doi: 10.5216/rpt.v54i3.84588

ORIGINAL ARTICLE

HUMAN PAPILLOMAVIRUS PREVENTION EDUCATION CAMPAIGN WITH ELEMENTARY SCHOOL STUDENTS IN PUBLIC SCHOOLS IN A MUNICIPALITY IN THE WESTERN MESOREGION OF THE STATE OF MARANHÃO, BRAZIL

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ABSTRACT

Human Papillomavirus (HPV) affects the skin and mucous membranes, resulting in a globally transmitted sexually transmitted infection. Human Papillomavirus vaccination stands out as the most effective and cost-effective strategy, with robust evidence of declines in infection rates and virus-related cancers. In addition, consistent condom use is recommended as a protective barrier measure. Screening programs, through cytopathological examinations and HPV detection tests, enable early diagnosis. Health education plays a key role in promoting scientific literacy among the population, enabling safe sexual practices. Therefore, the present study aimed to propose an educational campaign on HPV infection prevention in the municipality of Lago da Pedra, state of Maranhão. The study was conducted in October 2023 in three public schools, totaling 168 participants. Regarding the HPV causative agent, prior to the campaign, 64 students (38%) answered correctly. After the educational lecture, the number of correct responses increased to 121 (81.2%) ($\chi^2 = 58.6$; $p < 0.0000001$). The statement that HPV can lead to cancer was considered valid by 66% ($n = 111$) of the students before the campaign and by 98.6% ($n = 147$) after the campaign ($\chi^2 = 53.2$; $p < 0.0000001$). The results demonstrated that health education is one of the most crucial measures in public health, playing a vital role in promoting scientific literacy among the population and facilitating an understanding of all aspects of the disease.

KEY WORDS: Health education; public health; HPV infection; sexually transmitted infections.

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Received for publication: 14/5/2025. Reviewed: 26/9/2025. Accepted: 29/10/2025.

INTRODUCTION

Human Papillomavirus (HPV) is the etiological agent of a sexually transmitted infection (STI) with a high impact on the population, not only in Brazil but worldwide (Ross et al., 2023). It is a DNA virus with an icosahedral shape, measuring approximately 55 nm in diameter, and containing 8,000 base pairs (Ross et al., 2023).

According to data from the World Health Organization (WHO), around 80% or more of people who have an active sex life will acquire HPV at some point in their lives (WHO, 2019; Cruz, 2022). In line with Sustainable Development Goal 3, which aims to ensure health and well-being for all, as well as support research and development of vaccines for communicable and non-communicable diseases, which mainly affect developing countries (ONU, 2025). Human Papillomavirus vaccination stands out as the most effective and cost-effective strategy, with robust evidence of a decline in infection rates and virus-related cancers (Bruni et al., 2021). In addition to the vaccine, there are other means of protection and detection of HPV, such as the consistent use of condoms as a protective barrier measure and screening programs using cytological examinations and HPV detection tests, which enable early diagnosis (Bruni et al., 2021).

Human Papillomavirus vaccination rates in all Brazilian regions have been below the targets of the National Immunization Program (NIP) and the WHO, according to a study by the Cancer Foundation (INCA, 2020). This means that, by 2030, Brazil will fall short of the targets needed to eliminate this disease, which is a public health problem (INCA, 2020). The research is based on NIP vaccination records from 2013 to 2021 for girls aged 9 to 14 and from 2017 to 2021 for boys aged 11 to 14. Across Brazil, coverage of the female population aged 9 to 14 reached 76% with the first dose and 57% with the second dose. Adherence to the second dose was lower than for the first, varying between 50% and 62%, depending on the region, because there is misinformation about the second dose, as well as a lack of interest in seeking immunization (INCA, 2022).

