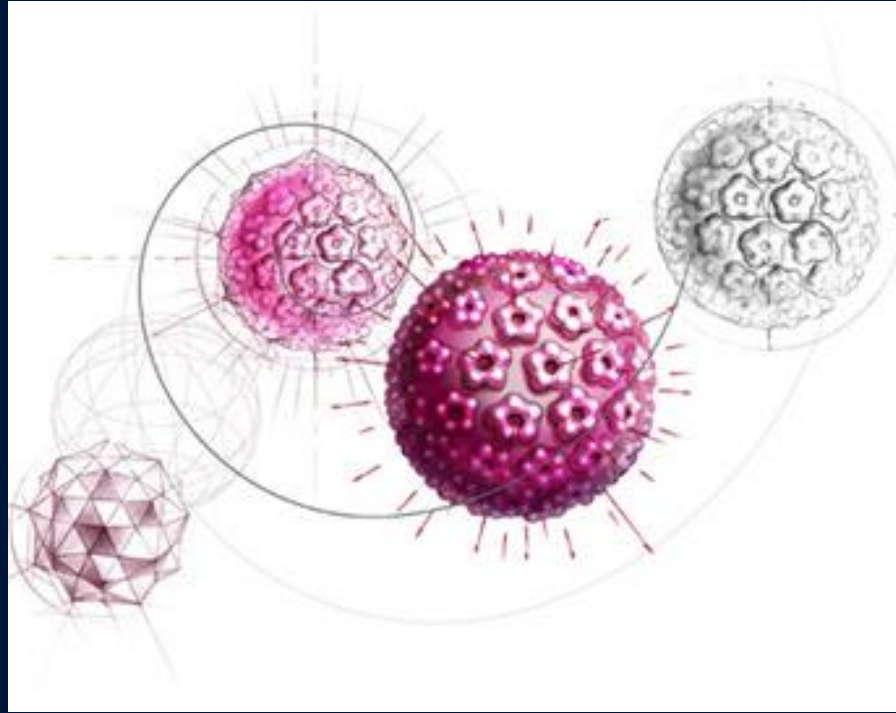


# INCREASING ADOLESCENT HPV UPTAKE



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# QUESTIONS

Let's get to know each other!

# Raise your hand if you work in a....

- Community pediatrician/family medicine office
- Health department
- Hospital
- School based health center
- Other

# Raise your hand if you are a.....

- Physician
- NP or PA
- Nurse
- Health educator
- Other

Raise your hand if your clinical site offers  
HPV vaccine

Raise your hand if the estimated % of HPV vaccine refusers are

- 0~%
- ~25%
- ~50%
- >75%

# Vaccines

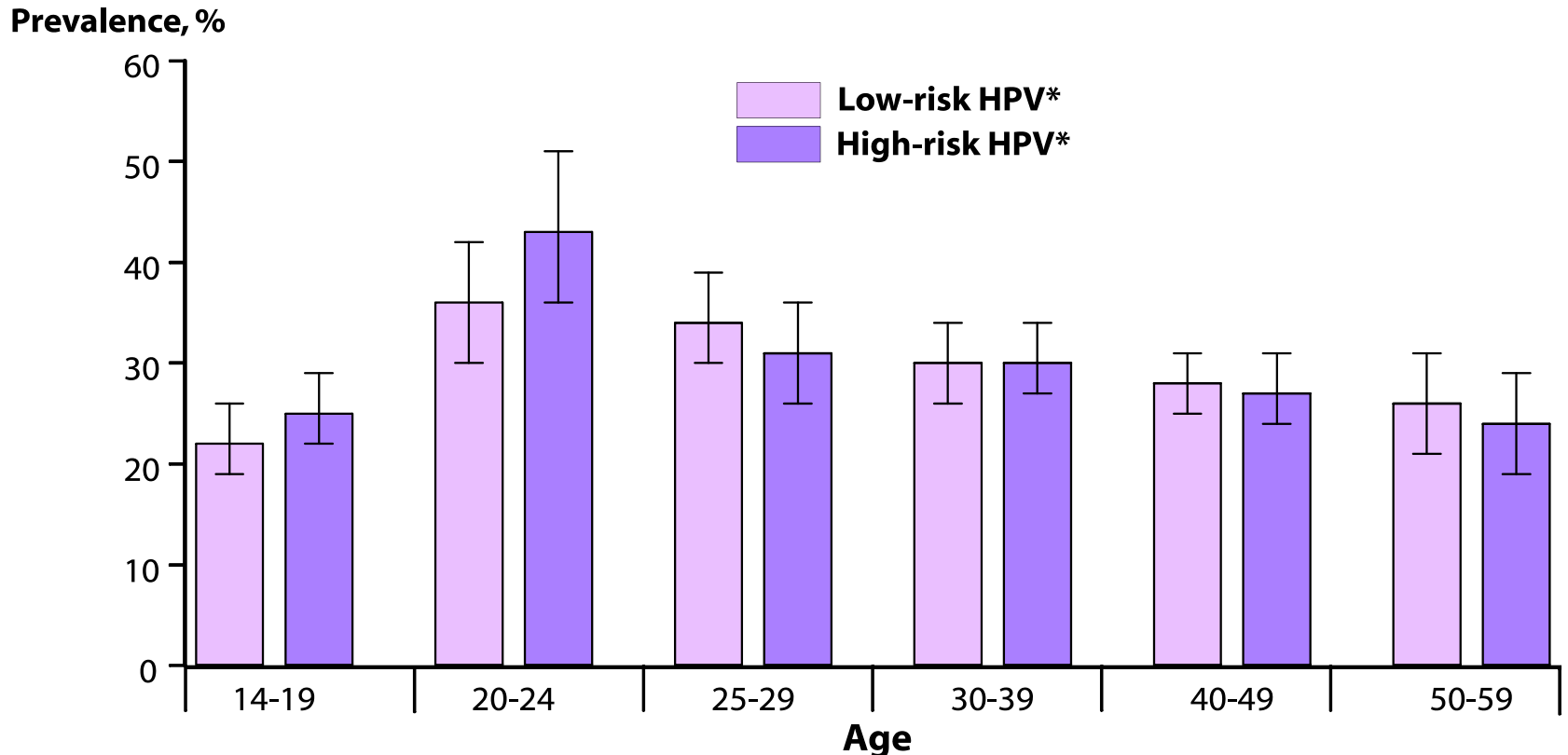
- 2 FDA-licensed HPV vaccines
- Cervarix
  - bivalent HPV vaccine
    - prevents HPV types 16/18
  - licensed for ♀
- Gardasil
  - quadrivalent HPV vaccine
    - prevents HPV types 16/18 & 6/11
  - licensed for ♂ & ♀

