Wonder Woman Conference
Breckenridge Colorado
June11, 2015

Oral HPV infection

Grace Alfonsi MD

Acting Director of Denver Metro Health (STD) Clinic
Faculty Denver STD/ HIV Prevention Training Center
Associate Professor of Family Medicine
University of Colorado

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Objectives

- Review brief epidemiology of HPV
- Current state of knowledge on HPV and head and neck cancers
- Current vaccine recommendations with update on new HPV 9 vaccine

Disclosures: NONE

Acknowledgement : Dr. Marcia Eustaquio

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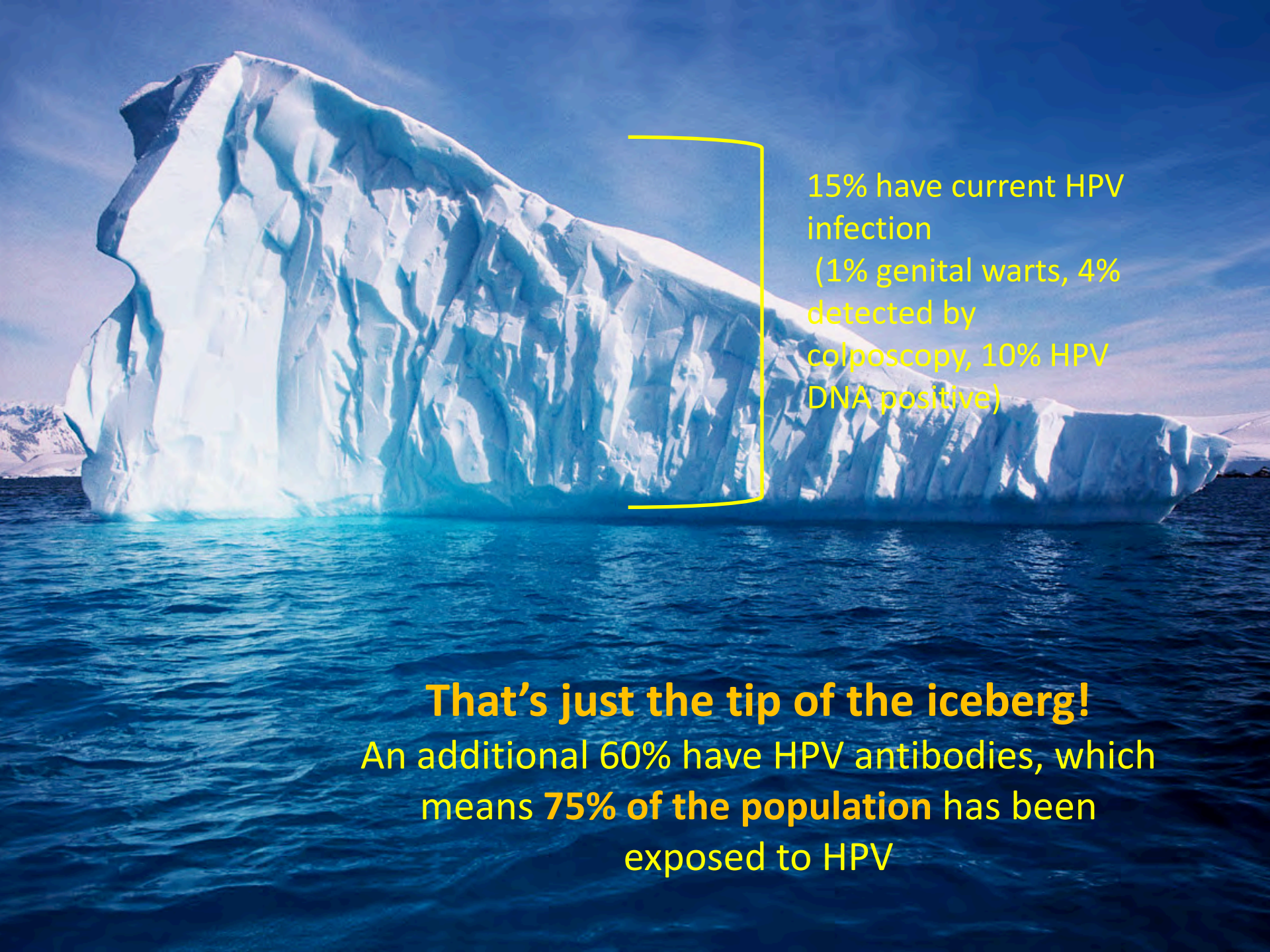
- Human Papilloma Virus (HPV)
- Over 100 types identified
- 30-40 anogenital types
- High risk types
- Low risk types


15% have current HPV infection
(1% genital warts, 4% detected by colposcopy, 10% HPV DNA positive)
That's just the tip of the iceberg!
An additional 60% have HPV antibodies, which means 75% of the population has been exposed to HPV

High-risk "oncogenic" strains

Types: 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, 68, 73

Cervical cancer (70% caused by types 16 and 18)

