



# National Health and Nutrition Examination Survey (NHANES)

HPV Rinse



2009-2010

## TABLE OF CONTENTS

<u>Chapter</u>		<u>Page</u>
1	OVERVIEW OF HPV RINSE .....	1-1
	1.1 Background.....	1-1
	1.2 Overview of Exam.....	1-2
2	EQUIPMENT AND SUPPLIES.....	2-1
3	EXAMINATION PROTOCOL.....	3-1
	3.1 Eligibility Criteria.....	3-1
	3.2 Examination Procedures .....	3-1
	3.3 End of Exam .....	3-3
	3.4 Report of Findings .....	3-5
	3.5 Quality Control .....	3-5
	REFERENCES .....	R-1

### List of Exhibits

<u>Exhibit</u>		
3-1	Data entry screen .....	3-2
3-2	End of Exam screen .....	3-4
3-3	Reason for Not Done .....	3-5

# 1. OVERVIEW OF HPV RINSE

## 1.1 Background

Head and neck squamous cell carcinoma (HNSCC) is a major cause of morbidity and mortality worldwide, with over 560,000 new cancers diagnosed annually (10). In 2007, 42,000 Americans were diagnosed with HNSCC (8). HNSCC are etiologically heterogeneous, with one major subset attributable to tobacco, alcohol use, and poor oral hygiene and another to oral, high-risk, human papillomavirus (HPV) infection (4). HNSCC associated with HPV, overwhelmingly (~90-95%) type HPV 12, arises predominantly from the lingual and palatine tonsils of the oropharynx (5), have risk factors related to sexual behavior and marijuana use (4), and occur four times more frequently among men than women in the United States (1). According to the Surveillance Epidemiology and End Results (SEER) data, incidence rates of HPV-related oral cancers (e.g., base of tongue and tonsil) steadily increased from 1973 through 2004 in the U.S. (particularly among men under the age of 60 years), in contrast to a decline in incidence rates for oral cancers not associated with HPV(1).

Age-period-cohort analysis of incidence trends for HPV-related and unrelated HNSCC revealed a strong birth cohort effect, consistent with changes in sexual behavior, tobacco, and alcohol use over the last 50 years in the U.S. The annual number of HPV-associated HNSCC diagnosed in the U.S. from 1998-2003 prior to FDA approval of Gardasil in 2006 was second only to cervical cancer (~10,800 cervical versus ~5,600 HNSCC) and exceeded the number for all other HPV-associated noncervical cancers combined (13). Oral, high-risk HPV infection has been strongly and consistently associated with HNSCC in several case-control studies (2, 4, 12). Despite the strong and consistent association between oral HPV infection and a type of HNSCC that has nearly doubled in incidence in the U.S. over the last 30 years, very little is known about the epidemiology of oral HPV infection in the U.S. population or in any other population worldwide.

The overall goal of the research proposal is to perform **the first** population-based study of oral HPV infection to determine the prevalence and type distribution of infection and to investigate the demographic and behavioral factors associated with infection. It is proposed that oral sample collection be included in NHANES 2009-10 for participants aged 14 to 69 years.

The 2009-10 HPV oral rinse component of NHANES is sponsored by Maura L. Gillison M.D., Ph.D., Division of Viral Oncology, Johns Hopkins Kimmel Cancer Center.

## **1.2 Overview of Exam**

SPs aged 14 to 69 are eligible for the HPV rinse component. The HPV rinse will be conducted in the oral health room by the dental examiner. SPs will be asked to do a 30-second oral rinse and gargle with Scope mouthwash (or saline mouthwash). After the rinse, SPs aged 14-19 and 30 years old and older will begin the oral health exam. The protocol and procedures will be described in detail in Chapter 3, Examination Protocol.

## 2. EQUIPMENT AND SUPPLIES

The equipment and supplies needed to conduct the HPV rinse are described below:

### Equipment

- Dymo printer: A Dymo printer will be in the OH room. It will be used to print the SP labels.

### Supplies

- SCOPE® mouthwash: Travel size Scope mouthwash bottle is used to rinse mouth.
- Saline solution: An alternative to Scope mouthwash, it will be used for SPs with open oral ulcers or in recovering alcoholics concerned about the alcohol content.
- Medicine cup: A 2 oz. sterile medicine cup used for pouring in the mouthwash.
- Specimen container: A 5 oz. sterile specimen container used for spitting in the mouthwash and for storing.
- Dymo labels: Used to label the specimen container, the label will print with the six-digit SP\_ID with the three-digit vessel number.
- Gloves: The dental examiner will use a new pair of gloves before the exam begins.

