

Cytopathological Examination in Minas Gerais: Analysis of the Indicator of Previne Brazil of the Years 2022-2023

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Exame Citopatológico em Minas Gerais: Análise do Indicador do Previne Brasil dos Anos 2022-2023

Examen Citopatológico en Minas Gerais: Análisis del Indicador Previne Brasil de los Años 2022-2023

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ABSTRACT

Introduction: In Brazil, excluding non-melanoma skin cancer, cervical cancer is the third most incident among women and cytopathological examination continues to be the most adopted screening strategy. *Previne Brasil* is one of the strategies, which aims to expand the services provided at the entry and previews the integrality of the care to women. **Objective:** Analyze the evolution of the indicator of coverage *Previne Brasil* in the State of Minas Gerais between 2022 and 2023. **Method:** Quantitative and descriptive study with data from the Computer Department of the National Health System and the Health Information System for primary care, migrated to Excel software, where each municipality was allocated to its macroregion to identify the performance. **Results:** The examination coverage improved with more municipalities meeting the indicator's goal (> 40%) during the evaluation of the performance. In parallel, there was a decrease in the number of malignant neoplasms and an increase in the number of diagnoses in the initial phase of the disease. **Conclusion:** Funding positively impacted the increase of the number of Pap smears, contributing to prevent cervical cancer. However, the implementation of the program was challenging because of inequalities among municipalities, lack of resources, and necessity to strengthen active search for women.

Key words: Women's Health/statistics & numerical data; Primary Health Care/methods, Uterine Cervical Neoplasms; Healthcare Funding.

RESUMO

Introdução: No Brasil, excluindo o câncer de pele não melanoma, o câncer do colo do útero é o terceiro mais incidente entre as mulheres e a realização do exame citopatológico continua sendo a estratégia mais adotada para o rastreamento. Entre as estratégias, encontra-se o Previne Brasil, o qual objetiva ampliar os atendimentos da porta de entrada e prevê a integralidade do cuidado à saúde da mulher. **Objetivo:** Analisar a evolução do indicador de cobertura do exame citopatológico do Previne Brasil dos anos de 2022 e 2023 em Minas Gerais. **Método:** Estudo quantitativo e descritivo, com dados do Departamento de Informática do Sistema Único de Saúde e do Sistema de Informação em Saúde para a Atenção Básica, transferidos para o software Excel, de forma que cada município foi alocado na sua Macrorregião para identificação dos desempenhos. **Resultados:** Avaliando o alcance da meta do indicador, nota-se uma progressão na cobertura do exame, que elevou o número de municípios que alcançaram a meta do indicador (>40%). Paralelamente, ocorreu diminuição do número de neoplasias malignas e aumento no número de diagnósticos na fase inicial da doença. **Conclusão:** O financiamento teve impacto positivo no aumento da realização de exames citopatológicos, contribuindo para a prevenção do câncer do colo do útero. No entanto, a implementação do programa enfrentou desafios como a desigualdade entre municípios, a falta de recursos e a necessidade de fortalecer a busca ativa por mulheres.

Palavras-chave: Saúde da Mulher/estatística & dados numéricos; Atenção Primária à Saúde/métodos, Neoplasias do Colo do Útero; Financiamento da Assistência à Saúde.

RESUMEN

Introducción: En el Brasil, excluyendo al cáncer de piel no melanoma, el cáncer de cuello uterino es el tercero más incidente entre las mujeres y la realización del examen citopatológico continúa siendo la estrategia más adoptada para el rastreo. El Previne Brasil es una estrategia que tiene como objetivo ampliar las atenciones de la Puerta de Entrada y prevé la integralidad del cuidado a la salud de la mujer. **Objetivo:** Análisis de la evolución de los indicadores del programa Previne Brasil en el estado de Minas Gerais entre 2022 y 2023. **Método:** Estudio cuantitativo y descriptivo, con datos del Departamento de Informática del Sistema Único de Salud y del Sistema de información en salud para la atención básica, transferidos hacia el software Excel, donde cada municipio fue asignado en su macrorregión, para identificar los rendimientos. **Resultados:** Evaluando el alcance de la meta del indicador, se nota una progresión en la cobertura del examen, que elevó el número de municipios que alcanzaron la meta del indicador (>40%). Paralelamente, se produjo una disminución del número de neoplasias malignas y un aumento en el número de diagnósticos en la fase inicial de la enfermedad. **Conclusión:** La financiación impulsó el aumento de la realización de exámenes citopatológicos, favoreciendo la prevención del cáncer cervicouterino. No obstante, la implementación del programa se enfrentó a desafíos como las desigualdades intermunicipales, la escasez de recursos y la necesidad de fortalecer la búsqueda activa de mujeres.