Low-risk "non-oncogenic" strains

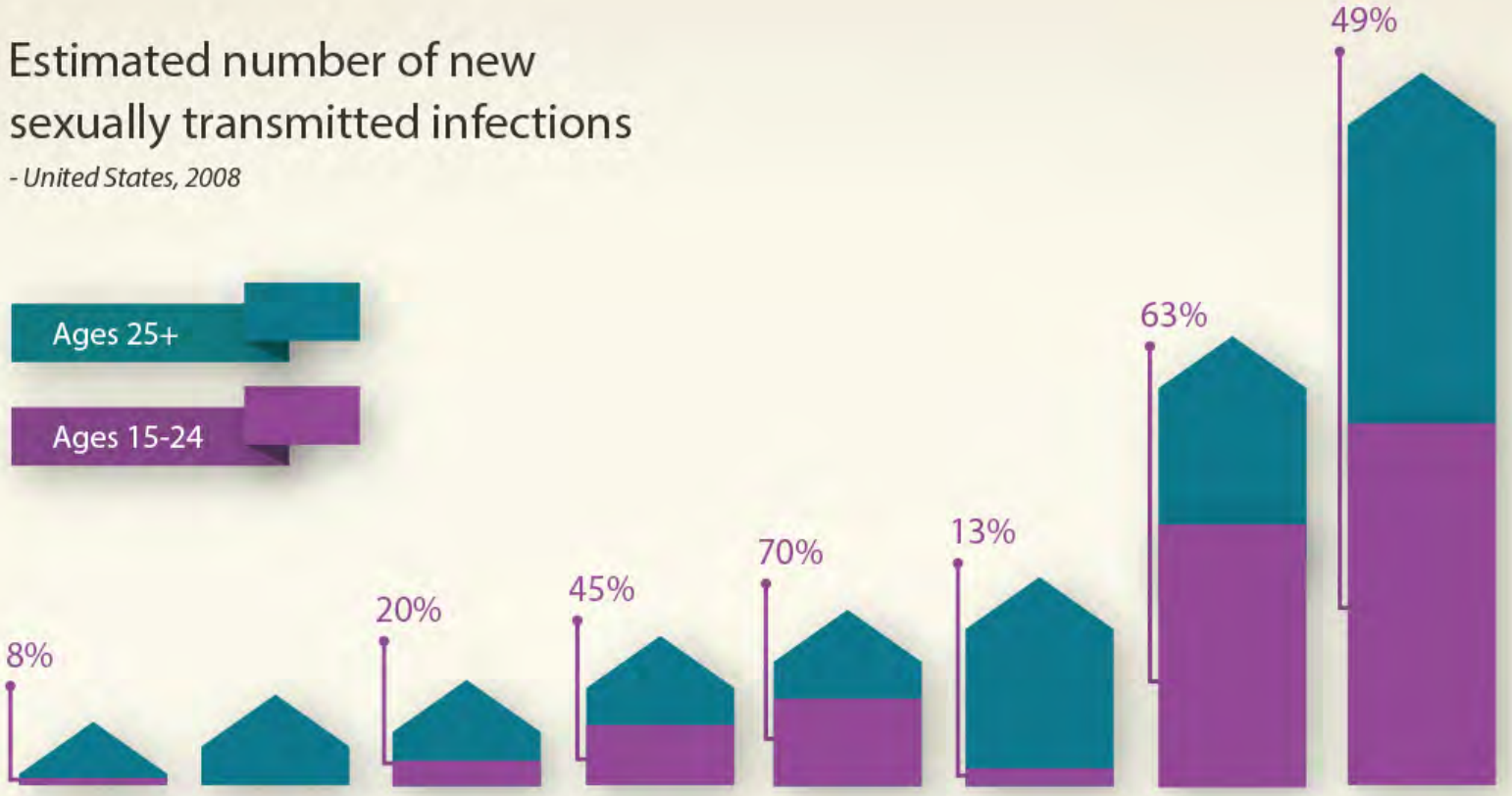
Types: 6, 11, 42, 43, 44, 55, others

Genital warts (caused by types 6 and 11)

In most cases, HPV is transient and has no clinical manifestations

Estimated number of new sexually transmitted infections

- United States, 2008



	Hepatitis B	HIV*	Syphilis	HSV-2	Gonorrhea	Trichomoniasis	Chlamydia	HPV
Total:	19,000	41,400	55,400	776,000	820,000	1,090,000	2,860,000	14,100,000

Young people (15-24) represent 50% of all new STIs

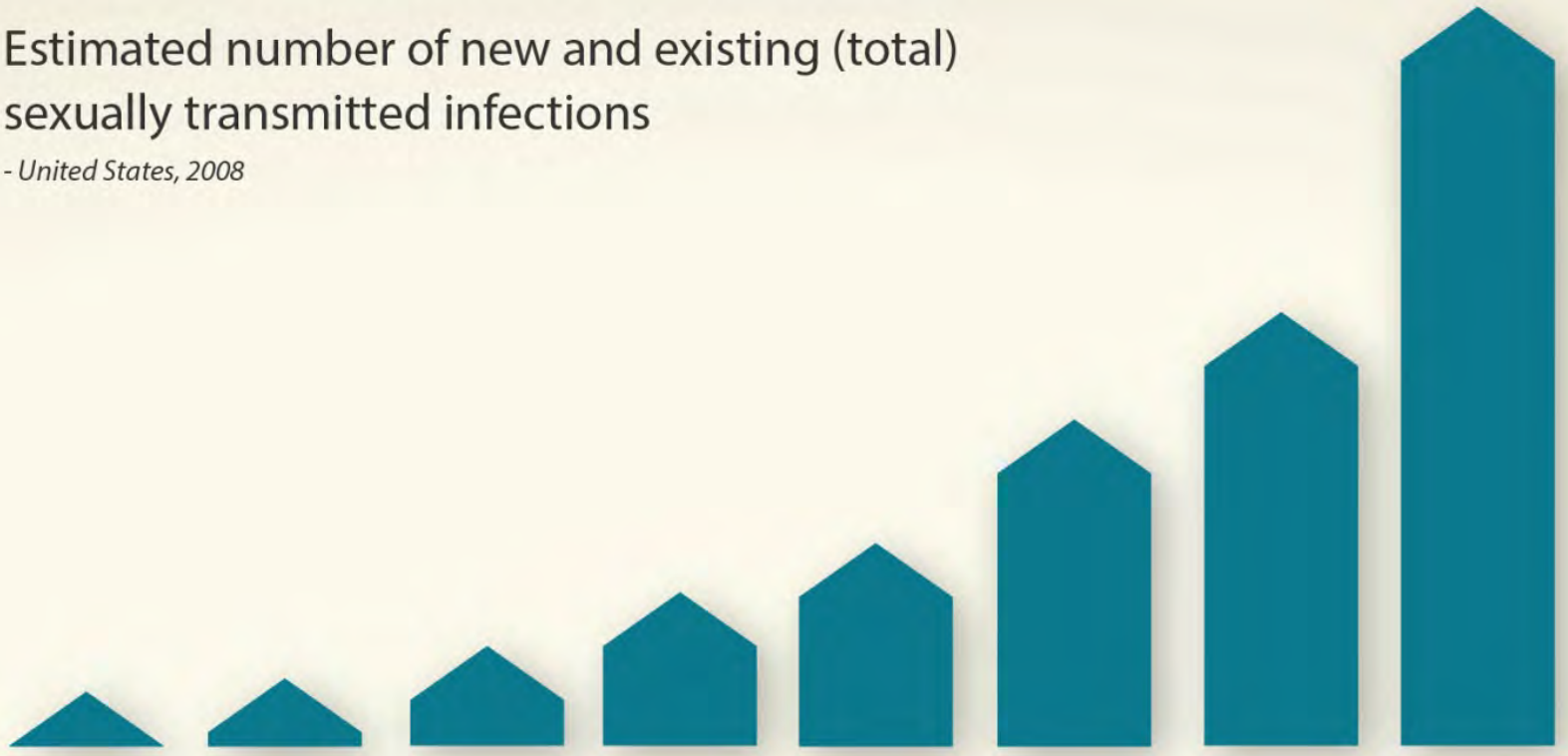
TOTAL: **19,738,800**

**HIV incidence not calculated by age in this analysis*

Bars are for illustration only; not to scale, due to wide range in numbers of infections

Estimated number of new and existing (total) sexually transmitted infections

- United States, 2008



	Syphilis	Gonorrhea	Hepatitis B	HIV	Chlamydia	Trichomoniasis	HSV-2	HPV
Total:	117,000	270,000	422,000	908,000	1,570,000	3,710,000	24,100,000	79,100,000