### 3. EXAMINATION PROTOCOL

#### 3.1 Eligibility Criteria

SPs aged 14-69 years are eligible for the HPV rinse component. There are no exclusion questions for this exam.

#### 3.2 Examination Procedures

This section describes the procedures to conduct the HPV rinse. Both the dental recorder and examiner logs into ISIS for this exam; however, given the space constraint, the dental examiner will conduct the exam while the dental recorder waits in the hallway. When the SP enters the oral health room, the dental examiner explains the purpose of the HPV rinse by reading the script as follows:

*“We are going to ask you to swish some Scope mouthwash around your mouth, gargle, and then spit the mouthwash into a cup to test for a virus some people have in their mouth called the human Papillomavirus or HPV. First, you will rinse your mouth with the mouthwash for 5 seconds and then gargle for 5 seconds. You will do this three times and then spit the mouthwash into a cup. Do you have any questions about this test?”*

The dental examiner assesses if the SP can use Scope by asking the following question:

*“Do you have any sores in your mouth that might hurt when you use a mouthwash with some alcohol in it, such as Scope?”*

If the SP responds “No” to this question, then the examiner provides the instructions for sample collection. If the SP responds “Yes” to this question, the following question is asked:

*“Can you use a salt water mouthwash instead?”*

If the SP responds “No” to this question, the dental examiner will not be able to collect a sample and will code as Sample Not Collected. If the SP responds “Yes” to this question, the dental examiner proceeds with the sample collection instructions.

The procedures to collect the HPV sample are as follows:

1. Put on gloves.
2. Pour 10mL of SCOPE® mouthwash into a medicine cup, making sure not to touch the rim of the cup.
3. Hand the medicine cup with the mouthwash to the SP
4. Press the “Start” button on ISIS and follow the prompts to tell the SP when to gargle, swish, and spit.
5. At the end of the 30 seconds, open the specimen container and hand it to the SP. Hold the top lid down to avoid contaminating it.
6. Have the SP spit the mouthwash into the specimen container when done gargling. SPs are allowed to touch the rim of the container when they spit the mouthwash.
7. Take the specimen collection cup from the participant being careful not to touch the rim.
8. Seal the specimen container properly to prevent leakage.
9. Place the SP label on the specimen collection container (an SP label will automatically be printed).

When the dental examiner clicks on the “Start” button in ISIS, the word “swish” will highlight and at 5-second intervals it will highlight the word “gargle” and so on until 30 seconds are up. Then the word “spit” will highlight. Exhibit 3-1 provides a screen shot of the data entry screen.

Exhibit 3-1. Data entry screen

Oral Health: Stand:410 Session:410070 08/25/2004 08:30 am - 12:30 pm

SP ID: 981541 Name: PATEL2, PAYEL Age: 22 years Gender: Female Date: 12/11/2008 Time: 02:35 PM

HPV Rinse

We are going to ask you to swish some Scope mouthwash around your mouth, gargle and then spit the mouthwash into a cup to test for a virus some people have in their mouth called the human Papillomavirus or HPV.

First, you will rinse your mouth with the mouthwash for 5 seconds and then gargle for 5 seconds. You will do this three times and then spit the mouthwash into a cup.

Do you have any questions about this test?

Do you have any sores in your mouth that might hurt when you use a mouthwash with some alcohol in it, such as Scope?

Can you use a salt water mouthwash instead?

Press Start to Begin

**Swish**

**Gargle**

**Swish**

**Gargle**

**Swish**

**Gargle**

**Spit**

SAMPLE COLLECTED?

DID SP SWISH AND GARGLE FOR 30 SECONDS?

DID SP REQUEST SALINE SOLUTION?

1 of 2

### 3.3 End of Exam

At the end of the collection, the examiner records the following information regarding the collection:

- Sample collected?
- Did SP swish and gargle for 30 seconds?
- Did SP request saline solution?

The examiner records “Yes” or “No.” See Exhibit 3-1 above for the data entry screen. Before the End of Exam screen appears (Exhibit 3-2), ISIS will automatically print an SP label and the dental examiner places the label on the specimen container. The dental examiner will ensure that the specimen container is tightly sealed and responsible for transporting the sample to the MEC laboratory.