Health education is an instrument for the dialogical construction of knowledge and for encouraging autonomy, popular participation, and the role of the individual in their care (Fittipaldi et al., 2021). According to the Brazilian Constitution of 1988 (Brasil, 1988), schools are responsible for transmitting up-to-date and useful knowledge to students, encouraging them to adopt a positive attitude towards health, and developing in them the skills needed to promote health education in their own families and in their chosen careers. The continuity and expansion of educational activities, combined with adjustments to internal processes, are important for fostering a culture of responsibility, and it is necessary to explore the impact of educational activities in different areas and locations (Gonçalves et al., 2024). With this in mind, the aim of this

study was to encourage the student community in a city in the Mesoregion of Western Maranhão to take part in the process of preventing HPV infection by carrying out educational campaigns.

MATERIAL AND METHODS

Study area

This study was conducted in the municipality of Lago da Pedra, located in the Microregion of Pindaré, belonging to the Mesoregion of Oeste Maranhense, in the central region of the state of Maranhão, in the Northeast of Brazil (Figure 1). The municipality has a territorial area of 1,240.444 km² (IBGE, 2019), with a population density of 35.80 inhabitants/km² according to the latest census by the Brazilian Institute of Geography and Statistics (IBGE, 2022). The estimated population of Lago da Pedra in 2022 was 44,403 inhabitants (IBGE, 2022). The schooling rate was 97.7% in 2010 (IBGE, 2010).

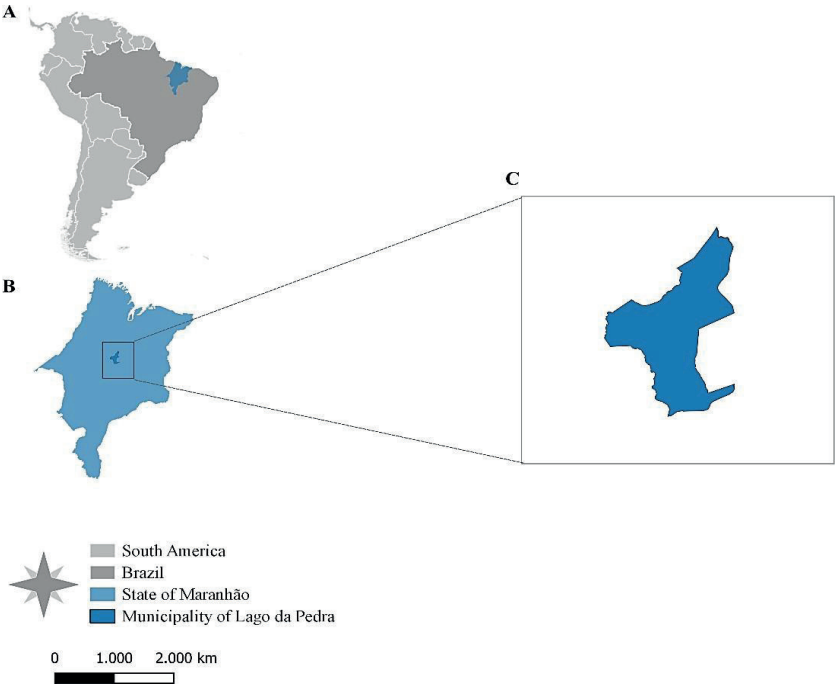

Figure 1. A) Map of South America highlighting Brazil and the state of Maranhão; B) Map of Maranhão highlighting the municipality of Lago da Pedra; C) Highlighting the municipality of Lago da Pedra.

Study Design

This is an observational, cross-sectional study with a quantitative approach, which sought to gather information on the level of knowledge of the student community in elementary schools in Lago da Pedra, state of Maranhão, about the infection caused by HPV, and to carry out an educational campaign on the subject.

The study took place in October 2023 and was carried out at the institutions *Unidade Integrada Ilzé Vieira de Melo Cordeiro*, *Centro de Ensino São José,* and *Unidade Mais Integral Lindalva Coelho Arruda*. Classes from 6th to 9th grades of elementary school participated, all within the vaccination age range of 9 to 14 years. We also used pamphlets and conversation circles on the subject, and the research was divided into three stages (Figure 2).

