

# Evaluation of knowledge about the Human Papilloma Virus (HPV) and its vaccination among Community Health Agents in the municipality of Tubarão, Santa Catarina, Brazil, in 2014\*

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André Luciano Manoel<sup>1</sup>  
Andreia Bittencourt Rodrigues<sup>1</sup>  
Elisa Zanatta Piva<sup>1</sup>  
Thainá Paola Warpechowski<sup>1</sup>  
Fabiana Schuelter-Trevisol<sup>2</sup>

<sup>1</sup>Universidade do Sul de Santa Catarina, Curso de Medicina, Tubarão-SC, Brasil

<sup>2</sup>Universidade do Sul de Santa Catarina, Programa de Pós-Graduação em Ciências da Saúde, Tubarão-SC, Brasil

## Abstract

**Objective:** to evaluate the knowledge of Community Health Agents (CHA) about the Human Papilloma Virus (HPV) and its vaccination. **Methods:** this is a cross-sectional study with CHA who worked in Tubarão-SC, Brazil, in 2014; data were collected through an evaluation tool about HPV and its vaccination, validated for English language and translated and adapted into Portuguese. **Results:** 124 CHA participated in this study; all of them had already heard about HPV, but only 25.0% had heard about HPV testing; 72.6% answered correctly less than 70.0% of the questions; those who answered correctly more than 70.0% were, in general, younger than the other CHA ( $p=0.010$ ). **Conclusion:** CHA demonstrated little knowledge on HPV, which may affect their work as multipliers in the prevention of diseases and in education in health.

**Keywords:** Papilomaviridae; Papillomavirus Vaccines; Family Health Strategy; Community Health Workers; Epidemiology, Descriptive.

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## Correspondence:

André Luciano Manoel – Rua Padre Bernardo Freuser, No. 215, apto. 702, Centro, Tubarão-SC, Brasil. CEP: 88701-140  
E-mail: andremanoel@gmail.com

## Introduction

Human papilloma virus (HPV) is an important etiologic agent of cervical neoplasms.<sup>1</sup> There are approximately 100 subtypes that cause benign or malignant lesions in human anus-genital tract.<sup>2</sup>

A randomized trial of high quality and satisfactory sample demonstrates the fast spread of potentially malignant HPV, as well as the high effectiveness of vaccination for protecting the cervix.<sup>3,4</sup> However, such effectiveness is prophylactic, and vaccination should ideally be taken before sexual contact. Accordingly, immunization programs usually involve girls from 9 to 12 years old.<sup>5</sup>

*The CHA knowledge can be decisive in the success of vaccination campaigns, especially against HPV.*

In 2014, the Brazilian government started HPV vaccination campaigns.<sup>5</sup> Data from Brazilian National Immunization Program Information System (SI-PNI) show that, in 2014, 5,354,224 girls between 11-13 years of age received the first dose of the vaccine: a coverage of around 108.0%. However, only 60.1% returned to the vaccination rooms 6 months later, to take the second dose.<sup>6</sup> Encouraging vaccination has led to a social and ethical discussion on the use of a vaccine against a sexually transmitted agent being given to preadolescent girls. The lack of knowledge of the population on this subject might be responsible for the low vaccination compliance.

Brazil's primary health care policies present strategies of prevention and health promotion.<sup>7</sup> Among the professionals working in the Brazilian National Health System (SUS), there are the community health agents (CHA). They represent the link between the Family Health Strategy (FHS) and the community where the FHS serves.<sup>8</sup> In the context of the vaccination strategies defined by the Ministry of Health, these professionals are responsible for the active search for individuals to take the vaccines.<sup>8</sup>

Based on the aforementioned, the CHA knowledge can be decisive in the success of vaccination campaigns, especially against HPV – epicenter of the nationwide controversy related to the "sexualization" of girls and young women. This knowledge is believed to be crucial

to future vaccination campaign strategies, aiming at adolescents and their families.

The present study aimed to evaluate the knowledge of community health agents – CHA – about human papilloma virus – HPV – and its vaccination.

## Methods

We conducted a survey with CHA who worked in Tubarão, Santa Catarina State (SC), Brazil, in 2014. According to estimates of the Brazilian Institute of Geography and Statistics (IBGE), in 2014, Tubarão-SC had 102,087 inhabitants<sup>9</sup> and 29 Family Health teams; at the time of data collection, the municipality counted with 180 active CHA.