50,627,400

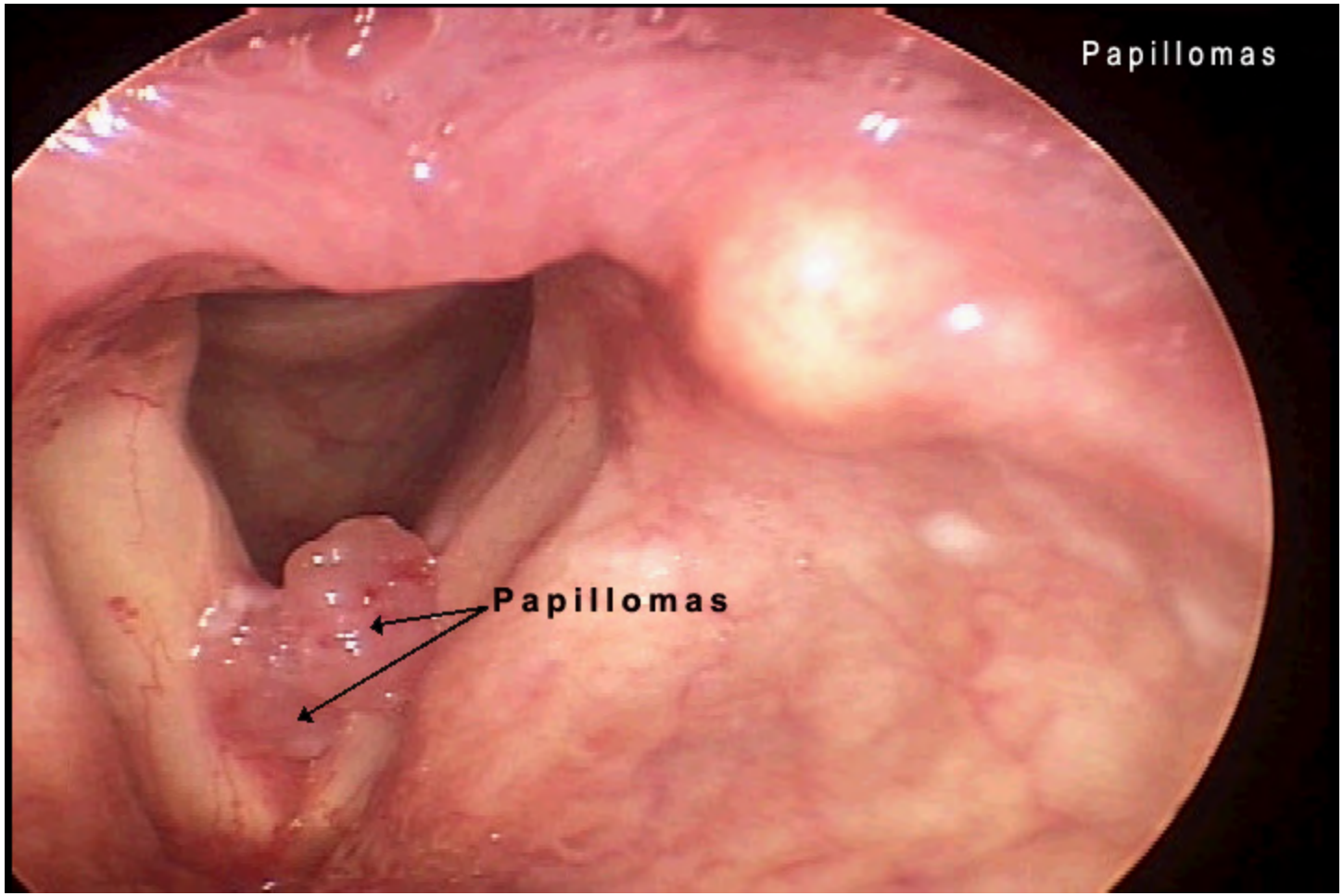
59,569,500

TOTAL: **110,197,000**

Gender totals do not equal overall total, due to rounding

Bars are for illustration only; not to scale, due to wide range in numbers of infections

Oral Warts



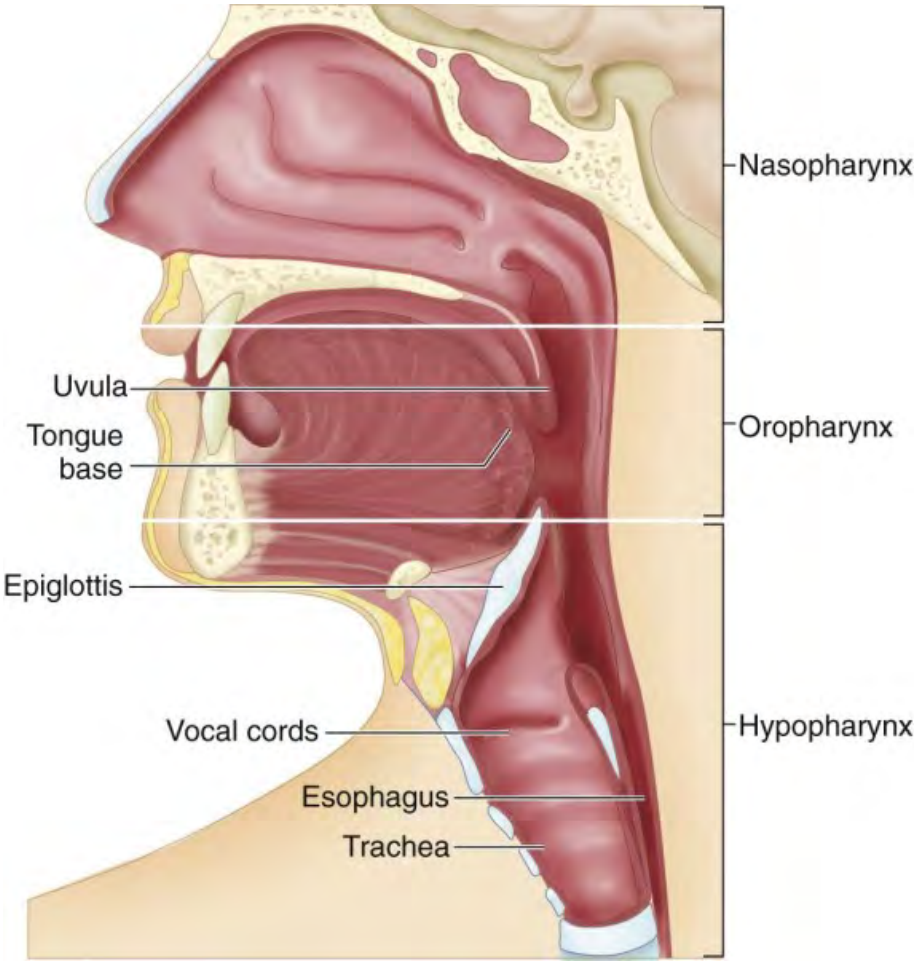
http://app1.unmc.edu/medicine/heywood/laryngealdisease/Data/images/13laryngealpapillomatosis.jpg

What is the most common type of head and neck cancer?

