than 50 did not follow recommended periodical screening standards. The type of care exerted influence on the accomplishment of mammograms.

In the present research, doing a mammogram was associated with education, civil status, profession and income. Thus, the lower the education and income levels, the scarcer the access to mammograms will be. Health authorities need to take these data into account so that early breast cancer diagnosis through a non-specific test is not accessible to a small, more culturally and financially privileged social group only. As no primary prevention measures exist, i.e. there are no means to prevent breast cancer, it is totally relevant to improve early detection means<sup>(17)</sup>.

It should also be added that women who already developed cancer in one breast may have a relapse in the other. In view of increased survival, recurrence of the disease is a possibility, making women in this situation live in a world of uncertainties<sup>(18)</sup>, which can make screening more difficult. In these situations, health professionals play an important role to support women who already underwent a mastectomy, with a view to helping them to face their feelings and expectations.

The pap smear frequency in this research was 80%. A similar percentage (82%) was found among 465 women between 25 and 49 years old who were interviewed in São Luís in 1999<sup>(19)</sup>. In general, in recent years, no significant changes occurred in the Brazilian female population's mortality profile due to uterine cervix cancer. In the attempt to investigate why this epidemiological picture continues, some studies have looked at pap smear coverage and factors associated with its accomplishment. Besides the fact that the estimated coverage rates in those studies remain below expected rates to exert a significant influence on uterine cervix cancer mortality rates, i.e. more than 80% of the female population, in accordance with recommendations by the Pan American Health Organization (PAHO) and the World Health Organization (WHO), this test is mainly performed in the lower-risk population<sup>(19)</sup>. In the present research, the pap smear coverage rate of 80% of women between 25 and 59 years equaled the frequency estimated by PAHO, which is also the rate recommended by WHO.

In Brazil, in 1988, the Ministry of Health set three years as the periodicity for this test, in line with the main international programs and *Viva Mulher* – Brazilian Uterine Cervix and Breast Cancer Control Program. According to WHO, after a negative result, the triennial accomplishment of this test is as efficient as the annual in terms of reduction in incidence levels<sup>(1)</sup>. New screening methods are appointed as effective to reduce uterine cervix cancer mortality rates, but the pap smear is still the screening strategy recommended by the Ministry of Health<sup>(1)</sup>. In order to guarantee patients' adherence to prevention programs, professionals need to surpass their expectations, developing a climate of empathy and trust<sup>(13)</sup>, stimulating the women to continue prevention.

The association between the women's age and the accomplishment of pap smears was statistically significant, with higher levels among women between 29 and 58 years old, similar to the accomplishment of preventive breast cancer exams. A recent study at a natural birth center in Ceará, considering 237 pap smear results, appointed an age range between 12 and 79 years old<sup>(20)</sup>. This range arouses the reflection that, perhaps, prevention measures should be adapted to certain regions. In the same study, the reports had been forgotten at the care center, showing that the women may even be convinced to undergo the exam but that, if the health professionals' work is not effective, they can give up their health care and early diagnosis is no longer possible, as many of these results needed follow-up or treatment.

When comparing the frequency of clinical breast exam (49%) with pap smear prevalence levels (80%), a 31-percent difference appeared. As 60% of the women used the SUS, this difference in frequency level can be justified. In view of high demands in the SUS and the insufficient number of health professionals, little attention is given to clinical breast exams when the pap smear is performed. This exam may only be performed if the woman mentions complaints. The association between socioeconomic level and access to prevention and early diagnosis tests indicates that access to health care is not universal and represents a challenge the State has to face through public policies<sup>(2)</sup>.

Considering the accomplishment of the breast self-exam, clinical breast exam, mammogram and pap smear, 46% of the women took at least two exams, 34% only the pap smear, 3% only the clinical breast exam and 17% no exam whatsoever. This behavior is associated with lack of knowledge and low education level. The age range between 39 and 48 years showed the highest prevalence levels for all exams. A strong trend was observed for women who attempt to do one prevention exam to do the four exams, and the opposite was also true.

## CONCLUSION

These research data show that the women underwent breast cancer prevention tests less frequently in comparison with uterine cervix cancer prevention tests. Although 63% of the interviewees performed the breast self-exam, quality



and efficacy were not measured. At least a quarter of the sample had undergone a mammogram, suggesting that access to this test remains difficult for most of the female population, particularly in low-income and education groups. Most women practice uterine cervix cancer prevention care (80%), in accordance with Ministry of Health recommendations.

The results appoint the importance of health professionals' articulated and integrated work, permitting care

delivery to female health service users. As a result of its more generalist and more human preparation with a greater emphasis on health education, nursing can effectively contribute to improve these figures. Public authorities also need to take action, however, focusing on the most needy and vulnerable population, due to low education and socioeconomic levels. That is the only way to comply with one of the basic principles in the Brazilian Constitution, which is health as a right for all and a duty of the State.

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