All CHA who participated in training meetings offered by the municipality during November 2014 were invited to join the study.

The knowledge on HPV was assessed through a self-administered questionnaire, developed and validated for the English language in 2012, and adapted into Portuguese by the authors.<sup>10</sup> The questionnaire is divided into three blocks, consisting of three big questions and 29 secondary questions, categorized into seven thematic areas:

1. health consequences of HPV;
2. HPV and cervical cancer screening;
3. symptoms;
4. causes, risk factors and transmission;
5. prevention and treatment;
6. prevalence; and
7. vaccination.

The following variables were analyzed:

- age (in complete years);
- sex (male; female);
- daughters within the age group for vaccination against HPV (yes; no);
- previous training courses on HPV (yes; no);
- has a religion (yes; no); which religion (Catholic; Evangelical; Spiritism; does not follow any religion); and
- job satisfaction (yes; no), and if "I am satisfied with my professional performance" (strongly disagree; disagree; weakly disagree; do not agree or disagree; weakly agree; agree; strongly agree)

Knowledge was assessed according to the right answers of the participants, and the percentage of 70% was previously defined by the authors as a good level of knowledge about HPV.

Statistical analysis was conducted with the aid of the software EpiData 3.1 (EpiData Association, Odense, Denmark) and IBM Statistical Product for Service Solutions (IBM SPSS for Windows v20, Chicago, IL, USA). Initially, qualitative variables were expressed as proportions; whereas quantitative variables, in measures of central tendency and dispersion. For verifying the existence of association between the variables of interest, we used Pearson chi-square test for categorical variables and Student t test for averages comparison. A 5% significance level was established.

The study project was approved by the Ethics Research Committee of the *Universidade do Sul de Santa Catarina* – CAAE No. 34735514.3.0000.5369 – in August 28<sup>th</sup>, 2014. All the participants signed a Free Informed Term of Consent.

## Results

A total of 124 community health agents from Tubarão-SC participated in this study, which corresponds to 68.9% of the total number of working professionals: all of them were female, with an average age of 44.5 years (standard deviation [SD]  $\pm$  9.4). Most (63.7%) declared themselves as Catholics. Regarding participation in training courses about HPV, 75.0% informed they had been qualified. All claimed to have heard about HPV and its vaccination, although only 25.8% had heard about the HPV diagnostic testing (Table 1).

We observed that 72.6% answered correctly less than 70.0% of the questions. The average number of right answers was 16.9 questions (SD  $\pm$  4.0), out of 29 (Table 2). Highest average age was associated with less knowledge about HPV: CHA with an average age of 45.9 years (SD  $\pm$  9.42) answered correctly less than 70% of the questions, whereas those with average age of 41 years (SD  $\pm$  8.3) answered correctly more than 70% of the questions ( $p = 0.010$ ). Regarding job satisfaction, 11% (14) chose the option "weakly agree", 47% (59) "agree" and 24% (30) the option "strongly agree" (Figure 1).

## Discussion

We observed that the knowledge of the community health agents from Tubarão-SC about HPV and its vaccine is lower than the expected: over 70% of the participants answered correctly less than 70% of the questions proposed. We also noticed that greater age

proved to be the only studied factor associated with worse knowledge about HPV.

The community health agent, in the context of the Family Health Strategy, brings the community and the health professionals closer, influencing the decisions of the population on issues relevant to the service, in addition to contributing when applying therapeutic, preventive and health promotion strategies. Some issues emerge from this scenario, regarding the knowledge of these professionals and the technical continuous training offered to them.<sup>11</sup>

A study of quality assessment of the CHA training programs concluded that these initiatives would be able to provide theoretical substrate to professional practice.<sup>12</sup> Notwithstanding, 76.9% of the CHA interviewed during this study claimed not to have received any training about HPV.<sup>13</sup>

The technical quality of professionals dedicated to population groups is usually assessed in studies using measurement tools developed by the authors themselves, therefore without any psychometric measures validated so far.<sup>14,15</sup> It is necessary to create standardized and validated tools which allow a more efficient comparison of such data.

Regarding the use of condoms to protect against HPV, we found that a large part of the CHA in this study know that the use of condoms reduces the risk of contracting HPV. However, a minority of the Brazilian population declares to use them routinely.<sup>16</sup>

A study of Panobianco et al., conducted in Ribeirão Preto-SP, in 2013, assessed the knowledge of young nursing students about HPV. Of those interviewed, 60.3% knew the meaning of HPV and 45.7% knew the consequences of human papilloma virus infection,<sup>17</sup> revealing that a higher education degree in the health care area is no guarantee of greater knowledge on the subject.