SQUAMOUS CELL CARCINOMA

Squamous cell carcinoma

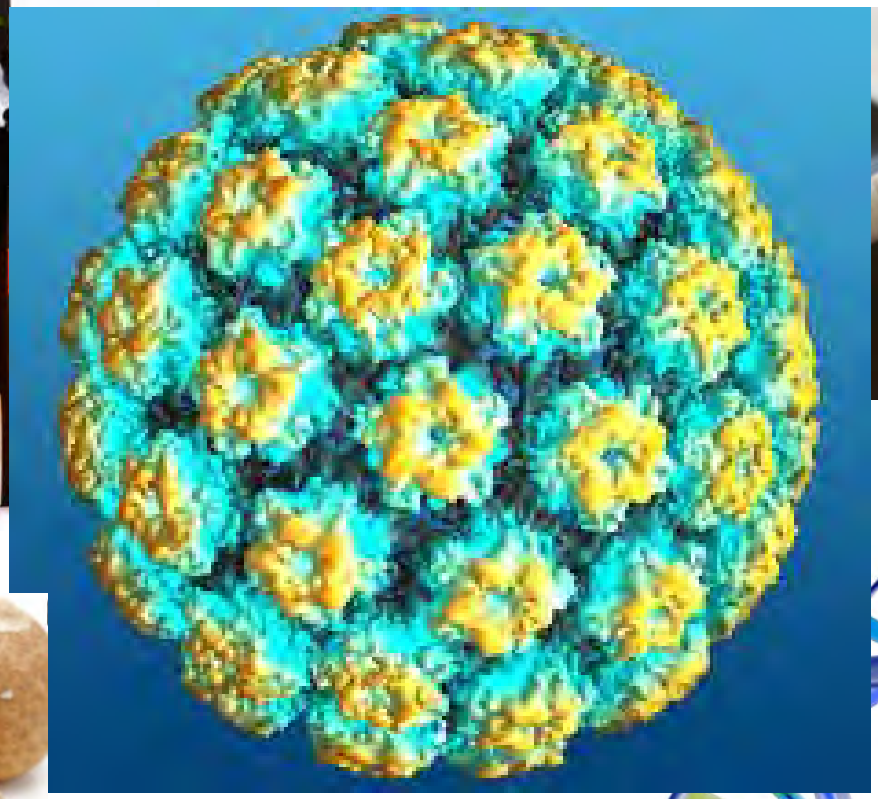
- Oral cavity (mouth)
- Oropharynx
- Larynx (voice box)
- Hypopharynx

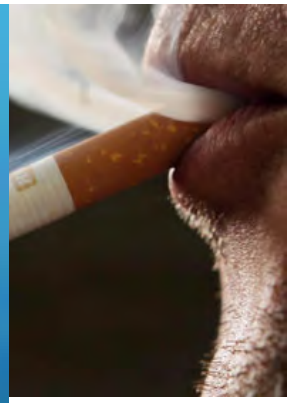


How common is head and neck cancer?

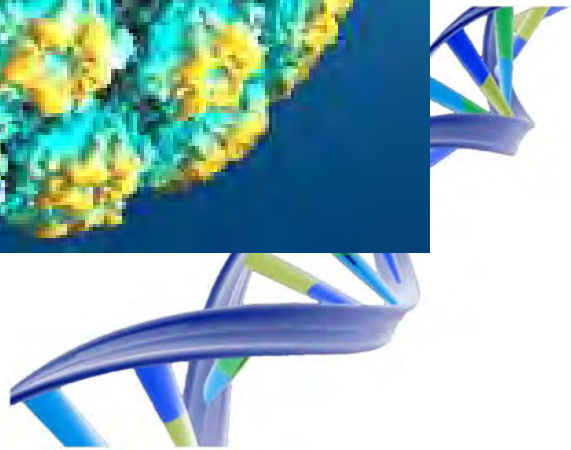
- 49,260 new cases in the US estimated in 2010.
- 11,480 deaths in 2010
- No change in survival in the last 40 years

What causes head and neck cancer?





Betel nut is popular in Asian and Indian countries and is chewed for a narcotic effect.



Oro-pharyngeal Squamous Cell Cancers

- Incidence increased over the last 3 decades
- Incidence of HPV negative declined by 50% from 1988-2004

  (2.0 to 1.0 cases per 100K)

- Incidence of HPV positive OPSCC increased by 225%

  (0.8 to 2.6/ 100K)