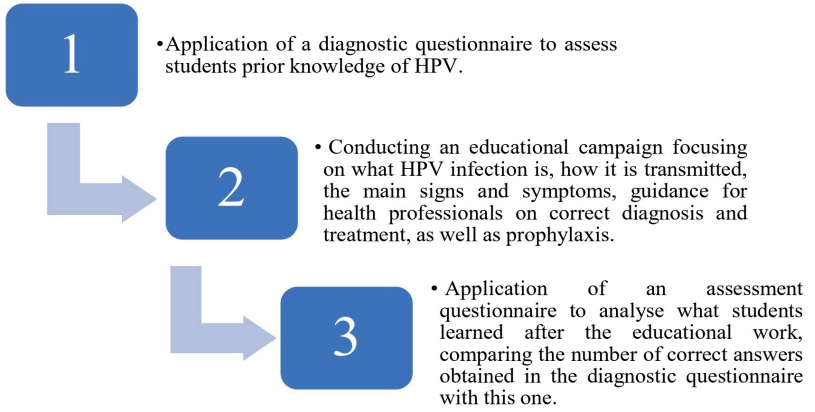

Figure 2. Flowchart of stages of conducting research with students from Lago da Pedra, state of Maranhão.

The minimum sample size was calculated considering a significant level of 5%, a hypothetical frequency of 50% (students' knowledge of HPV infection), and a confidence limit of 5%. We also considered the total population of 7,330 elementary school students, as provided by the IBGE for 2021. According to this calculation, we arrived at a minimum sample size of 168 individuals in the three schools to answer the questionnaires at each stage of the study. OpenEpi software version 3.01 28 (Georgia, United States of America) was used to perform the sample calculation.

Data analysis

Microsoft Word and Excel 2019 (Redmond, Washington, United States) were used to organize the absolute and relative frequency tables. Contingency tables were used to assess the association between correct and incorrect answers, before and after the educational campaign, regarding questions about the HPV causative agent and vaccination, applied to the students. In the table, each dependent variable (pre- and post-educational campaign answers) was crossed with the independent variable (correct and incorrect answers to each question), and Pearson's chi-square test (χ^2) was used to assess the significance of the association between the variables. Statistical analyses were carried out using the OpenEpi 3.01 software. The probability level of 0.05 was used as the significance level for all the tests.

Ethical Approval

The study was approved by the Research Ethics Committee of the *Universidade Estadual do Maranhão* (UEMA), with *Certificado de Apresentação de Apreciação Ética* (CAAE) number 72938623.8.0000.5554. In order to carry out the study, the parents or guardians of the students from the selected schools under the age of 18 were contacted to present and sign the *Termo de Consentimento Livre e Esclarecido* (TCLE), which was signed in two copies. Students under the age of 18 were also given *Termo de Assentimento Livre e Esclarecido* (TALE) to sign in two copies, guaranteeing their participation.

RESULTS

Sociodemographic characterization

A total of 168 students took part in the survey, of whom 62.0% (n = 104) were female; 29.1% (n = 49) were 12 years old and only 13.1% (n = 22) were 15 years old, the maximum age for receiving the vaccine through the Brazilian Unified Health System (*Sistema Único de Saúde* - SUS); 63.0% (n = 106) declared themselves to be brown; and 11.0% (n = 19) answered that their family income was one minimum wage (Table 1).

The study conducted in Lago da Pedra schools included 168 students in the first stage and 149 in the second. The difference in the number of participants was due to some students giving up on taking part in all stages. Even so, the number of correct answers to the questions was considerably higher and more significant after the educational work.

Table 1. Sociodemographic characterization of the students from Lago da Pedra, state of Maranhão, who took part in the study in October 2023.

Variables (n = 168)	n	%
Sex		
Male	64	38.0
Female	104	62.0
Household income		
Less than 1 minimum wage	13	8.0
1 minimum wage	19	11.0
2 to 3 minimum wages	15	9.0
More than 3 minimum wages	5	3.0
Don't know	116	69.0
Age (in years)		
11	18	10.8
12	49	29.1
13	57	33.9
14	20	11.9
15	22	13.1
No answer	2	1.2
Race		
Black	13	8.0
White	39	23.0
Brown	106	63.0
Indigenous	8	4.8
Asian	1	0.6
Other	1	0.6

n = number of responses; % = percentage of response.