# HPV Disease Burden

It's bad!!



# Human Papillomavirus—Prevalence of High-risk and Low-risk Types Among Females Aged 14–59 Years, National Health and Nutrition Examination Survey, 2003–2006



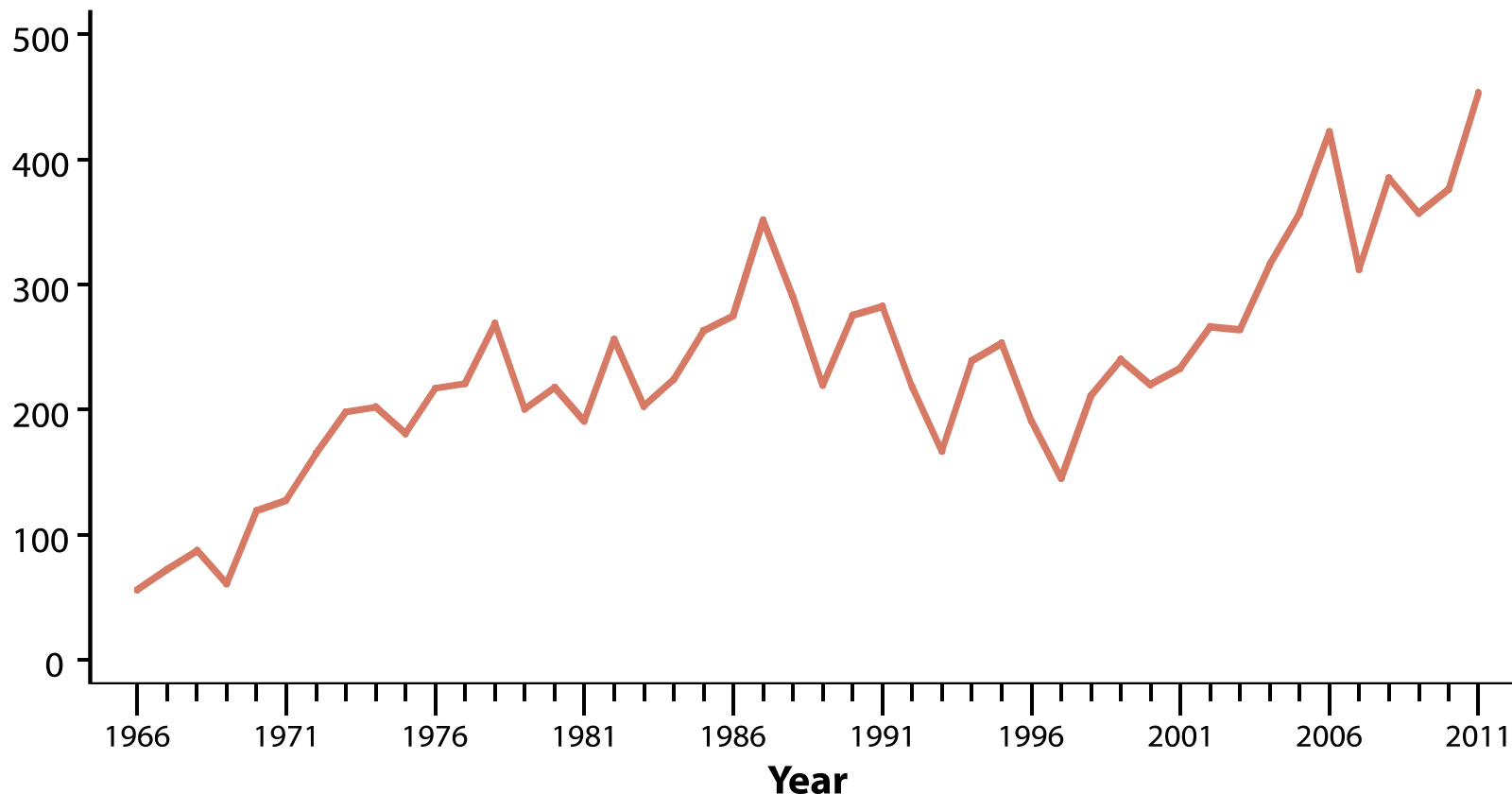
\*HPV=human papillomavirus.