Palabras clave: Salud de la Mujer/estadística & datos numéricos; Atención Primaria de Salud/métodos, Neoplasias del Cuello Uterino; Financiación de la Atención de la Salud.

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INTRODUCTION

Excluding non-melanoma skin cancer, cervical cancer is the third most incident among Brazilian women and according to the National Cancer Institute (INCA), 17,010 new cases were estimated for each year of the triennium 2023-2025, a raw incidence rate of 15.38 cases for each 100 thousand women.

Regionally, cervical cancer is the second most incident in the North (20.48/100 thousand) and Northeast (17.59/100 thousand) Regions, the third in the Midwest (16.66/100 thousand) Region, the fourth in the South Region (14.55/100 thousand) and the fifth in the Southeast Region (12.93/100 thousand). In 2021, the mortality rate by cervical cancer adjusted to the world population was 4.51 deaths/100 thousand women, the fourth (6.05%) cause of death in women¹.

Cytopathological test, also known as Pap test, is the most adopted strategy for cervical cancer screening. Women aged 25 years who had initiated sexual activity or are sexually active are eligible to begin screening, performed periodically until 64 years old. For older than 64 years women who have never been tested, two tests in one to three years are recommended; if both are negative, further exams are not required².

Cervical cancer screening is an important test utilized by Primary Health Attention (APS) and the main method adopted in Brazil to detect precursor lesions; it is the most important component of this level of attention^{2,3} to reach high coverage for the target-population. To understand the relevance of cervical cancer prevention, below is the definition of APS within the Brazilian health system:

Individual, family and collective actions involving health promotion, prevention, protection, diagnosis, treatment, rehabilitation, damage control, palliative care and surveillance developed through integral care and qualified management by multiprofessional team and targeted to territory-specific assigned population under their responsibility⁴.

The Ministry of Health is responsible for assigning tripartite government funds regularly and automatically to APS to ensure resources and quality assistance. A new funding model – *Previne Brasil* – targeted to monitor, analyze the results of the indicators and attempt to meet health demands of the population was created by Directive GM/MS number 2.979⁵ in 2019. One of its priorities is to foster women's health through an indicator to measure the performance of cytopathology tests for the recommended age-range.

Previne Brasil changed how government funds are assigned and aims to expand the assistance at admission into the National Health System (SUS) in addition to full care to women. In line with this principle, it is highlighted the importance of the analysis of the indicator of cytopathology test coverage in the macro-regions of the State of Minas Gerais to establish cervical cancer prevention and early detection⁶ measures.

Given the impact of cervical cancer screening in identifying potential malignancies revealed by cytopathology, the objective of the present study was to analyze the evolution of this indicator within *Previne Brasil* in 2022 and 2023 in the State of Minas Gerais.

METHOD

Quantitative, descriptive study to analyze indicator 4 of *Previne Brasil*, "cytopathological test coverage", based on data available at basic health information system⁷ (SISAB) of 2022 and 2023. SISAB was created by the Computer Data System of SUS (DATASUS), whose goal is to provide computer-based support for planning, operation and control. The formula of the indicator is shown in Figure 1.

Through e-SUS APS, SISAB allows the standardized collection and treatment of data, required to create performance reports of APS and strategic decision-making. Due to methodological alterations of the indicator in previous years and COVID-19 impacts on the data it has been decided to investigate the years 2022 and 2023.