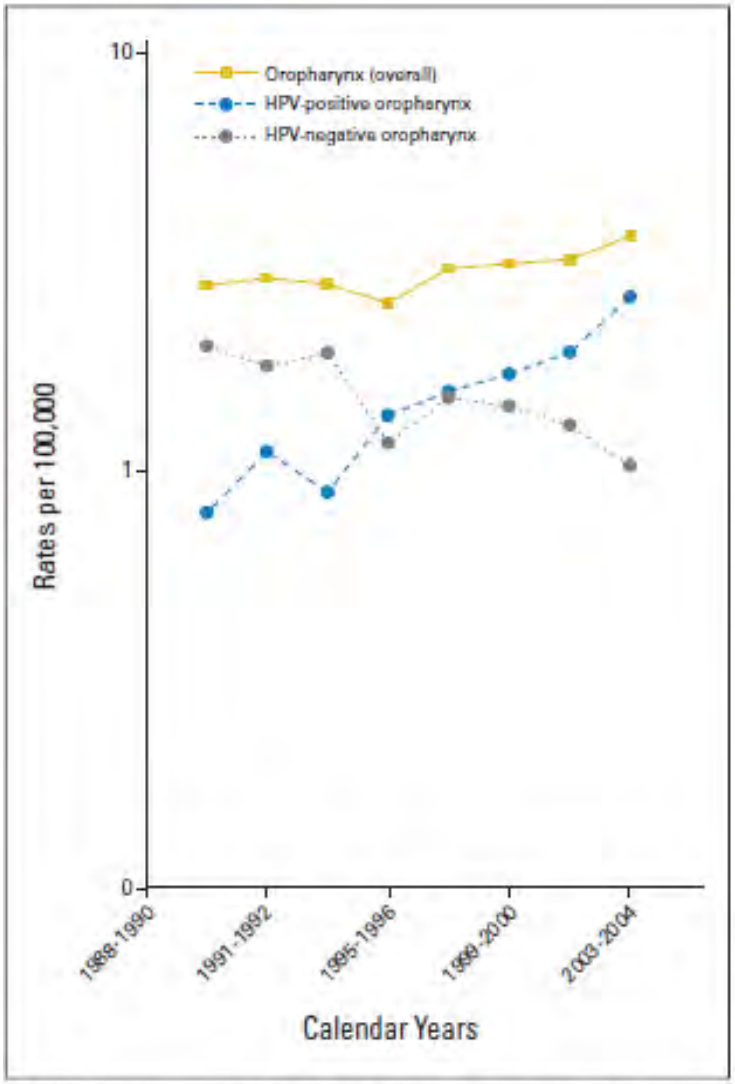


Fig 3. Incidence rates for overall oropharyngeal cancer, human papillomavirus

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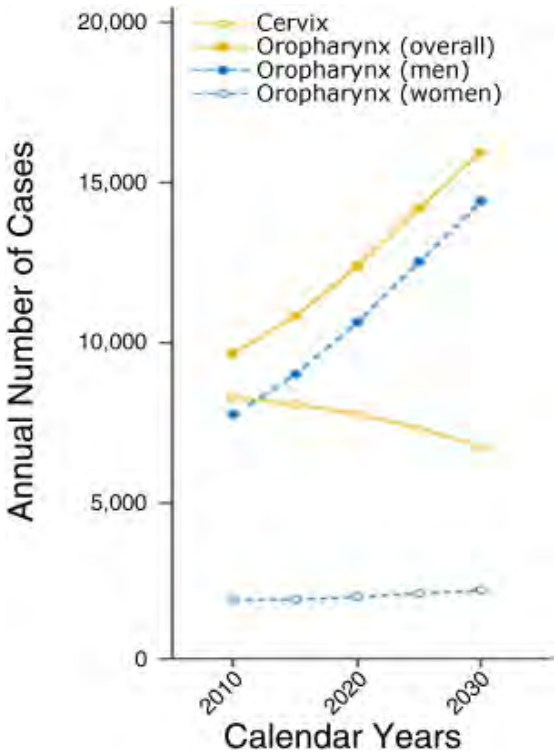
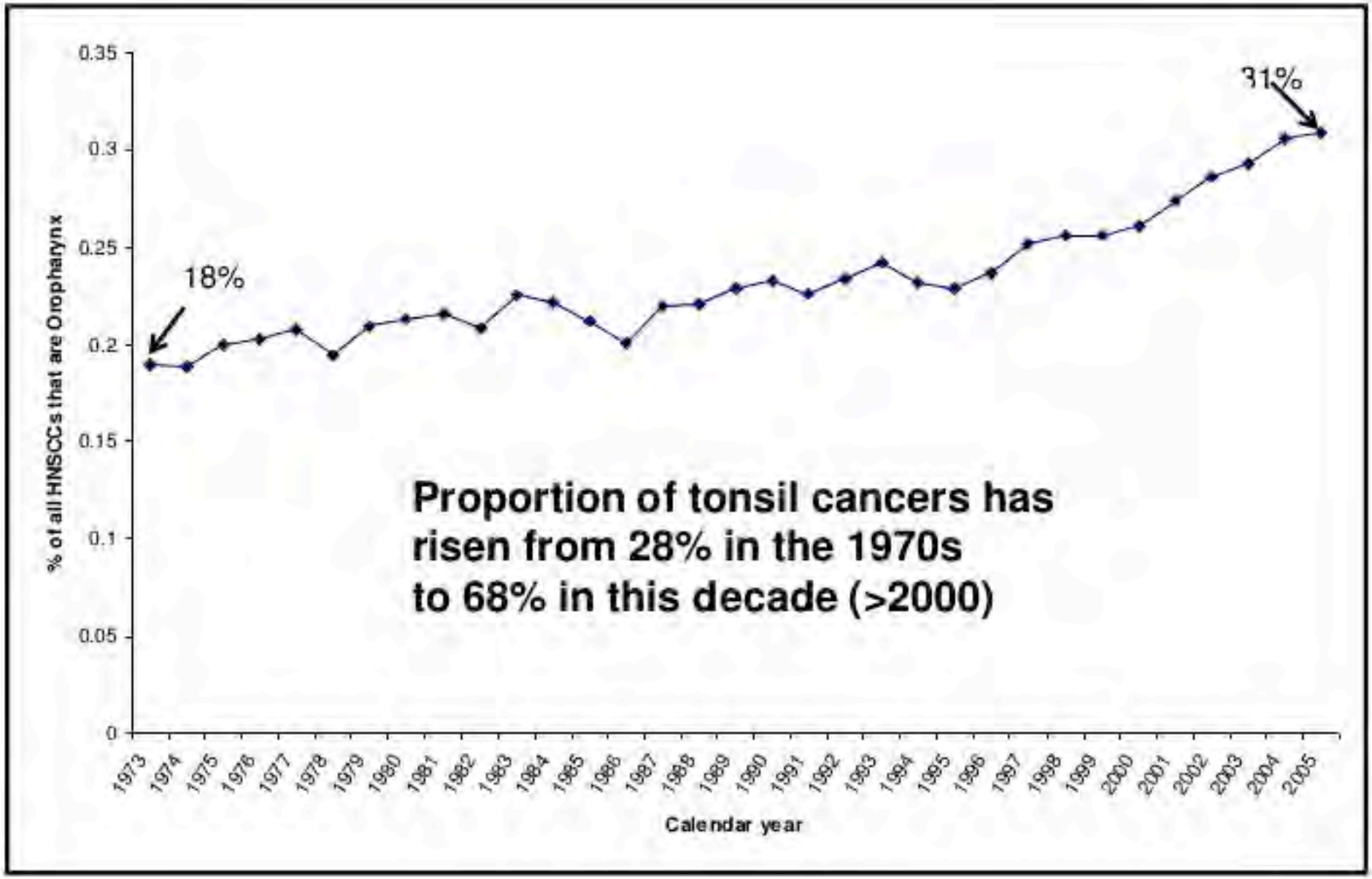
The role of human papillomavirus in nongenital cancers



CA: A Cancer Journal for Clinicians
Volume 63, Issue 1, pages 57-81, 19 DEC 2012 DOI: 10.3322/caac.21167
http://onlinelibrary.wiley.com/doi/10.3322/caac.21167/full#fig1