**NOTE:** Error bars indicate 95% confidence intervals. Both high-risk and low-risk HPV types were detected in some females.

**SOURCE:** Hariri S, Unger ER, Sternberg M, Dunne EF, Swan D, Patel S, et al. Prevalence of genital HPV among females in the United States, the National Health and Nutrition Examination Survey, 2003-2006. J Infect Dis. 2011;204(4):566-73

# Genital Warts—Initial Visits to Physicians' Offices, United States, 1966–2011

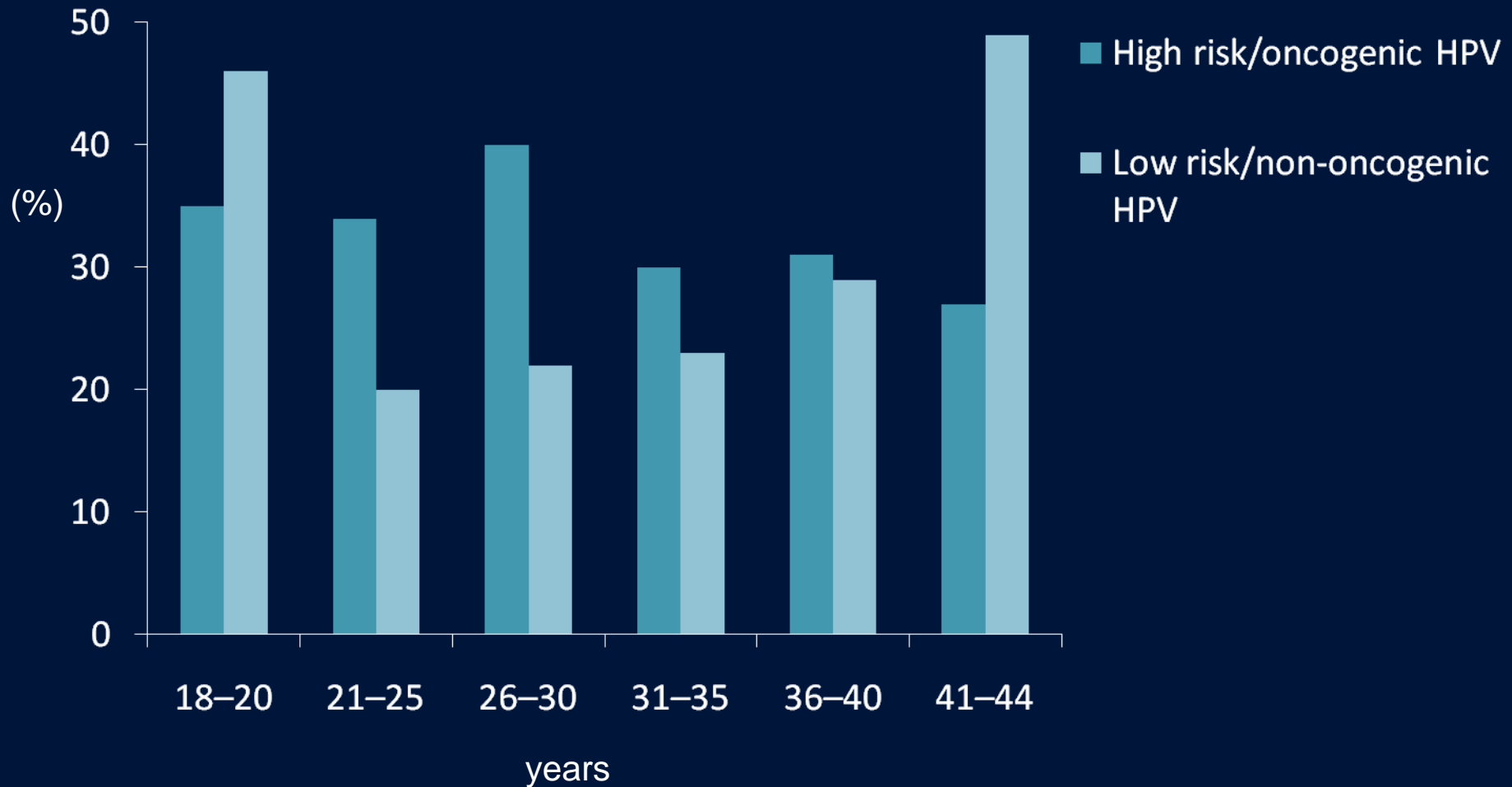
Visits (in thousands)