With SISAB⁷, it was possible to obtain data of the indicator analyzed whose goal was to perform cytopathological test in $\geq 40\%$ of the women in the recommended age range. The percent cutoff determined by the Minister of Health to monitor the evolution of each municipality in attempting to reach the goal are: $<16.0\%$, $\geq 16.0\%$ and $<28\%$, $\geq 28\%$ and $<40\%$ ⁸.

The data collected for the present study were analyzed in Excel and organized as a database. Initially, the values obtained and consolidated for the State were evaluated; the State was divided in municipalities that were analyzed in relation to the goal of the indicator and each municipality was assigned to its respective health macro-region (Centro, Centro-Sul, Jequitinhonha, Leste, Leste do Sul, Nordeste, Noroeste, Norte, Oeste, Sudeste, Sul, Triângulo do Norte, Triângulo do Sul and Vale do Aço) whose value of the indicator was reviewed once more to respond to the research question: How the indicator of *Previne Brasil* "cytopathology test coverage" evolved from 2022 to 2023 in the State of Minas Gerais?

Because only secondary, deidentified, open access data have been utilized, the approval by the ethics committee was waived according to Directive number 510⁹ of April 7, 2016 of the National Health Council.

RESULTS

There was a gradual increase of the proportion of cytopathology tests collected for women at APS between 2022 and 2023 as the analysis of the State revealed. In the first quadrimester of 2022, 19% were registered for the State, 21% and 23% in the second and third quadrimester, respectively. The first quadrimester of 2023 reached 25%, and 28%, and 30% in the second and third, respectively.

In the first quadrimester of 2022 for the total municipalities of the State, (Table 1), of the 853 municipalities, 801 (93.91%) did not meet the goal (sum of those which met < 16.0%, ≥ 16.0 or < 28.0% and ≥ 28.0 or < 40.0%) and only 52 (6.09%) municipalities did (≥ 40.0%).

However, until the third quadrimester of 2023, an expressive change of the data occurred, the number of

municipalities which met the goal increased. 522 of them (61.18%) failed to meet the goal (sum of those which met > 16.0%, ≥ 16.0 or < 28.0% and ≥ 28.0 or < 40.0%) and 331 (38.8%) which met (≥ 40.0%) as shown in Table 1.

It is clear there was a progressive improvement of the performance of the municipalities in the State of Minas Gerais in the period after analyzing the municipalities grouped per macroregion portrayed in Tables 2 and 3. In 2022, macroregion Centro had five municipalities (4.95%) which met the goal; Centro-Sul, one (1.96%); Jequitinhonha, two (6.45%); Leste, three (5.88%); Leste do Sul, one (1.89%); Nordeste, four (7.02%); Noroeste, one (3.03%); Norte, 17 (19.77%); Oeste, three (5.56%); Sudeste, 4 (4.26%); Sul, 10 (6.54%); in Triângulo do Norte, one (3.70%); in the macro-regions Triângulo do Sul and Vale do Aço, none of the municipalities met the goal. In the last quadrimester of 2023, macroregion Centro had 34 (33.66%) municipalities which met the goal; Centro-Sul, 15 (29.41%); Jequitinhonha, 18 (58.06%); Leste, 18 (35.29%); Leste do Sul, 15 (28.30%); Nordeste, 27 (47.37%); Noroeste, 11 (33.33%); Norte, 62 (72.09%); Oeste, 30 (55.56%);

$$\frac{\text{Number of women aged 25 to 64 years who underwent a cytopathological examination in the last 3 years}}{\text{Number of women with age between 25 and 64 years old and linked to APS OR Municipal registry SISAB x \% women aged 25 to 64 years according to population estimates}} \times 100$$

Figure 1. Formula to calculate the indicator 4

Captions: APS = Health Basic Attention; SISAB = Health Information System for Basic Attention.