In the present study, most of individuals claim to have heard of HPV and its relation with cancer. In another way, a study conducted in Goiânia-GO, in 2010, with lay individuals, showed that 64.5% of them did not know about HPV and its relation with cancer.<sup>15</sup>

Another study, this one conducted in Bauru-SP, and published in 2010, involving nursing students, showed that 3.0% of them had never heard of HPV, 11.0% had heard but did not know what it was, and 86.0% knew what it was. That study also showed that only 36.0% of future nurses had information on vaccination against HPV;<sup>14</sup> however, it is possible that this proportion has changed over the past two years, influenced by the

**Table 1 – Frequency of correct answers (n=124) for each of the items of the questionnaire of knowledge about human papilloma virus (HPV) and its vaccination applied to community health agents in the municipality of Tubarão-SC, Brazil, 2014**

Items	Correct answers n (%)
1a. HPV can cause cervical cancer (T)	118 (95.2)
1b. A person could have HPV for many years without knowing it (T)	97 (78.2)
1c. Having many sexual partners increases the risk of getting HPV (T)	116 (93.5)
1d. HPV is very rare (F)	105 (84.7)
1e. HPV can be passed on during sexual intercourse (T)	119 (96.0)
1f. HPV always shows signs or symptoms (F)	57 (46.0)
1g. Using condoms (male or female) reduces the risk of getting HPV (T)	119 (96.0)
1h. HPV can cause HIV/aids (F)	72 (58.1)
1i. HPV can be passed on by genital skin-to-skin contact (T)	66 (53.2)
1j. Men cannot get HPV (F)	74 (59.7)
1k. Having sex at an early age increases the risk of getting HPV (T)	83 (66.9)
1l. There are many types of HPV (T)	56 (45.2)
1m. HPV can cause genital warts (T)	83 (66.9)
1n. HPV can be cured with antibiotics (F)	37 (29.8)
1o. Most sexually active people will get HPV at some point in their lives (T)	43 (34.7)
1p. HPV usually does not need any treatment (T)	8 (6.5)
2a. Girls who have had the HPV vaccine do not need a Pap smear test when they are older (F)	113 (91.1)
2b. One of the HPV vaccines offers protection against genital warts (T)	30 (24.2)
2c. The HPV vaccines offer protection against all sexually transmitted infections (F)	105 (84.7)
2d. Someone who has had HPV vaccine cannot develop cervical cancer (F)	90 (72.6)
2e. The HPV vaccines offer protection against most cervical cancers (T)	78 (62.9)
2f. HPV vaccines require three doses (T)	94 (75.8)
2g. The HPV vaccines are most effective if given to people who have never had sex (T)	88 (71.0)
3a. If a woman tests positive for HPV she will definitely get cervical cancer (F)	58 (46.8)
3b. An HPV test can be done at the same time as a Pap smear test (T)	39 (31.5)
3c. An HPV test can tell how long you have had an HPV infection (F)	26 (21.0)
3d. HPV testing is used to indicate if the HPV vaccine is needed (F)	58 (46.8)
3e. When you have an HPV test, you get the results the same day (F)	33 (26.6)
3f. If an HPV test shows that a woman does not have HPV her risk of cervical cancer is low (T)	28 (22.6)

Note: T=True; F=False.

current moment, when HPV-related issues have been more discussed.

A study conducted in Kenya, in 2015, with primary school teachers, showed that the average knowledge about HPV was of 48.0%, and that the recommendation of vaccination was most common among those who had more knowledge about the virus ( $p=0.016$ ).<sup>18</sup>

In this study, although all 124 community health agents knew about the HPV and its vaccine, only part