Frequency and Statistical Analysis

Regarding the causative agent of HPV, before the campaign, 64 (38.0%) students answered correctly, i.e., that it is a virus. After the educational talk, the number of correct answers increased to 121 (81.2%) ($\chi^2 = 58.6$; $p < 0.0000001$). The question about the main characteristic of HPV before the campaign had 40 (24.0%) correct answers, i.e., "warts", and after the campaign, the number of correct answers increased to 130 (87.2%) ($\chi^2 = 125.3$; $p < 0.0000001$). Regarding whether the statement that HPV triggers cervical, anus, penis, and oropharynx cancers was true or false, before the campaign, 66.0% ($n = 111$) answered that it was true, and after the campaign, 98.6% ($n = 147$) answered that it was true ($\chi^2 = 53.2$; $p < 0.0000001$). With regard to the age range of boys and girls for vaccination, before and after the campaign, it was observed that the number of correct answers to the questions was higher after the lecture, with 97.3% ($n = 145$) of the students having learned that immunization against HPV takes place between the ages of 9 and 14 ($\chi^2 = 36.7$; $p < 0.0000001$). When asked if they had ever talked to their friends about HPV vaccination, only 26 (15.0%) said yes, and after the campaign, 56 (37.6%) started to talk about vaccination in the context of the study ($\chi^2 = 18.9$; $p = 0.000006571$) (Tables 2 and 3).

Table 2. Absolute and relative frequencies of answers to questions about the causative agent of HPV and vaccination applied to students before and after HPV education campaigns.

Question	Before the campaign		After the campaign	
	n	%	*n*	%
Which of the following agents causes HPV?				
Virus	64	38.0	121	81.2
Bacteria	17	10.0	17	11.4
Fungus	5	3.0	2	1.3
Worm	0	0.0	0	0.0
Protozoa	3	2.0	3	2.0
Dust	0	0.0	0	0.0
I don't know	78	46.4	5	3.4
Other	1	0.6	1	0.7
What is the main characteristic of HPV?				
Warts	40	24.0	130	87.2
Wounds	55	33.0	8	5.4
Stains	73	43.0	11	7.4
HPV can trigger the following cancers: cervix, anus, penis, and oropharynx?				
True	111	66.0	147	98.6
False	57	34.0	2	1.4
What is the right age to get the HPV vaccine?				
9 to 14 years	120	71.0	145	97.3
8 to 11 years	15	9.0	3	2.0
15 to 18 years	33	20.0	1	0.7
Have you talked to your friends about HPV vaccination?				
Yes	26	15.0	56	37.6
No	142	85.0	93	62.4

n = number of responses; % = percentage of response.

Table 3. Statistical analysis of the right and incorrect answers to the questions on the causative agent of HPV and vaccination applied to students before and after the HPV education campaigns.

Question	Before the campaign *n* (%)	After the campaign *n* (%)	Statistical test
Which of the following agents causes HPV?			
Correct Answer (Virus)	64 (20.1)	121 (38.3)*	$\chi^2 = 58.6$
Incorrect Answers	104 (32.8)	28 (8.8)	$p < 0.0000001$
What is the main characteristic of HPV?			
Correct Answer (Warts)	40 (12.6)	130 (41.2)*	$\chi^2 = 125.3$
Incorrect Answers	128 (40.3)	19 (5.9)	$p < 0,0000001$
Can HPV trigger the following cancers: cervix, anus, penis, and oropharynx?			
Correct Answer (True)	111 (35.0)	147 (46.5)*	$\chi^2 = 53.2$
Incorrect Answer	57 (17.9)	2 (0.6)	$p < 0.0000001$
What is the right age to get the HPV vaccine?			
Correct Answer (9 to 14 years)	120 (37.8)	145 (45.9)*	$\chi^2 = 36.7$
Incorrect Answers	48 (15.1)	4 (1.2)	$p < 0.0000001$
Have you talked to your friends about HPV vaccination?			
Correct Answer (Yes)	26 (8.2)	56 (17.6)	$\chi^2 = 18.9$
Incorrect Answer	142 (44.7)*	93 (29.3)	$p = 0.000006571$

n = number of responses; *p* = p-value; % = percentage of response; χ^2 = Chi-squared value; *Significant at 5%.