Table 1. Proportion of municipalities per quadrimester versus goal of the indicator 2022/2023, Minas Gerais

Indicator	2022						2023					
	Q1		Q2		Q3		Q1		Q2		Q3	
	n	%	n	%	n	%	n	%	n	%	n	%
<16.0%	330	38.69	243	28.49	177	20.75	115	13.48	65	70.62	60	70.03
≥16.0 or <28.0%	323	37.87	330	38.69	311	36.46	282	33.06	250	29.31	190	22.27
≥28.0 or <40.0%	148	17.35	195	22.86	220	25.79	249	29.19	260	30.48	272	31.88
≥40.0%	52	60.09	85	90.96	145	17	207	24.27	278	32.59	331	38.8
Total	853		853		853		853		853		853	

Source: Health Information System for Basic Attention⁷.

Caption: Q = quadrimester.



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Table 2. Proportion of municipalities in relation to the performance index according to macroregion 2022

First quadrimester 2022	Centro		Centro-sul		Jequiti- nhonha		Leste		Leste do sul		Nordeste		Noroeste		Norte		Oeste		Sudeste		Sul		Triângulo do norte		Triângulo do Sul		Vale do aço		Total
	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	
<16.0%	39	38.61	21	41.18	5	16.13	20	39.22	25	47.17	19	33.33	9	27.27	25	29.07	14	25.93	50	53.19	57	37.25	9	33.33	21	77.78	16	45.71	330
≥16.0 or <28.0%	48	47.52	17	33.33	14	45.16	17	33.33	20	37.74	21	36.84	17	51.52	29	33.72	20	37.04	34	36.17	53	34.64	12	44.44	5	18.52	16	45.71	323
≥28.0 or <40.0%	9	8.91	12	23.53	10	32.26	11	21.57	7	13.21	13	22.81	6	18.18	15	17.44	17	31.48	6	6.38	33	21.57	5	18.52	1	3.70	3	8.57	148
≥40.0%	5	4.95	1	1.96	2	6.45	3	5.88	1	1.89	4	7.02	1	3.03	17	19.77	3	5.56	4	4.26	10	6.54	1	3.70	0	0.00	0	0.00	52
Total	101	100	51	100	31	100	51	100	53	100	57	100	33	100	86	100	54	100	94	100	153	100	27	100	27	100	35	100	853

Second quadrimester 2022	Centro		Centro-sul		Jequiti- nhonha		Leste		Leste do sul		Nordeste		Noroeste		Norte		Oeste		Sudeste		Sul		Triângulo do norte		Triângulo do Sul		Vale do aço		Total
	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	
<16.0%	30	29.70	17	33.33	4	12.90	16	31.37	23	43.40	11	19.30	6	18.18	11	12.79	11	20.37	40	42.55	43	28.10	7	25.93	17	62.96	7	20.00	243
≥16.0 or <28.0%	43	42.57	18	35.29	10	32.26	16	31.37	20	37.74	24	42.11	17	51.52	27	31.40	18	33.33	41	43.62	54	35.29	14	51.85	8	29.63	20	57.14	330
≥28.0 or <40.0%	20	19.80	14	27.45	12	38.71	14	27.45	7	13.21	16	28.07	8	24.24	24	27.91	19	35.19	8	8.51	40	26.14	4	14.81	2	7.41	7	20.00	195
≥40.0%	8	7.92	2	3.92	5	16.13	5	9.80	3	5.66	6	10.53	2	6.06	24	27.91	6	11.11	5	5.32	16	10.46	2	7.41	0	0.00	1	2.86	85
Total	101	100	51	100	31	100	51	100	53	100	57	100	33	100	86	100	54	100	94	100	153	100	27	100	27	100	35	100	853