Chaturvedi A. J Clin Oncol 2008

The New Head and Neck Cancer Patient

Typical: older , smoker , drinker HPV negative

New: typically younger by 10 years non smoker, non drinker. HPV positive

Overall prevalence of HPV in head and neck cancers about 25.9%

Oropharyngeal : 35.6%/HPV 16 86.7%

Oral : 23.5% HPV 16 68.2%

Laryngeal 24.0%/ HPV 16 69.2 %

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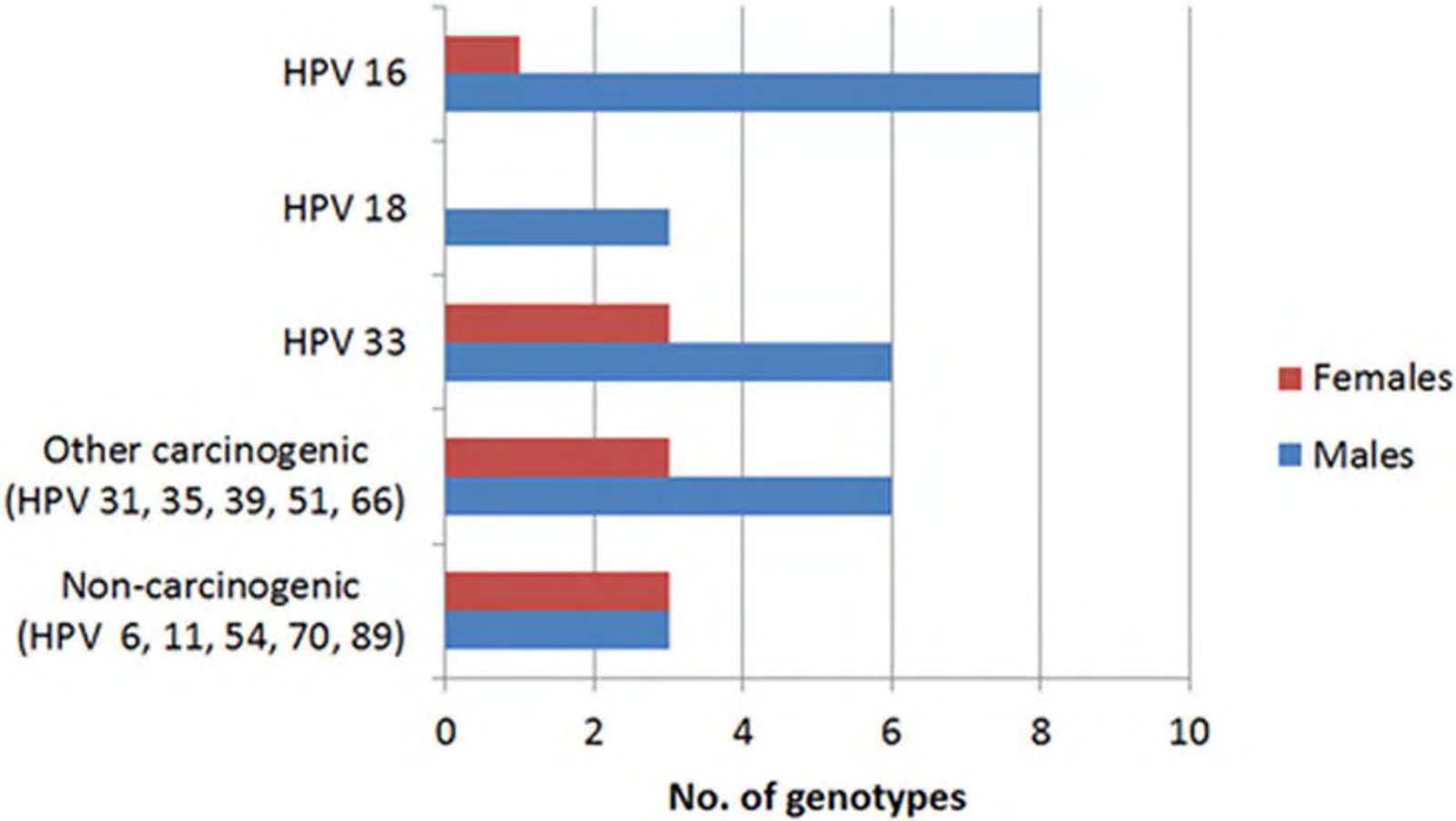
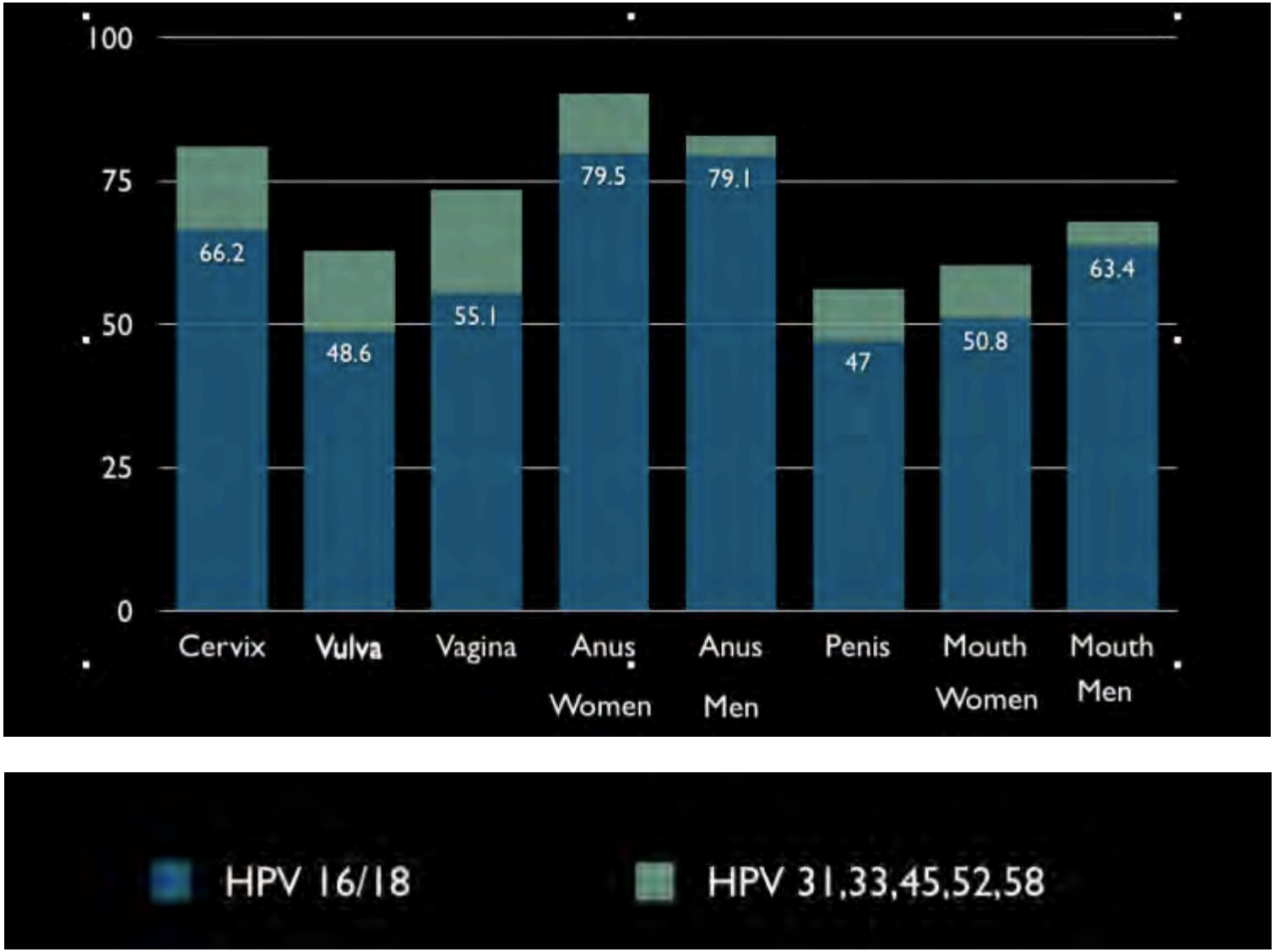


Fig. 1. Distribution of HPV genotypes in HPV positive tumors (male n522; female n59). Laryngeal cancers

Average Number of Cases of Cancer Attributable to HPV

Source: CDC/cancer/HPV



https://drjengunter.wordpress.com/2015/05/08/the-importance-of-the-hpv-vaccine-in-one-graphic-really

Prevalence of Oral HPV Infection in the United States, 2009-2010

Maura L. Gillison, MD, PhD
Tatevik Broutian, MS
Robert K. L. Pickard, EdM, MS, MPH
Zhen-yue Tong, MD, PhD
Weihong Xiao, MD
Lisa Kahle, BA
Barry I. Graubard, PhD
Anil K. Chaturvedi, PhD

Context Human papillomavirus (HPV) infection is the principal cause of a distinct form of oropharyngeal squamous cell carcinoma that is increasing in incidence among men in the United States. However, little is known about the epidemiology of oral HPV infection.

Objective To determine the prevalence of oral HPV infection in the United States.

Design, Setting, and Participants A cross-sectional study was conducted as part of the National Health and Nutrition Examination Survey (NHANES) 2009-2010, a statistically representative sample of the civilian noninstitutionalized US population. Men and women aged 14 to 69 years examined at mobile examination centers were eligible. Participants (N=5579) provided a 30-second oral rinse and gargle with mouthwash. For detection of HPV types, DNA purified from oral exfoliated cells was evaluated by polymerase chain reaction and type-specific hybridization. Demographic and behavioral data were obtained by standardized interview. Statistical analyses used NHANES sample weights to provide weighted prevalence estimates for the US population.

Main Outcome Measures Prevalence of oral HPV infection.