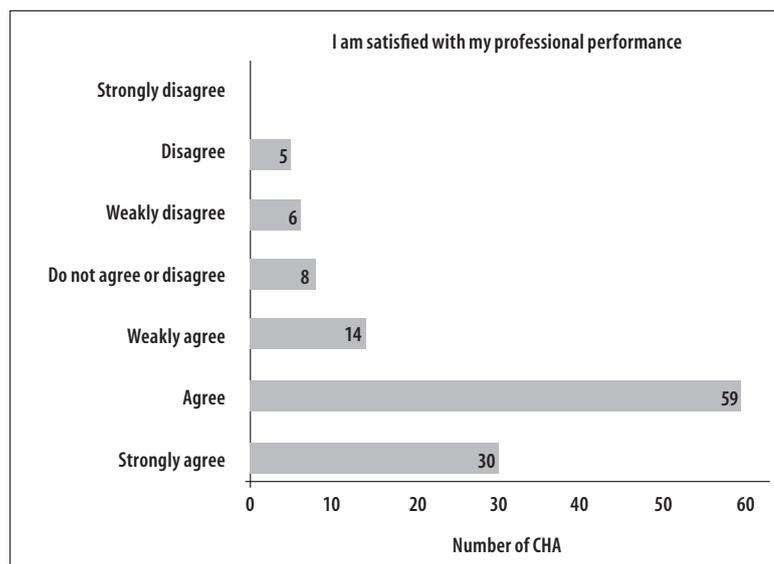
of them presented knowledge about HPV diagnostic test. Most of the participants did not take part in training courses and answered correctly less questions than the authors considered to reflect a good level of knowledge about HPV infection, its outcomes and its prevention.

Insufficient knowledge on the subject is worrisome, given the severity of the outcome involving HPV. A study published in 2016, assessing the trend of mortality

**Table 2 – Factors related to knowledge about human papilloma virus (HPV) among community health agents (CHA) (n=124) of the municipality of Tubarão-SC, Brazil, 2014**

Related factors	Correct answers			Value-p <sup>a</sup>
	n (%)	<70%	≥70%	
<b>Job satisfaction (n=122)</b>				<b>0.869</b>
Yes	103 (84.4)	74 (71.8)	29 (28.2)	
No	19 (15.6)	14 (73.7)	5 (26.3)	
<b>Participation on training courses about HPV (n=121)</b>				<b>0.133</b>
Yes	28 (23.1)	17 (60.7)	11 (39.3)	
No	93 (76.9)	70 (75.3)	23 (24.7)	
<b>Daughters within age group for vaccination (n=124)</b>				<b>0.374</b>
Yes	11 (8.9)	9 (81.8)	2 (18.2)	
No	113 (91.1)	81 (71.7)	32 (28.3)	
<b>Has a religion (n=123)</b>				<b>0.065</b>
Yes	114 (92.7)	85 (74.6)	29 (25.4)	
No	9 (7.3)	4 (44.4)	5 (55.6)	

a) Pearson chi-square test



**Figure 1 – Job satisfaction of community health agents (n=124) in the municipality of Tubarão-SC, Brazil, 2014**

from cervical cancer in Rio Grande do Norte State, with projections up to 2030, predicted an increase of 22.0% in the absolute number of deaths caused by the infection,<sup>19</sup> corroborating with the need for better training of the CHA.

We concluded that among the community health agents, there is little knowledge regarding HPV, regardless of the importance of the role played by these agents on SUS in promoting the population’s health. We recommend these professionals to be trained, in order to improve the knowledge of the population

about HPV and, therefore, to achieve the vaccination coverage goals among the target population.

**Authors' Contributions**

Schuelter-Trevisol F, Manoel AL, Rodrigues AB and Piva EZ contributed to the design of the scientific project, data collection, tabulation and analysis, and writing. All authors approved the final version of the manuscript and declared to be responsible for all aspects of the study, ensuring its accuracy and integrity.