**NOTE:** The relative standard errors for genital warts estimates of more than 100,000 range from 18% to 30%.

**SOURCE:** IMS Health, Integrated Promotional Services™. IMS Health Report, 1966–2011.

# Genital HPV Prevalence Rates in Males

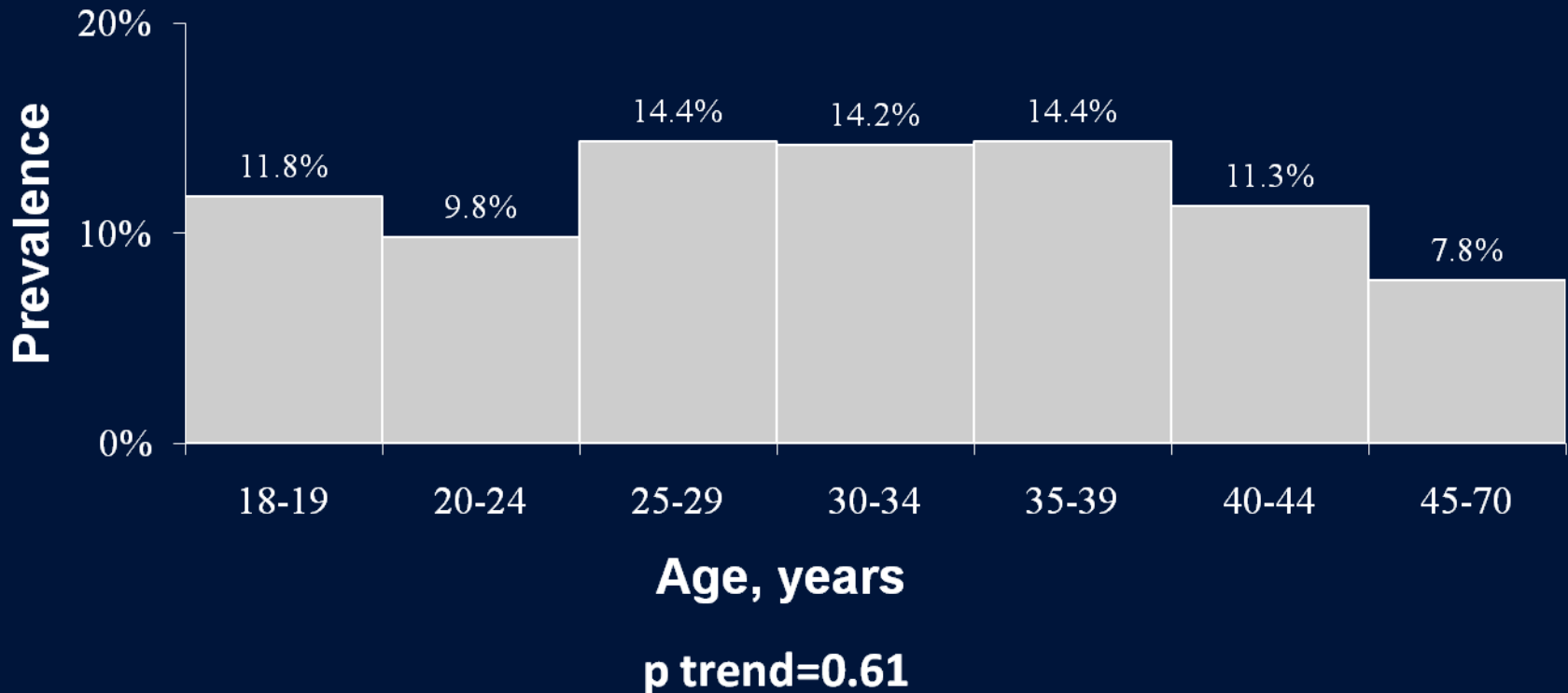


Males aged 18-44 years in Tucson, Arizona (N = 290).