DISCUSSION

Compliance with HPV vaccination campaigns in Maranhão was considered insufficient (Lopes et al., 2023). A study carried out from 2017 to 2021 showed that the state of Maranhão had the lowest vaccination rate during this period, reaching only 57.82% vaccination coverage, which shows the continued need for educational work, especially for the student community and families (Mendes et al., 2023).

Despite the relevance of this research, which is unprecedented in this area for the municipality of Lago da Pedra, there was a great deal of resistance from parents to accepting their children's participation in the study. Many parents are against vaccination for fear of possible adverse effects, indicating their lack of knowledge and understanding of the safety and health benefits for their children (Kruse et al., 2020).

Diseases caused by HPV are exacerbated by social and gender inequalities, revealing the link between inequality and social injustice. Of the 311,000 deaths from cervical cancer worldwide, 90.0% occurred in low- and middle-income countries (ONU, 2019). Comparing these data with the results obtained in this study, the majority of students were female (62.0%).

With regard to the participants' household income, 11.0% answered that they earned one minimum wage and 69.0% did not know how to answer, a factor that makes the campaign even more relevant, by pointing to a reality of vulnerability that highlights the importance of educational intervention given that according to the United Nations (UN), in 2019, only 10% of girls in low and middle-income countries received the HPV vaccine, compared to 90% in high-income countries (ONU, 2019).

It should be noted that the number of students who correctly answered which agent causes HPV increased after the educational campaign (81.2%) in Lago da Pedra. This shows that educational campaigns significantly improved knowledge for most of them. A study carried out in Porto Velho, in the state of Roraima, with 136 students from public institutions between the ages of 12 and 15, related to the health education campaign on the importance of immunization against HPV, found that when schools launched immunization campaigns against HPV, there was refusal on the part of the participants, with reasons observed of lack of information and beliefs (Prado & Calcagnotto, 2020).

Regarding the main characteristic of HPV, before the educational campaign, 24.0% said that it was related to warts. After the information campaign, 87.2% answered correctly, a significant increase. Knowledge of the main characteristics of HPV is particularly important, especially in the age group of the participants in this study, given that adolescents are starting their sex lives early (Gonçalves et al., 2024). When it came to the question of the types of cancer that HPV can trigger, the students answered 66.0% of the questions correctly before the campaign. After the campaign, the number of correct answers increased to 98.6%, a statistically

significant increase. A cross-sectional survey of 194 students in 6th to 9th grade at two municipal schools in the municipality of Campo Grande state of Mato Grosso do Sul, concluded that there is a large knowledge deficit among participants about the relationship between HPV and cancer development (Mestriner et al., 2023).

When asked whether they had talked to their peers about the HPV vaccine, only 15.0% answered yes before the campaign, and 37.6% after. The results of a study of adolescents in public schools in the city of São Luís state of Maranhão, showed that 89.9% had heard of the HPV vaccine (Oliveira et al., 2022). The lack of awareness campaigns about the consequences of HPV infection and vaccines aimed at these age groups may also be the cause of these groups' lack of knowledge (Kreuger et al., 2017).

The use of health education actions needs to be continuously in place, as lack of knowledge about immunization and the spread of fake news are among the factors that contribute to low HPV vaccination coverage (Miranda et al., 2021).

Currently, vaccine hesitancy is one of the main obstacles to the success of public health strategies against HPV, posing a complex and multifaceted challenge. According to the WHO definition, vaccine hesitancy refers not only to refusal but also to delay in accepting vaccines (WHO, 2022). This complexity is intensified by social factors, in which the spread of misinformation (fake news) fuels lasting fears about vaccine safety (Fernandes & Silva, 2023). These uncertainties undermine the confidence of the population, especially parents and guardians, and directly affect the vaccination rate needed to effectively prevent HPV-associated cancers (Morales et al., 2023).