SPs who are eligible for the oral health exam stay in the room and continue to the oral health exam; those who are not, will be escorted to their next examination.

Exhibit 3-2. End of Exam screen

Oral Health: Stand:410 Session:410911 11/17/2004 01:30 pm - 05:30 pm

SP ID: 893082 Name: BATISTA 4, TAMAR Age: 23 years Gender: Female Date: 12/12/2008 Time: 09:40 AM

HPV Rinse Section Status Screen

Status

Complete  
 Partial  
 Not Done

Comments

Other text

2 of 2

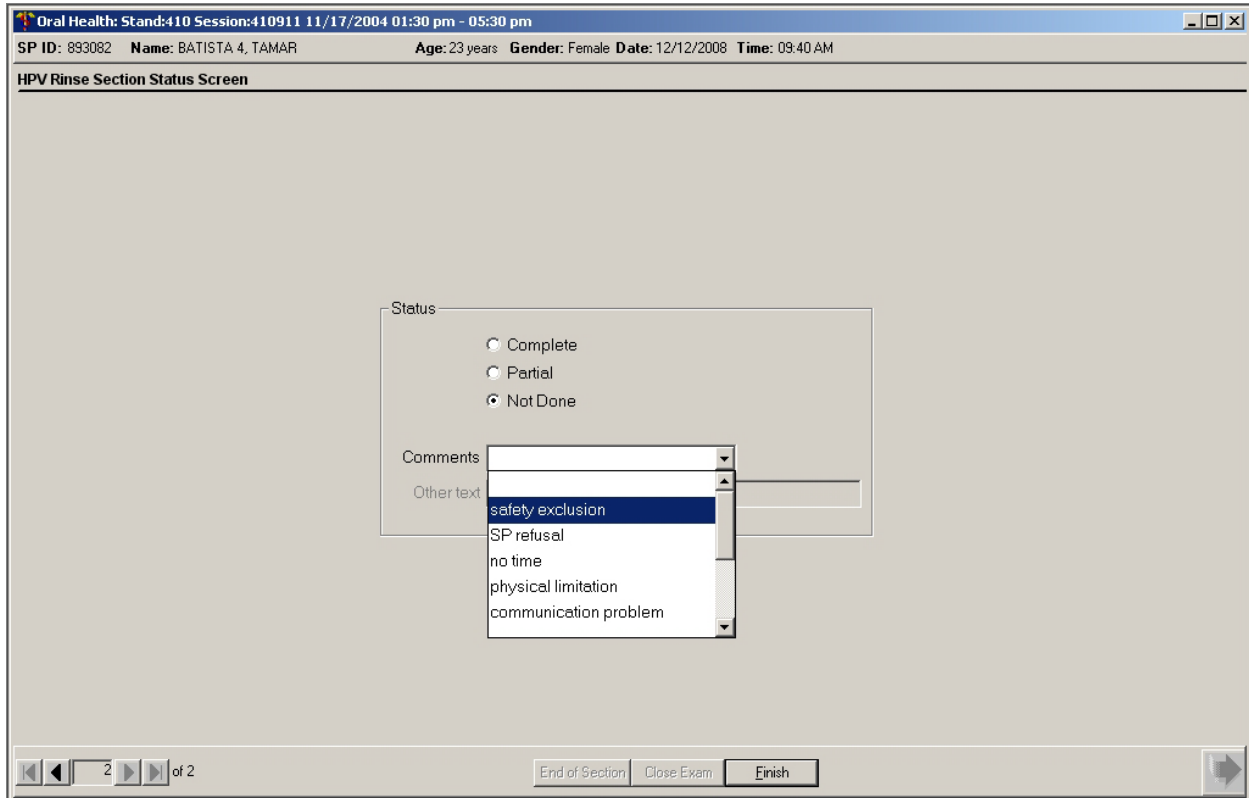
End of Section Close Exam Finish

If the HPV assessment is not done, the reason must be recorded in ISIS. The following reasons are programmed into the ISIS system and appear at the status screen:

- **SP refusal**
- **Safety exclusion**
- **SP ill/Emergency**
- **No time**
- **Physical limitation**
- **Equipment failure**
- **Other reason.** A reason not programmed in the ISIS system requires a comment.

Exhibit 3-3 provides a screen shot of the reasons.