Third quadrimester 2022	Centro		Centro-sul		Jequiti- nhonha		Leste		Leste do sul		Nordeste		Noroeste		Norte		Oeste		Sudeste		Sul		Triângulo do norte		Triângulo do Sul		Vale do aço		Total
	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	
<16.0%	22	21.78	12	23.53	1	3.23	11	21.57	19	35.85	7	12.28	5	15.15	6	6.98	9	16.67	34	36.17	28	18.30	3	11.11	14	51.85	5	14.29	176
≥16.0 or <28.0%	42	41.58	20	39.22	8	25.81	18	35.29	21	39.62	24	42.11	14	42.42	22	25.58	15	27.78	36	38.30	49	32.03	16	59.26	9	33.33	18	51.43	312
≥28.0 or <40.0%	25	24.75	14	27.45	12	38.71	13	25.49	8	15.09	15	26.32	9	27.27	19	22.09	18	33.33	18	19.15	50	32.68	6	22.22	3	11.11	10	28.57	220
≥40.0%	12	11.88	5	9.80	10	32.26	9	17.65	5	9.43	11	19.30	5	15.15	39	45.35	12	22.22	6	6.38	26	16.99	2	7.41	1	3.70	2	5.71	145
Total	101	100.00	51	100.00	31	100.00	51	100.00	53	100.00	57	100.00	33	100.00	86	100.00	54	100.00	94	100.00	153	100.00	27	100.00	27	100.00	35	100.00	853

Source: Health Information System for Basic Attention⁷.



Table 3. Percent of municipalities in relation to the performance index according to macroregion 2023

First quadrimester 2023	Centro		Centro-Sul		Jequitinhonha		Leste		Leste do Sul		Nordeste		Noroeste		Norte		Oeste		Sudeste		Sul		Triângulo do Norte		Triângulo do Sul		Vale do Aço		Total
	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	
<16.0%	19	18.81	6	11.76	0	0.00	5	9.80	11	20.75	5	8.77	4	12.12	4	4.65	4	7.41	24	25.53	16	10.46	2	7.41	12	44.44	3	8.57	115
≥16.0 or <28.0%	35	34.65	20	39.22	6	19.35	18	35.29	23	43.40	17	29.82	8	24.24	16	18.60	16	29.63	38	40.43	46	30.07	15	55.56	8	29.63	16	45.71	282
≥28.0 or <40.0%	29	28.71	14	27.45	12	38.71	18	35.29	11	20.75	17	29.82	15	45.45	19	22.09	17	31.48	20	21.28	55	35.95	8	29.63	5	18.52	9	25.71	249
≥40.0%	18	17.82	11	21.57	13	41.94	10	19.61	8	15.09	18	31.58	6	18.18	47	54.65	17	31.48	12	12.77	36	23.53	2	7.41	2	7.41	7	20	207
Total	101	100.00	51	100.00	31	100.00	51	100.00	53	100.00	57	100.00	33	100.00	86	100.00	54	100.00	94	100.00	153	100.00	27	100.00	27	100.00	35	100.00	853
Second quadrimester 2023	Centro		Centro-Sul		Jequitinhonha		Leste		Leste do Sul		Nordeste		Noroeste		Norte		Oeste		Sudeste		Sul		Triângulo do Norte		Triângulo do Sul		Vale do Aço		Total
	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	
<16.0%	11	10.89	2	3.92	0	0.00	2	3.92	7	13.21	4	7.02	2	6.06	1	1.16	3	5.56	16	17.02	8	5.23	0	0.00	7	25.93	2	5.71	65
≥16.0 or <28.0%	34	33.66	18	35.29	5	16.13	13	25.49	20	37.74	11	19.30	8	24.24	9	10.47	14	25.93	37	39.36	41	26.80	12	44.44	13	48.15	15	42.86	250
≥28.0 or <40.0%	30	29.70	19	37.25	9	29.03	20	39.22	15	28.30	19	33.33	13	39.39	23	26.74	12	22.22	20	21.28	56	36.60	11	40.74	5	18.52	8	22.86	260
≥40.0%	26	25.74	12	23.53	17	54.84	16	31.37	11	20.75	23	40.35	10	30.30	53	61.63	25	46.30	21	22.34	48	31.37	4	14.81	2	7.41	10	28.57	278
Total	101	100.00	51	100.00	31	100.00	51	100.00	53	100.00	57	100.00	33	100.00	86	100.00	54	100.00	94	100.00	153	100.00	27	100.00	27	100.00	35	100.00	853
Third quadrimester 2023	Centro		Centro-Sul		Jequitinhonha		Leste		Leste do Sul		Nordeste		Noroeste		Norte		Oeste		Sudeste		Sul		Triângulo do Norte		Triângulo do Sul		Vale do Aço		Total
	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	Nº	%	
<16.0%	11	10.89	13	25.49	0	0.00	0	0.00	6	11.32	3	5.26	2	6.06	1	1.16	2	3.70	10	10.64	5	3.27	0	0.00	6	22.22	1	2.86	60
≥16.0 or <28.0%	23	22.77	3	5.88	3	9.68	12	23.53	16	30.19	8	14.04	6	18.18	3	3.49	12	22.22	33	35.11	40	26.14	8	29.63	13	48.15	10	28.57	190
≥28.0 or <40.0%	33	32.67	20	39.22	10	32.26	21	41.18	16	30.19	19	33.33	14	42.42	20	23.26	10	18.52	27	28.72	50	32.68	14	51.85	5	18.52	13	37.14	272
≥40.0%	34	33.66	15	29.41	18	58.06	18	35.29	15	28.30	27	47.37	11	33.33	62	72.09	30	55.56	24	25.53	58	37.91	5	18.52	3	11.11	11	31.43	331
Total	101	100	51	100	31	100	51	100	53	100	57	100	33	100	86	100	54	100	94	100	153	100	27	100	27	100	35	100	853