The lack of interest on the part of some students in returning with the *Termo de Consentimento Livre e Esclarecido* (TCLE), the absence of signing the *Termo de Assentimento Livre e Esclarecido* (TALE), as well as the presence of everyone at each stage of the campaign were limiting factors. It is of the utmost importance that future studies on this or any other subject related to STIs should begin by raising awareness among parents.

Furthermore, this study highlights the importance of research on the topic. Most students had little or no knowledge about HPV prior to the educational campaign. Through educational initiatives, it was possible to determine that most students were unaware of the main characteristics of the disease, clearly demonstrating the importance of increasing awareness of this STI.

Human Papillomavirus vaccination, when combined with health education initiatives, has proven to be the most effective strategy to reduce the circulation of the virus in the population. Vaccines have proven to be highly effective in preventing HPV-related infections and lesions, but their effectiveness depends on community knowledge and adherence. In this sense, health education plays a central role, as it clarifies doubts, combats misinformation, and strengthens confidence in preventive measures. Thus, the union between science, education, and public policy is essential to ensure greater collective protection and advances in health promotion.

ACKNOWLEDGEMENTS

The authors would like to thank Andrea Oliveira Carneiro and Francisco Felipe Bandeira Sousa, nurse lecturers, for their support during the campaign. Carolina Sad Navarro would like to thank the C*onselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPQ) for their master's scholarships.

CONFLICTS OF INTEREST

The authors declare there are no conflicts of interest to disclose.

USE OF ARTIFICIAL INTELLIGENCE

The authors declare that no Artificial Intelligence (AI) assisted technologies were used in the preparation of this manuscript.

REFERENCES

1. Brasil. 1988. *Constitution of the Federative Republic of Brazil.* Brasília, DF: President of the Republic. Available at: http://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm. Accessed on: 10.sept.2024.
2. Bruni L, Saura-Lázaro A, Montoliu A, Brotons M, Alemany L, Diallo MS, Afsar OZ, LaMontagne DS, Mosina L, Contreras M, Velandia-González M, Pastore R, Gacic-Dobo M, Bloem P. HPV vaccination introduction worldwide and WHO and UNICEF estimates of national HPV immunization coverage 2010-2019. *Prev Med 144:*106399, 2021.
3. Cruz CT. Usos conceptuales del género y la vulnerabilidad en políticas públicas de atención al Virus del Papiloma Humano (VPH) y al Cáncer Cervicouterino (CaCu) en México. *Saúde Debate 46:* 318-330, 2022.
4. Fernandes L, Silva IP. Impactos da fake news sobre a vacinação do HPV em meninas de 9 a 14 anos. *Rev Multi Saúde 4:* 29-34, 2023.
5. Fittipaldi ALM, O'dwyer G, Henriques P. Educação em saúde na atenção primária: as abordagens e estratégias contempladas nas políticas públicas de saúde. *Interface-Com Saúde Educ 25:* e200806, 2021.
6. Gonçalves A, Lagunaz DG, Pinto JB, Gavinesck i LL, Stringhi M, Vieira SB, Mucelin TH, Dalzochio T. Papilomavírus Humano (HPV) em Amostras Clínicas da População Brasileira: Revisão Sistemática. *Rev Cereus 16:* 240-253, 2024.
7. IBGE. 2010. Brazilian Institute of Geography and Statistics. *Maranhão.* Available at: https://www.ibge.gov.br/cidades-e-estados/ma.html. Accessed on: 10.oct.2023.
8. IBGE. 2019. Brazilian Institute of Geography and Statistics. *Population of Brazil*. Available at: https://www.ibge.gov.br/apps/populacao/projecao/box_popclock.php. Accessed on: 31.may.2023.
9. IBGE. 2022. Brazilian Institute of Geography and Statistics. *Brazil: Cities and States.* Available at: https://www.ibge.gov.br/cidades-e-estados. Accessed on: 15.jan.2024.

10. INCA. National Cancer Institute. *Estimativa 2020: Incidência do Cancer no Brasil.* Rio de Janeiro: INCA, 2020. Available at: https://www.inca.gov.br/controle- do-cancer-do-colo-doutero/conceito-e-magnitude#nota2 Accessed on: 11.jan.2025.