## References

1. Smith JS, Lindsay L, Hoots B, Keys J, Franceschi S, Winer R, et al. Human papillomavirus type distribution in invasive cervical cancer and high-grade cervical lesions: a meta-analysis update. *Int J Cancer*. 2007 Aug;121(3):621-32.
2. Hausen HZ, Villiers EM. Human papillomaviruses. *Annu Rev Microbiol*. 1994 Oct; 48:427-47.
3. Paavonen J, Naud P, Salmerón J, Wheeler CM, Chow SN, Apter D, et al. Efficacy of human papillomavirus (HPV)-16/18 AS04-adjuvanted vaccine against cervical infection and precancer caused by oncogenic HPV types (PATRICIA): final analysis of a double-blind, randomised study in young women. *Lancet*. 2009 Jul; 374(9686):301-14.
4. Villiers EM, Fauquet C, Broker TR, Bernard HU, Hausen HZ. Classification of papillomaviruses. *Virology*. 2004 Jun;324(1):17-27.
5. Ministério da Saúde (BR). Presidenta e ministro iniciam vacinação contra HPV [Internet]. Brasília: Ministério da Saúde; 2014 [citado 2016 nov 25]. Disponível em: <http://portalsaude.saude.gov.br/index.php/o-ministerio/principal/secretarias/sas/saude-do-adolescente-e-do-jovem/noticias-saude-do-adolescente-e-do-jovem/11820-presidenta-dilma-e-ministro-chiouro-iniciam-vacinacao-contra-hpv>
6. Ministério da Saúde (BR). Sistema de Informação do Programa Nacional de Imunização. Estratégia de vacinação contra HPV [Internet]. Brasília: Ministério da Saúde; 2014 [citado 2016 nov 25] Disponível em: [http://pni.datasus.gov.br/consulta\\_hpv\\_14\\_C01.php](http://pni.datasus.gov.br/consulta_hpv_14_C01.php)
7. Fontineli Júnior K. Programa Saúde da Família (PSF): comentado. Goiânia: AB; 2003.
8. Ministério da Saúde (BR). Secretaria de Atenção à Saúde. Departamento de Atenção Básica. O trabalho do agente comunitário de saúde [Internet]. Brasília: Ministério da Saúde; 2009 [citado 2016 nov 25]. (Série F. Comunicação e Educação em Saúde). Disponível em: [http://189.28.128.100/dab/docs/publicacoes/geral/manual\\_acs.pdf](http://189.28.128.100/dab/docs/publicacoes/geral/manual_acs.pdf)
9. Instituto Brasileiro de Geografia e Estatística. Estimativas populacionais para os municípios brasileiros em 01.07.2014 [Internet]. Rio de Janeiro: Instituto Brasileiro de Geografia e Estatística; 2014 [citado 2016 nov 25]. Disponível em: <http://www.ibge.gov.br/home/estatistica/populacao/estimativa2014>
10. Waller J, Ostini R, Marlow LAV, McCaffery K, Zimet G. Validation of a measure of knowledge about human papillomavirus (HPV) using item response theory and classical test theory. *Prev Med*. 2012 Nov;56(1):35-40.
11. Lima JC, Cockell FF. As novas institucionalidades do trabalho no setor público: os agentes comunitários de saúde. *Trab Educ Saude*. 2008;6:(3)481-502.
12. Ministério da Saúde (BR). Ministério da Educação (BR). Referencial curricular para curso técnico de agente comunitário de saúde: área profissional saúde. Brasília: Ministério da Saúde; 2004. (Série A. Normas e Manuais Técnicos)
13. Melo MB, Brant LC, Oliveira LA, Santos APS. Qualificação de agentes comunitários de saúde: instrumento de inclusão social. *Trab Educ Saude*. 2009 nov; 7(3):463-77.
14. Cirilo CA, Barbosa ASAA, Zambrano E. Level of behavior and knowledge concerning human papillomavirus among university students of a nursing college. *Rev Soc Bras Med Trop*. 2010 Jul-Aug;43(4):362-6.
15. Reis AAS, Monteiro CD, Paula LB, Santos RS, Saddi VA, Cruz AD. Papilomavírus humano e saúde pública: prevenção ao carcinoma de cérvix uterina. *Cienc Saude Coletiva*. 2012 jun;15 supl 1:1055-60.
16. Contil FS, Bortolin S, Kulkamp IC. Educação e promoção à saúde: comportamento e conhecimento de adolescentes de colégio público e privado em relação ao HPV. *J Bras Doenças Sex Transm*. 2006;18(1):30-5.
17. Panobianco MS, Lima ADE, Oliveira ISB, Gozzo TO. Knowledge concerning HPV among adolescent undergraduate nursing students. *Texto Contexto Enferm*. 2013 jan-mar;22(1):201-7.
18. Masika MM, Ogembo JG, Chabeda SV, Wamai RG, Mugo N. Knowledge on HPV vaccine and cervical cancer facilitates vaccine acceptability among school teachers in Kitui County, Kenya. *PLoSOne*. 2015 Aug;10(8):e0135563.
19. Sousa AMV, Teixeira CCA, Medeiros SS, Nunes SJC, Salvador PTCO, Barros RMB, et al. Mortalidade por câncer do colo do útero no estado do Rio Grande do Norte, no período de 1996 a 2010: tendência temporal e projeções até 2030. *Epidemiol Serv Saude*. 2016 abr-jun;25(2):311-22.

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