Results The prevalence of oral HPV infection among men and women aged 14 to 69 years was 6.9% (95% CI, 5.7%-8.3%) and of HPV type 16 was 1.0% (95% CI, 0.7%-1.3%). Oral HPV infection followed a bimodal pattern with respect to age, with peak prevalence among individuals aged 30 to 34 years (7.3%; 95% CI, 4.6%-11.4%) and 60 to 64 years (11.4%; 95% CI, 8.5%-15.1%). Men had a significantly higher prevalence than women for any oral HPV infection (10.1% [95% CI, 8.3%-12.3%] vs 3.6% [95% CI, 2.6%-5.0%], $P<.001$; unadjusted prevalence ratio [PR], 2.80 [95% CI, 2.02-3.88]). Infection was less common among those without vs those with a history of any type of sexual contact (0.9% [95% CI, 0.4%-1.8%] vs 7.5% [95% CI, 6.1%-9.1%], $P<.001$; PR, 8.69 [95% CI, 3.91-19.31]) and increased with number of sexual partners ($P<.001$ for trend) and cigarettes smoked per day ($P<.001$ for trend). Associations with age, sex, number of sexual partners, and current number of cigarettes smoked per day were independently associated with oral HPV infection in multivariable models.

Conclusion Among men and women aged 14 to 69 years in the United States, the overall prevalence of oral HPV infection was 6.9%, and the prevalence was higher among men than among women.

JAMA. 2012;307(7):693-703
Published online January 26, 2012. doi:10.1001/jama.2012.101 www.jama.com

ORAL HUMAN PAPILLOMAVIRUS (HPV) infection is the cause of a subset of oropharyngeal squamous cell carcinomas (OSCCs).[1] Human papillomavirus–positive OSCCs are associated with sexual behavior in contrast to HPV-negative OSCCs that are associated with chronic tobacco and alcohol use.[2] At least 90% of HPV-positive OSCCs are associated with high-risk (or oncogenic) HPV type 16 (HPV-16),[3] and oral infection confers an approximate 50-fold increase in risk for HPV-positive OSCC.[2]

The incidence of OSCC has significantly increased over the last 3 decades in several countries, and HPV has been directly implicated as the underlying cause.[4-6] Although the incidence of HPV-negative OSCC declined by 50% in the United States from 1988 to 2004 (from 2.0 cases per 100 000 popula-

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Prevalence of Oral HPV infection In US, 2009-2010 NHANES Data

- Overall prevalence of oral HPV 6.9%

- Prevalence:
- HRHPV 3.7%
- LRHPV 3.1%

- Most common HR is 16 highest prevalence at 1.0%

- Men higher prevalence than women (10.4%vs 3.6%)
- Higher among current smokers and heavy alcohol drinkers
- Higher among current and former marijuana users

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Prevalence of Oral HPV infection In US, 2009-2010 NHANES Data

Sexual Behaviors:

- 8 fold higher HPV if ever had sex than if never had sex
- Increased with lifetime number of sex partners for any kind of sex
- Higher prevalence if first oral sex at 18 or under

- Modifiable risk factors:

Smoking including intensity (20% if smoke >20 cigarettes per day)

- Lifetime sexual partners

(prevalence as high as 20% with more than 20 lifetime partners)

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Oral HPV may be passed from mouth to genital contact or open mouth kissing but this is only a few studies and results are not conclusive. We do know that partners who have Been together for a long time tend to share genital HPV.

http://www.cdc.gov/std/HPV/STDFact-HPVandoralcancer.htm

Detection / Prevention

- Can we help to decrease cancer risk or detect cancers early by screening?

Home
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You are here: Home » Recommendations for Primary Care Practice » Published Recommendations » Recommendation Summary

Oral Cancer: Screening

Release Date: November 2013

Recommendation Summary

Summary of Recommendation and Evidence

Population	Recommendation	Grade (What's This?)
Asymptomatic Adults	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for oral cancer in asymptomatic adults.	I

Go to the Clinical Considerations section for suggestions for practice regarding the I statement.

Read Full Recommendation Statement
PDF Version (PDF Help)

Read the Full Recommendation Statement

Supporting Documents

- Final Evidence Review
  PDF Version (PDF Help)

Clinical Summary

Clinical summaries are one-page documents that provide guidance to primary care clinicians for using recommendations in practice.

This summary is intended for use by primary care clinicians.

View Clinical Summary
PDF Version (PDF Help)

Related Information for Consumers

- Screening for Oral Cancer: Consumer Guide

Related Information for Health Professionals

- Recommendations from The Community Preventive Services Task Force on Promoting Cancer Screening
- Cancer Control P.L.A.N.E.T.

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DETECTING ORAL CANCER

A Guide for Health Care Professionals

INCIDENCE AND SURVIVAL

Oral cancer accounts for roughly two percent of all cancers diagnosed annually in the United States. Approximately 36,500 people will be diagnosed with oral cancer each year and about 7,900 will die from the disease. On average, 61 percent of those with the disease will survive more than 5 years.

THE IMPORTANCE OF EARLY DETECTION

Early Detection Saves Lives

With **early detection** and timely treatment, deaths from oral cancer could be dramatically reduced.

The 5-year survival rate for those with localized disease at diagnosis is 83 percent compared with only 32 percent for those whose cancer has spread to other parts of the body.

Early detection of oral cancer is often possible. Tissue changes in the mouth that might signal the beginnings of cancer often can be seen and felt easily.

WARNING SIGNS

Lesions that might signal oral cancer

Two lesions that could be precursors to cancer are leukoplakia (white lesions) and erythroplakia (red lesions). Although less common than leukoplakia, erythroplakia and lesions with erythroplakic components have a much greater potential for becoming cancerous. Any white or red lesion that does not resolve itself in 2 weeks should be reevaluated and considered for biopsy to obtain a definitive diagnosis.

Other possible signs/symptoms of oral cancer

Possible signs/symptoms of oral cancer that your patients may report: a lump or thickening in the oral soft tissues, soreness or a feeling that something is caught in the throat, difficulty chewing or swallowing, ear pain, difficulty moving the jaw or tongue, hoarseness, numbness of the tongue or other areas of the mouth, or swelling of the jaw that causes dentures to fit poorly or become uncomfortable.

If the above problems persist for more than 2 weeks, a thorough clinical examination and laboratory tests, as necessary, should be performed to obtain a definitive diagnosis. If a diagnosis cannot be obtained, referral to the appropriate specialist is indicated.

RISK FACTORS

Tobacco and Alcohol Use

Most cases of oral cancer are linked to cigarette smoking, heavy alcohol use, or the use of both tobacco and alcohol together. *Using tobacco plus alcohol poses a much greater risk than using either substance alone.*

HPV

Infection with the sexually transmitted human papillomavirus (specifically the HPV 16 type) has been linked to a subset of oral cancers.

Age

Risk increases with age. Oral cancer most often occurs in people over the age of 40.

Sun exposure

Cancer of the lip can be caused by sun exposure.

Diet

A diet low in fruits and vegetables may play a role in oral cancer development.

WHAT YOU CAN DO

A thorough head and neck examination should be a routine part of each patient's dental visit. Clinicians should be particularly vigilant in checking those who use tobacco or excessive amounts of alcohol.

- **EXAMINE** your patients using the head and neck examination described here
- **TAKE A HISTORY** of their alcohol and tobacco use
- **INFORM** your patients of the association between tobacco use, alcohol use, and oral cancer
- **FOLLOW-UP** to make sure a definitive diagnosis is obtained on any possible signs/symptoms of oral cancer

THE EXAM

This **exam** is abstracted from the standardized oral examination method recommended by the World Health Organization. The method is consistent with those followed by the Centers for Disease Control and Prevention and the National Institutes of Health. It requires adequate lighting, a dental mouth mirror, two 2 x 2 gauze squares, and gloves; it should take no longer than 5 minutes.