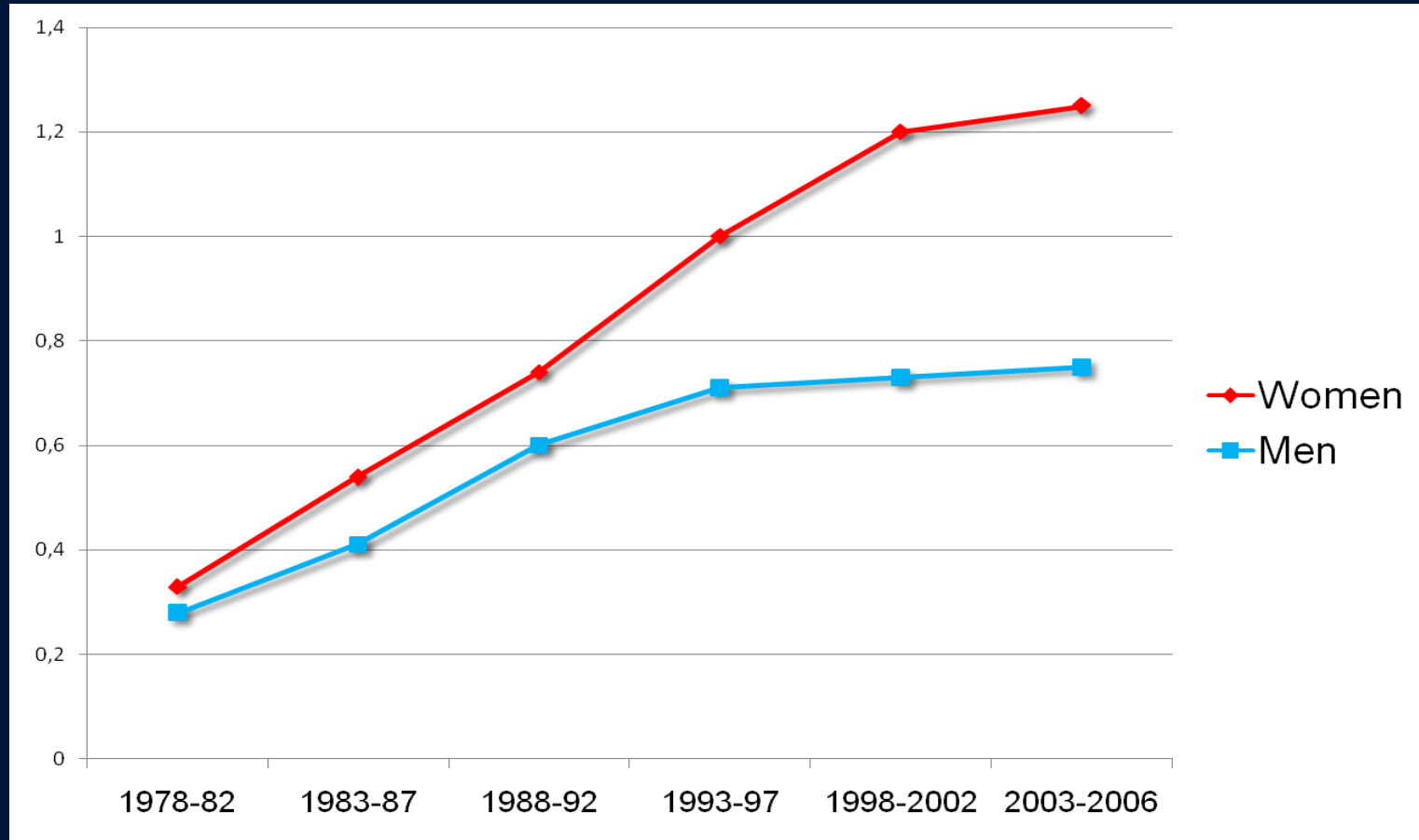
High-risk/oncogenic HPV types included 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66. Low-risk/non-oncogenic HPV types included 6, 11, 26, 40, 42, 53, 54, 55, 62, 64, 67-73, 81-84, IS39, CP6108.

Giuliano AR et al. *J Infect Dis.* 2008;198:827-835.

# Age-Specific Anal Canal HPV Prevalence Among Men Having Sex with Women



# The Burden of Anal Cancer is Increasing



Age standardized incidence rates of anal cancer in Denmark

↑ US anal cancer rates (~2.7%/year); **Rates** >>

# Anal Cancer Affects Women and Men

- Estimated 5,820      and      in US diagnosed with anal cancer in 2011
  - 3,680 in      and 2,140 in
- > 60% of anal CA cases and deaths occur in
- Anal CA can occur in heterosexual
  - 53% of male anal cancers occur in heterosexual

ACS. [www.cancer.org/Cancer/AnalCancer/DetailedGuide/anal-cancer-what-is-key-statistics](http://www.cancer.org/Cancer/AnalCancer/DetailedGuide/anal-cancer-what-is-key-statistics)

Last update: 10/25/2011

Nielsen IPV 2010

Daling et al Cancer 2004

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

Gillison ML, et al. JAMA 2012;307(7):693-703.