Exhibit 3-3. Reason for Not Done



### 3.4 Report of Findings

The HPV rinse results won't be reported to the survey participant. HPV testing to screen for oral cancers is currently not the standard of care. However, if participants are interested in the results, they can call the toll-free line at 1-800-452-6115, Monday–Friday from 8:30 a.m.–6 p.m., EST.

### 3.5 Quality Control

The dental examiner will use a new pair of gloves before the exam begins.

## REFERENCES

1. Chaturvedi, A.K., Engels, E.A., Anderson, W.F., and Gillison, M. L. (2008). Incidence trends for human papillomavirus-related and -unrelated oral squamous cell carcinomas in the United States. *J Clin Oncol*, 26:612-9.
2. D'Souza, G., Kreimer, A.R., Viscidi, R., Pawlita, M., Fakhry, C., Koch, W.M., Westra, W.H., and Gillison, M.L. (2007). Case-control study of human papillomavirus and oropharyngeal cancer. *N Engl J Med*, 356:1944-56.
3. D'Souza, G., Sugar, E., Ruby, W., Gravitt, P., and Gillison, M. (2005). Analysis of the effect of DNA purification method on the detection of human papillomavirus in oral rinses by PCR. *J Clin Microbiol*, 43:5526-35.
4. Gillison, M., D'Souza, G., Westra, W., Sugar, E., Xiao, W., Begum, S., and Viscidi, R. (2008). Distinct risk factor profiles for human papillomavirus type 16-positive and human papillomavirus 16-negative head and neck cancers. *Journal of the National Cancer Institute*, 100:407-20.
5. Gillison, M.L., Koch, W.M., Capone, R.B., Spafford, M., Westra, W.H., Wu, L., Zahurak, M.L., Daniel, R.W., Viglione, M., Symer, D.E., Shah, K.V., and Sidransky, D. (2000). Evidence for a causal association between human papillomavirus and a subset of head and neck cancers. *J Natl Cancer Inst*, 92:709-20.
6. Gravitt, P.E., Peyton, C.L., Alessi, T.Q., Wheeler, C.M., Coutlee, F., Hildesheim, A., Schiffman, M.H., Scott, D.R., and Apple, R.J. (2000). Improved amplification of genital human papillomaviruses. *J Clin Microbiol*, 38:357-61.
7. Gravitt, P.E., Peyton, C.L., Apple, R.J., and Wheeler, C.M. (1998). Genotyping of 27 human papillomavirus types by using L1 consensus PCR products by a single-hybridization, reverse line blot detection method. *J Clin Microbiol*, 36:3020-7.
8. Jemal, A., Siegel, R., Ward, E., Murray, T., Xu, J., and Thun, M.J. (2007). Cancer statistics, 2007. *CA Cancer J Clin*, 57:43-66.
9. Mork, J., Lie, A.K., Glatre, E., Hallmans, G., Jellum, E., Koskela, P., Moller, B., Pukkala, E., Schiller, J.T., Youngman, L., Lehtinen, M., and Dillner, J. (2001). Human papillomavirus infection as a risk factor for squamous-cell carcinoma of the head and neck. *N Engl J Med*, 344:1125-31.
10. Parkin, D.M., Bray, F., Ferlay, J., and Pisani, P. (2005). Global cancer statistics, 2002. *CA Cancer J Clin*, 55:74-108.
11. Peyton, C.L., Gravitt, P.E., Hunt, W.C., Hundley, R.S., Zhao, M., Apple, R.J., and Wheeler, C.M. (2001). Determinants of genital human papillomavirus detection in a U.S. population. *J Infect Dis*, 183:1554-64.

12. Pintos, J., Black, M.J., Sadeghi, N., Ghadirian, P., Zeitouni, A.G., Viscidi, R.P., Herrero, R., Coutlee, F., and Franco, E.L. (2008). Human papillomavirus infection and oral cancer: A case-control study in Montreal, Canada. *Oral Oncology*, 44:242-50.
13. Watson, M., Saraiya, M., Cardinez, A.F.C., Reichman, M., Weir, H., and Richards, T. (In press). Descriptive epidemiology of HPV-associated cancers in the United States, 1998-2003. *J Adolesc Health*.
14. Yuan, C.C., Miley, W., and Waters, D. (2001). A quantification of human cells using an ERV-3 real time PCR assay. *J Virol Methods*, 91:109-17.