THE EXAMINATION

Figure 1—Face

Figure 2—Lips

Figure 3—Labial mucosa

Figure 4—Labial mucosa

Figure 5—Right Buccal mucosa

Figure 6—Left Buccal mucosa

Figure 7—Gingiva

Figure 8—Tongue dorsum

Figure 9—Tongue left margin

Figure 10—Tongue right margin

Figure 11—Tongue ventral

Figure 15—Palpation

Figure 12—Floor

Figure 13—Hard palate

Figure 14—Oropharynx

The examination is conducted with the patient seated. Any intraoral prostheses are removed before starting. The extraoral and perioral tissues are examined first, followed by the intraoral tissues.

I. The Extraoral Examination
- FACE: *(Figure 1)*

II. Perioral and Intraoral Soft Tissue Examination
- LIPS: *(Figure 2)*
- LABIAL MUCOSA: *(Figures 3 and 4)*
- BUCCAL MUCOSA: *(Figures 5 and 6)*
- GINGIVA: *(Figure 7)*
- TONGUE: *(Figures 8–11)*
- FLOOR: *(Figure 12)*
- PALATE: *(Figures 13–15)*

ORAL LESIONS

Suspicious for Oral Cancer

Homogenous leukoplakia in the floor of the mouth in a smoker. Biopsy showed hyperkera-tosis.

Clinically, a leukoplakia on left buccal mucosa. However, the biopsy showed early squamous cell carcinoma. The lesion is suspicious because of the presence of nodules.

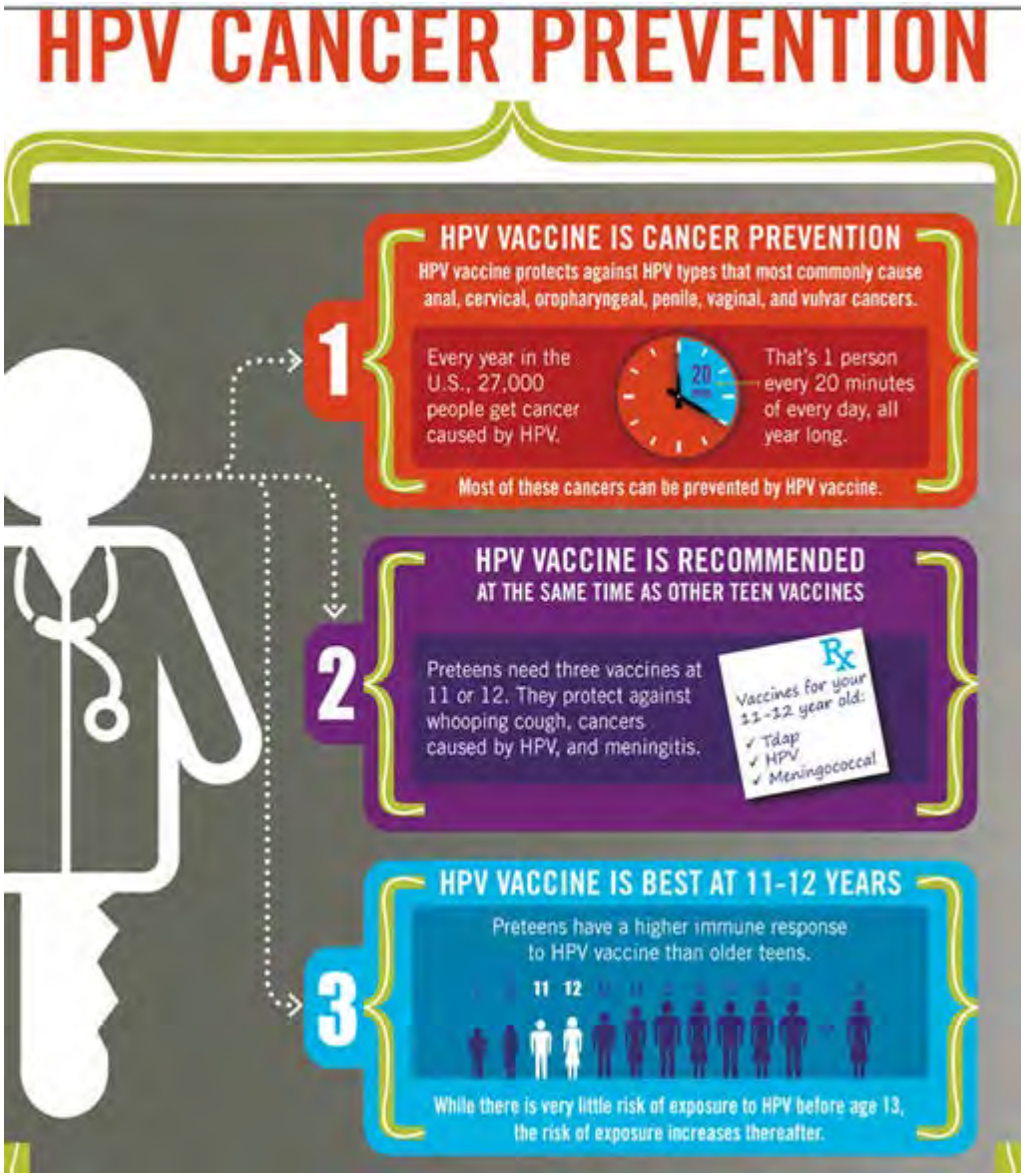
Nodular leukoplakia in right commissure. Biopsy showed severe epithelial dysplasia.

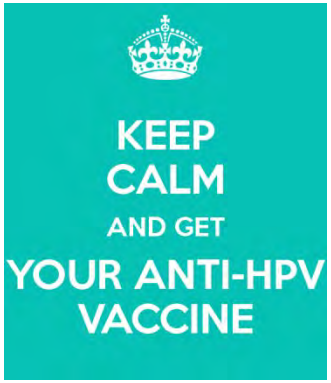
Erythroleukoplakia in left commissure and buccal mucosa. Biopsy showed mild epithelial dysplasia and presence of candida infection. A 2-3 week course of anti-fungal treatment may turn this type of lesion into a homogenous leukoplakia.

Prevention/ Protection?

Buy or Make a Dental Dam

Don’t Talk about SEX!!





HPV Vaccine Recommendations*

Population		Recommendation
Gender	**Age**	
All Females	11-26	**Routine** vaccination with HPV 9 **HPV4** or **HPV2** (ok as early as 9 yrs old)
All Males	11-21	**Routine** vaccination with **HPV4 or HPV 9** (ok as early as 9 yrs old)
	22-26	Permissive recommendation **HPV 4 and HPV 9**
MSM and HIV+ Males	22-26	**Routine** vaccination with **HPV 4 and HPV 9**

* Irrespective of history of abnormal Pap, HPV, genital warts

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Summary

- HPV is an important co factor in orophayngeal cancer and other head and neck cancers
- HPV related oropharyngeal cancer has better prognosis, tends to happen in younger age group than typical head and neck cancers
- Spread can be sexually transmitted and risk seems to be higher with more partners and with smoking
- Prevention is Key and HPV vaccine may be our best tool

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Source: www.denverptc.org