# Prevalence of Oral HPV Infection

## Methods

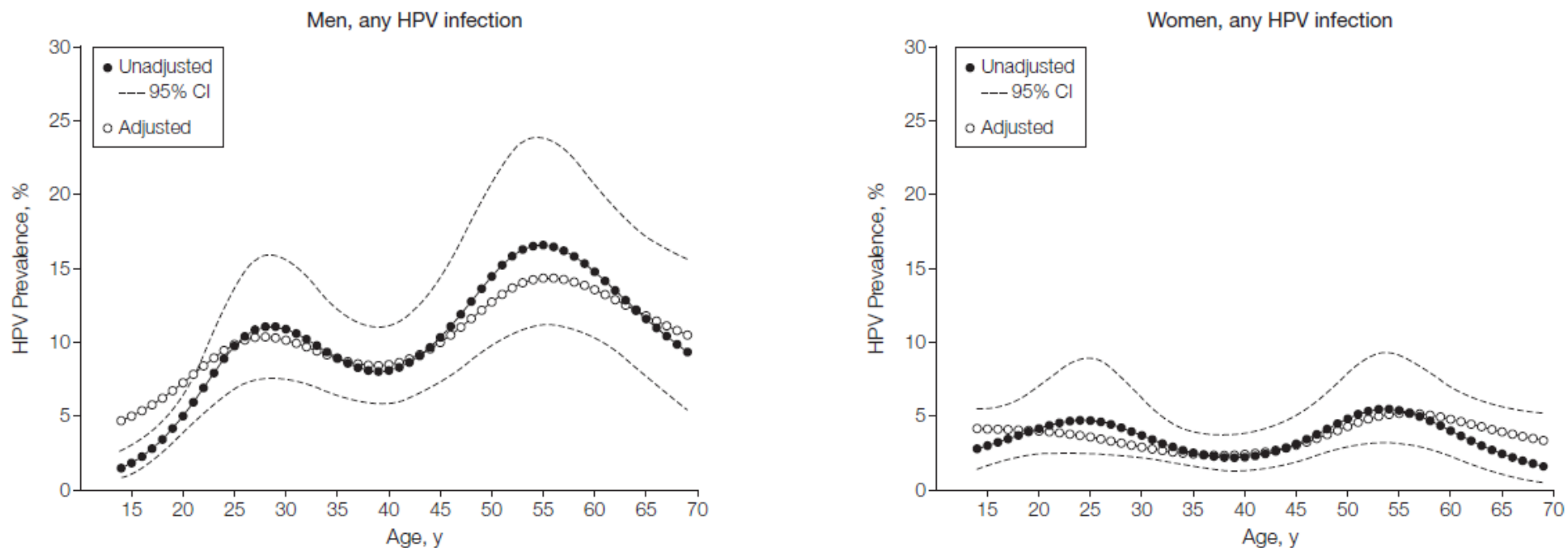
- 2009-2010 NHANES survey
- & aged 14 to 69 yrs
- Participants (N=5579) provided 30-sec oral rinse
- PCR and type-specific hybridization
- Demographic and behavioral data by standardized interview



# Prevalence of Oral HPV Infection Results

- Prevalence all HPV types = 6.9%
  - HPV type 16 prevalence = 1.0%
    - 85% of HPV-related OP cancers are positive for HPV-16
- Bimodal pattern for age
  - 30-34 yo = 7.3%
  - 60-64 yo = 11.4%
- (10.1%) >> (3.6%);  $PR=2.8$

**Figure 3.** Modeled HPV Prevalence Across Age in the US Population Aged 14 to 69 Years by Sex and HPV Types



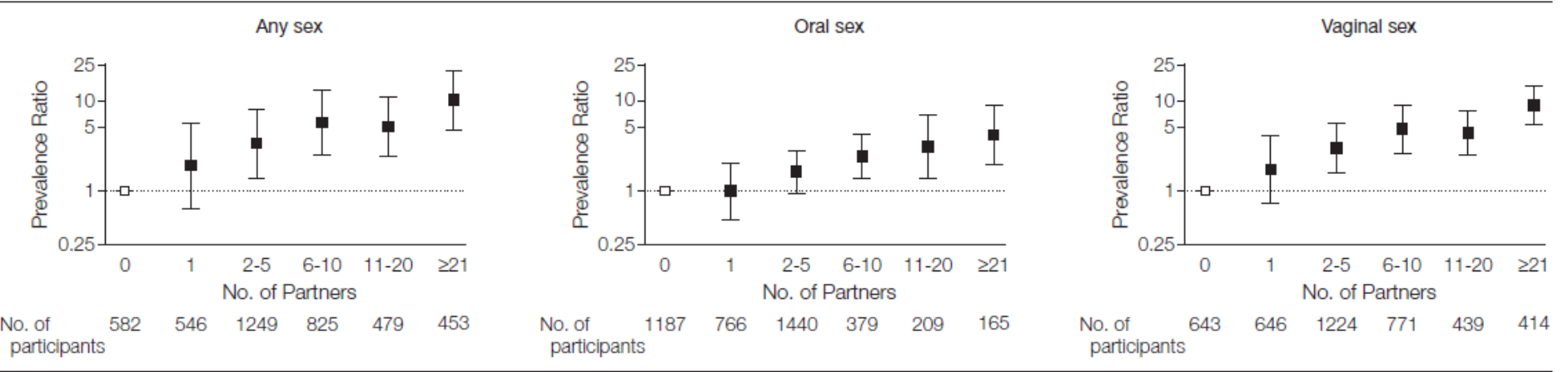
# What sexual behavior was most associated with oral HPV?