11. INCA. National Cancer Institute. *Atlas of mortality.* Rio de Janeiro: INCA, 2022. Available at: https://www.inca.gov.br/app/mortalidade Accessed on: 13.jan.2025.

12. Kreuger MRO, Lizott LS, de Almeida Friedrich H. Imunização contra HPV: nível de conhecimento dos adolescentes. *Adolesc Saúde 14*: 38-45, 2017.

13. Kruse MH, Bednarczyk RA, Evans DP. A human rights approach to understanding provider knowledge and attitudes toward the human papillomavirus vaccine in São Paulo, Brazil. *Papillomavirus Res 9:* 100197, 2020.

14. Lopes RJ, Simão RCG, Turkiewicz M, Plewka J. Análise da vacinação contra o HPV no Brasil frente as metas implementadas até 2030 pela Organização Mundial da Saúde. *Res Soc Develop 12:* e20212440845, 2023.

15. Mendes RC, Sousa FM, Siqueira HDS, Dos Santos CJA, Teixeira PH, Dos Santos AM, Mendes MDF, Ximenes JC, Rolim NCOP, Coutinho NPS, Fernandes RPP, Soares L BC, Silva WC. Vaccination coverage: a comparative analysis between the states of the northeast region of Brazil with emphasis on the state of Maranhão. *Arq Ciênc Saúde Unipar 27:* 4120-34, 2023.

16. Mestriner G, Marsola JCA, Nesbitt SJ, Da-Rosa ÁAS, Langer M. Anatomy and phylogenetic affinities of a new silesaurid assemblage from the Carnian beds of southern Brazil. *J Vert Paleontol 43:* e2232426, 2023.

17. Miranda AE, Freitas FLS, De Passos MRL, Lopez MAA, Pereira GFM. Public policies on sexually transmitted infections in Brazil. *Rev Soc Bras Med Trop 54:* e2020611, 2021.

18. Moralés-Campos DY, Zimet G, Kahn J. Human Papillomavirus Vaccine Hesitancy in the United States. *Pediatr Clin North Am 70:* 211-226, 2023.

19. Oliveira VAA, Andrade CGS, Lucio MJP, Cerqueira AD, Santos LAA, Almeida BA. Evolução da cobertura vacinal de HPV em meninas no território nacional. *Braz J Infect Dis 26:* 101873, 2022.

20. ONU. United Nations Organization 2019. *Brazil was one of the 10 countries with an increase in measles cases between 2017 and 2018*. Available at: https://news.un.org/pt/story/2019/03/1662362. Accessed on: 20.jan.2025.

21. ONU. United Nations Organization. 2025. *Working towards the Sustainable Development Goals in Brazil.* Available at: https://brasil.un.org/pt-br/sdgs. Accessed on: 21.apr.2025.

22. Prado NDR, Calcagnotto LS. Práticas educativas viabilizando a campanha de conscientização sobre a importância da imunização contra o HPV em escola pública no município de Porto Velho/RO. *Rev Diálogos: Econ Soci 1:* 48-50, 2020.

23. Ross JR, Diniz IJI, Côra GR, Santos GRB, Silva VES, Vidal FCB, Fraga EC, Barros MC, Nascimento MDSB, Sáfadi MAP. Filogenia, Taxonomia e Nomenclatura do Papillomavirus Humano: Uma Breve Discussão Científica. In: Ross JR (org). *Da história a infecção em grupos minoritários: variedades de um fardo global chamado HPV.* Atena Ed.: Paraná, 2023. p.17-33.

24. WHO. World Health Organization. 2019. *Human papillomavirus (HPV) and cervical cancer*. Available at: https://www.who.int/es/news-room/fact-sheets/detail/human- papillomavirus-(hpv)-and-cervical-cancer. Accessed at: 20.oct.2023.

25. WHO. World Health Organization. 2022. *Recommendations for the HPV vaccination schedule.* Available at: https://news.un.org/pt/story/2022/12/1807107. Accessed on: 19.mar.2025.