Content analysis of online media coverage of the human papillomavirus vaccine as a school-entry policy in Puerto Rico

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Background

High-risk types of human papillomavirus (HPV) cause 91% of cervical cancers and 63-93% of cancers of the vagina, vulva, penile, anus, rectum, and oropharynx.[1] In August 2018, Puerto Rico (PR) adopted a Human Papillomavirus (HPV) vaccine school-entry policy, required for students (females and males), 11-12 years old.[2] Previous research suggests that influence from media coverage and content might impact parents' perception of vaccine efficacy, safety and willingness to vaccinate their children.[3-5] To our knowledge, no studies have examined barriers and facilitators to successful implementation of HPV vaccine school-entry policies in PR.

Study Objective

Analyze the content of headlines and online news coverage (2017-2018) related to the implementation of the HPV vaccine in PR as a requirement for school-entry policy.

Methods

This analysis is part of a 5-year project; HPV-PIVac, funded by the National Cancer Institute (NCI), that aims to identify the impact for the implementation of the new HPV vaccine as a mandate for the school-entry policy in Puerto Rico.

A systematic review was conducted to identify digital media reports related to the HPV vaccination policy and its implementation in PR from January 2017 to December 2018. A total of 34 were identified during this period.

An electronic inventory was developed by the research team to identify if the news contained information about (a) the policy enactment date and (b) groups impacted by the policy, (b) doses required for the HPV vaccine, (c) HPV vaccine prevention messages (cancer prevention), among others.

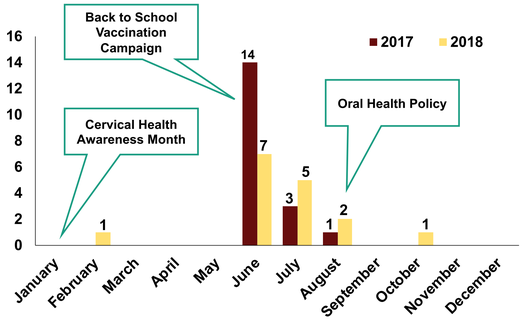
Three coders analyzed the media reports using the modified grounded theory approach, to identify emergent themes in the data.

Qualitative data analysis software were used to facilitate data manipulation and retrieval during analysis.

Since headlines might promote readers' perception, three different raters read the article title (headline) to document the sentiment either; positive, negative or neutral. Fleiss' Kappa analysis was used to assess intra-rater agreement.

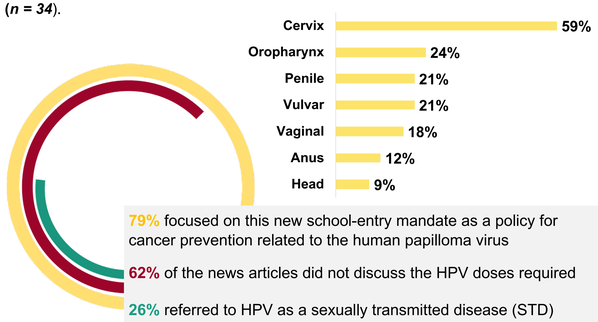
Results

Figure 1. Trends in number of articles related the implementation of the HPV vaccine as a school-entry Policy in PR (January 2017-December 2018).



In 2017, prior to policy implementation, news coverage focused mostly on the description of the school-entry policy, while 2018 coverage focused on the controversies of the school policy being mandatory.

Figure 2. Data from the matrix; Information about the HPV vaccine in news articles (*n = 34*).



79% focused on this new school-entry mandate as a policy for cancer prevention related to the human papilloma virus

62% of the news articles did not discuss the HPV doses required

26% referred to HPV as a sexually transmitted disease (STD)

Despite most of the headlines were classified as negative, most of the content coded in the news stories were neutral focused on the description of the school-entry policy. The agreement of the headline sentiment between the three raters was fair (***k*= 32%; p <0.01**).

Table 1. Examples of different classes of quotes identified in the articles. This codes were the most predominant in each category.

Classification	Codes	Quotes in the articles	Frequency
Neutral The quote holds no subjective opinions about the HPV vaccine, or its implementation-purely facts repeated from sources.	Description of the School-Entry Policy	*Puerto Rico's government is ordering all students ages 11 and 12 to get vaccinated against HPV by next year.*	40
	HPV-related cancers	*The announcement follows a rise in cancers tied to the human papillomavirus across the U.S. territory. Health officials said the rate of cervical cancer in Puerto Rico is 11 percent compared with 7 percent in the U.S. mainland.*	32
Negative The quote contains disparaging messages about the HPV vaccine and its implementation or discourages it uptake.	Representatives hesitancy	*We understand, with great respect, that this vaccine should not be a requirement for our children to attend schools on the island. We do not believe in making it mandatory and so we will vote if the PC 1303 goes down for discussion in the plenary of the House of Representatives.*	17
	Parental and patient autonomy	*According to the Patient's Bill of Rights, we must have the real opportunity to participate meaningfully in decisions related to medical care and the option of refusing or not receiving treatment. Moreover, we have the right to be informed of the risks of any medical treatment, including vaccines, and to make an informed decision.*	17
Positive The quote contains supportive messages about the HPV vaccine or its implementation and encourages its uptake.	Cancer prevention	*The message to be given to the people of Puerto Rico; that is totally preventable (HPV-related cancer). When you get vaccinated it prevents that cancer from giving to you and as I said before; we must protect our children and our teenagers.*	13
	Available resources and needs	*Recognizing that cervical cancer is a deadly and preventable health condition that disproportionately affects Latino women, especially those with lower incomes and access to resources, the MAMPR (a coalition) requires the State to ensure access to education comprehensive sexual and screening tests necessary for all people to have the real ability to make informed decisions about their health and their bodies.*	10

Conclusion

Most of the media coverage about HPV in PR had limited information related to the vaccine, HPV, and HPV-related cancers. Weak concordance of the headline's sentiments shows how different headlines influence the total impression created by a news story. In the case of HPV and this new policy, this situation could influence negatively public concerns regarding the new school-entry policy, as well as HPV vaccination rates in PR.

Future Analysis

Since we examined only online news articles in this study, to develop this research theme further, television, radio, social media, and other media coverage must be researched as well. This content analysis may indicate where gaps about the HPV vaccine knowledge exist and where additional efforts are required for the implementation of the HPV vaccine as a school-entry requirement.

Acknowledgments

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