- Oral sex
- Vaginal sex
- Any sex
- No sex

# Oral HPV and Sex

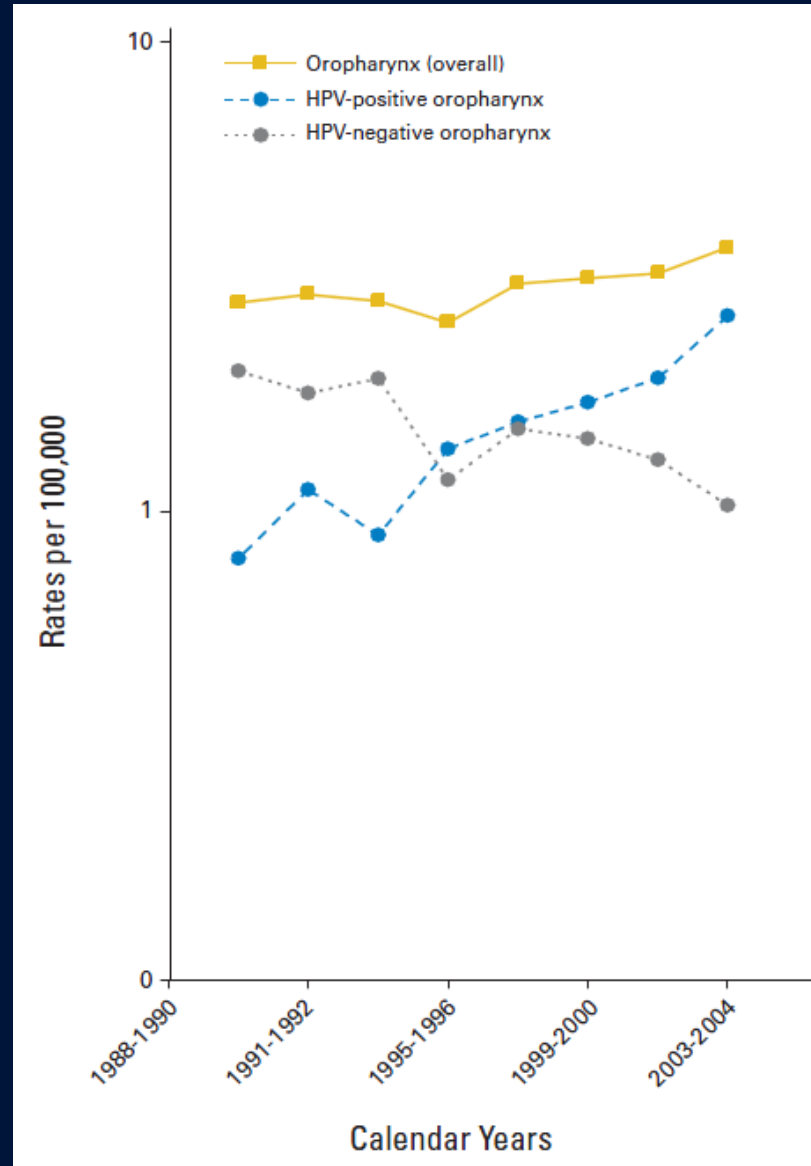
- > 8 x higher in persons report ever having had sex (7.5%) vs not (0.9%)
- ↑ with ↑ # partners for any kind of sex (vaginal sex, or oral sex)
- More common among sexually experienced individuals who did NOT perform oral sex vs. sexually inexperienced individuals
  - consistent with transmission by other sexually associated contact (eg, deep kissing)

**Figure 4.** Association of Number of Lifetime Sexual Partners With Prevalent Oral HPV Infection in the US Population Aged 14 to 59 Years



Human papillomavirus (HPV) prevalence ratio was adjusted for age (as a linear term), sex, race/ethnicity, marital status, and cigarette use. The analysis was restricted to individuals aged 14 to 59 years, for whom detailed sexual behavior data were available. Given high colinearity across sexual behaviors, each behavior was evaluated in separate models.  $P < .001$  for trend in all 3 categories of sexual partner. Lifetime number of partners for performing oral sex included the sum of same- and opposite-sex partners; the reference category was 0 lifetime partners. Error bars indicate 95% CIs.

# Incidence rates for overall oropharyngeal cancer, HPV-positive oropharyngeal cancers, and HPV-negative oropharyngeal cancers during 1988 -2004 in Hawaii, Iowa, and Los Angeles.