Source: Health Information System for Basic Attention?



Sudeste, 24 (25.53%); Sul, 58 (37.91%); Triângulo do Norte, five (18.52%); Triângulo do Sul, three (11.11%); and Vale do Aço 11 (31.43%).

DISCUSSION

Minas Gerais did not meet the established goal, only 30% in the third quadrimester of 2023. A study analyzed the indicators of *Previne Brasil* for 2020-2021 and concluded that the State failed to reach the lower limit of 40%¹⁰.

However, the municipalities increased considerably the number of cytopathology tests performed during the study period, reflecting on the results of the consolidated analysis for the State with impacts on the evaluation according to the health macro-region. Since the first quadrimester of 2022 until the fourth quadrimester of 2023, macro-region Centro increased 28.71%; Centro-Sul, 27.45%; Jequitinhonha, 51.61%; Leste, 29.41%; Leste do Sul, 26.41%; Nordeste, 40.35%; Noroeste, 30.3%; Norte, 52.32%; Oeste, 50%; Sudeste, 21.27%; Sul, 31.37%; Triângulo do Norte, 14.82%; Triângulo do Sul, 11.11% and Vale do Aço 31.43%.

The indicator can change either by the numerator or denominator. Changes of the numerator can impact the evaluation of the coverage of the tests. If the numerator increases, it may indicate that tests performance improved, but if it drops, it may indicate difficulties to perform the test or alterations of criteria. Changes of the denominator impact the percent of coverage of the tests. If the denominator increases, it means that more women reached the recommended age-range to perform the test, the coverage may decline, unless the numerator changes accordingly. If the denominator drops, apparently coverage may have improved⁸. Register and validation of the production entered at the system can still interfere, creating outcome bias.

COVID-19 pandemic caused a significant drop of cytopathology tests due to postponement of visits. After this period, services were restructured and the active search for this test resumed, leading to an increase of tests performed with direct impacts on health indicators.

However, this model of funding is still challenging. *Previne Brasil* processes performance indexes and not all the municipalities are able to reach these goals due to poor staffing, insufficient inputs or expertise to conduct the test. The new funding was created in a difficult scenario with flexibilization of the workload, permission for the professionals to participate in more than one team and inappropriate assignment of professionals to family health teams¹¹.

Another study which evaluated the performance of *Previne Brasil* in Distrito Federal concluded that attention should be given to human resources, being necessary to understand what the role of APS in monitoring the territory is. Although the APS has prioritized women's health, it is necessary to provide structure to offer screening tests regularly¹².

In counterpart, a study concluded that the funding was best for most of Minas Gerais municipalities compared to former ones¹². *Previne Brasil* established new funding criteria, replacing the model of allotment of funds known as Basic Attention Lower Limit (PAB) effective since 1997, a significant modification. Contrary to PAB which assigned funds based on the population of the municipality, the new program utilizes the number of individuals registered at the Basic Health Units (UBS) also known as "weighted calculation"¹³.