# Oral HPV transmission??!!

Unclear what types of oral  
contact are risk

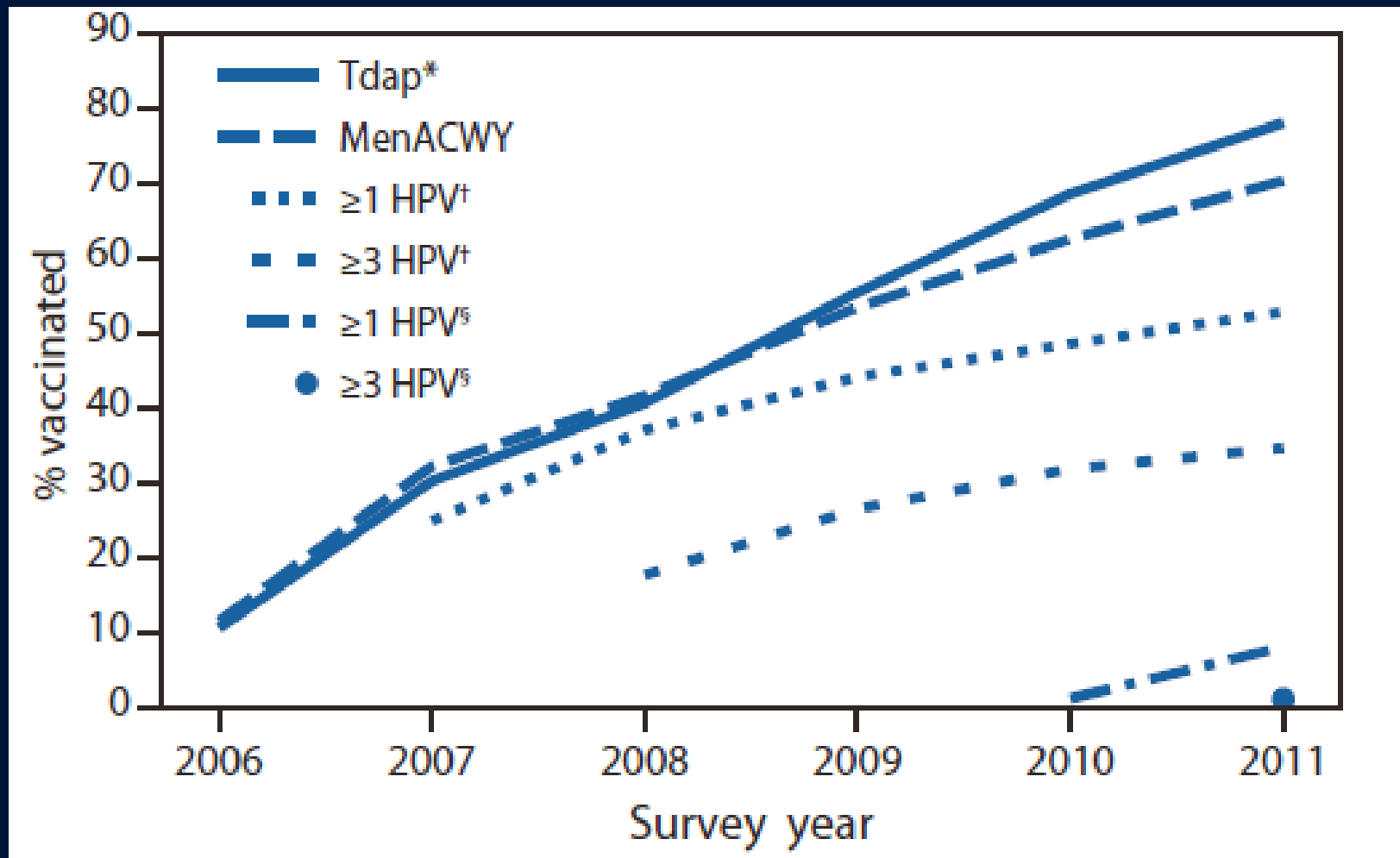
# Estimated average annual % and # of cancers attributable to HPV, by anatomic site and sex — United States, 2004–8

ANATOMIC AREA	AVG ANNUAL # of CASES	% attributable to HPV	# attributable to HPV
<b>FEMALE</b>			
Cervix	11,967	96	11,500
Vagina	729	64	500
Vulva	3,136	51	1,600
Anus	3,089	93	2,900
Oropharynx	2370	63	1,500
<b>TOTAL:FEMALE</b>	<b>21,227</b>	<b>1,754</b>	<b>17,880</b>
<b>MALE</b>			
Penis	1,046	36	400
Anus	1678	93	1,600
Oropharynx	9356	63	5,900
<b>TOTAL:MALE</b>	<b>11,553</b>	<b>7490</b>	<b>7080</b>



**HOW ARE WE DOING WITH HPV  
IMMUNIZATION RATES?**

# Estimated Vaccination Coverage among 13-17 yr old, NIS-Teen, US, 2006-20011



\*  $\geq 10$  yrs; † among ; among