But the impact of *Previne Brasil* on APS should be challenged because it focuses other indicators, incorporating only part of the complexities and necessities found in this level of assistance¹⁴. It is necessary a funding model to deal with Brazilian social inequities, existing vulnerabilities, pursuing equity, fairness and universality of the care¹⁵.

Actually, the increase of the number of exams allows early detection of precursor lesions of cervical cancer or in initial phase still treatable and leading to few diagnoses of malignancy. However, investments are necessary to support the increase of the offer of exams, because most of the exams and actions at specialized attention networks within SUS follow a previous approved budget or intermunicipal agreements in view of the reality of the State with a large number of small municipalities which only offer APS. Quite often, the number of exams allowed is not consistent with the program, requiring local efforts to expand the offer of preventive exams^{16,17}.

Therefore, it appears to be necessary to analyze whether the women meet the recommended periodicity to do the tests¹⁸. A study found that there were various reasons why women did not do the test, for instance, they did not trust the professionals, issues with visits scheduling and poor communication. A robust interaction professional-patient is required not only during collection, but also in referral¹⁹, possibly related to the capacity of APS professionals.

A study evaluated the knowledge health professionals had about what was the age-range recommended by the Ministry of Health for cervical cancer screening and found that less than half of them were aware that 25-64 years was the correct response²⁰. Apparently, continuous health education for health professionals is required for

improved and full care to women and also to make the patients co-responsible for their own healthcare.

According to INCA²¹, 99% of the cases of cervical cancer are caused by persistent infection by some types of oncogenic human papilloma virus (HPV), 70% of them by types HPV-18 and HPV-16. It is important to make the population aware that it is a sexually transmitted infection (STI) and preventive methods as HPV vaccine, still strongly stigmatized²², is the most effective measure, but poorly divulged, restricted to specific groups (9-14 years old girls, 11-14 years old boys, and 9-26 years old HIV/Aids and immunosuppressed individuals).

A broader analysis addressing complementary actions that may change the current scenario of the disease beyond cervical cancer detection is required. In addition, more effective actions as HPV vaccinations for children and adolescents, HIV/Aids and immunosuppressed individuals, distribution of condoms by health units, human resources, improvement management of inputs and health literacy for the target-population.

CONCLUSION

It is clear that *Previne Brasil* impacted the actions targeted to women's health in the State of Minas Gerais, specifically for cervical cancer prevention as can be seen in the indicators evaluated for the period investigated. Cytopathology is an important screening test to prevent cervical cancer since the increase of the number of tests avoids advanced cases, because the diagnosis occurs when the disease is in its initial phase and still treatable. In addition, the study addressed the post-COVID-19 period when services were being restructured, possibly influencing this outcome.

However, specific local actions and municipalities with expanded screening to a certain extent may have impacted these results. It is indisputable that the program had to overcome some usual challenges found at APS and SUS as poor staffing to meet the visits scheduled, inputs for screening tests, active search, stimulate women to attend health care units, importance of the tests, among others.

The State is large, making difficult to understand each municipality and macro-regions due to the complexity of the information. The program is recent with few information published about other ongoing investigations, there are many data about the municipalities and few about the program which prevents the discussion for other studies with different designs.

Directive 3493/2024 proposed a new funding model that modifies the structure of *Previne Brasil*. The present

article presented the data of the program which was poorly discussed in the universities; new questions about the former and current funding models could emerge that could potentially lead to improvements of cervical cancer screening. It is expected that novel studies addressing the improvement of cervical cancer screening before, during and after its implementation in 2024 are necessary to expand the knowledge and actions about women's health.

CONTRIBUTIONS

Paulo Roberto Mendonça Silva, Lorrainy de Sousa Santos and Giovanna Vieira de Souza contributed to the study design, collection and analysis of the data, wording and critical review. Ana Paula de Lima Bezerra, Vanessa de Almeida and Kátia Ferreira Costa Campos contributed to the wording and critical review. All the authors approved the final version to be published.

DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interests to declare.

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