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# Head and Neck Cancer and Sexuality in the HPV era: Common patient questions and answers

Eleni Rettig, MD

## MASCC/ISOO

Annual Meeting on Supportive Care in Cancer

[www.mascc.org/meeting](http://www.mascc.org/meeting)

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Multinational Association  
of Supportive Care in Cancer

**ISOO**  
INTERNATIONAL SOCIETY  
OF ORAL ONCOLOGY



#MASCC19

# Disclosures

- None



# Objectives

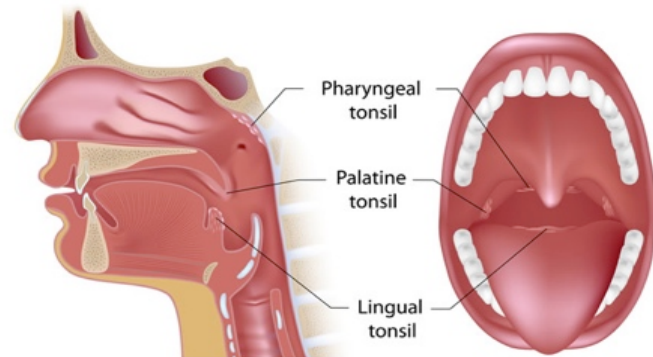
- Describe how HPV has changed the field of head and neck cancer
- Discuss common questions that patients ask about HPV-related head and neck cancer



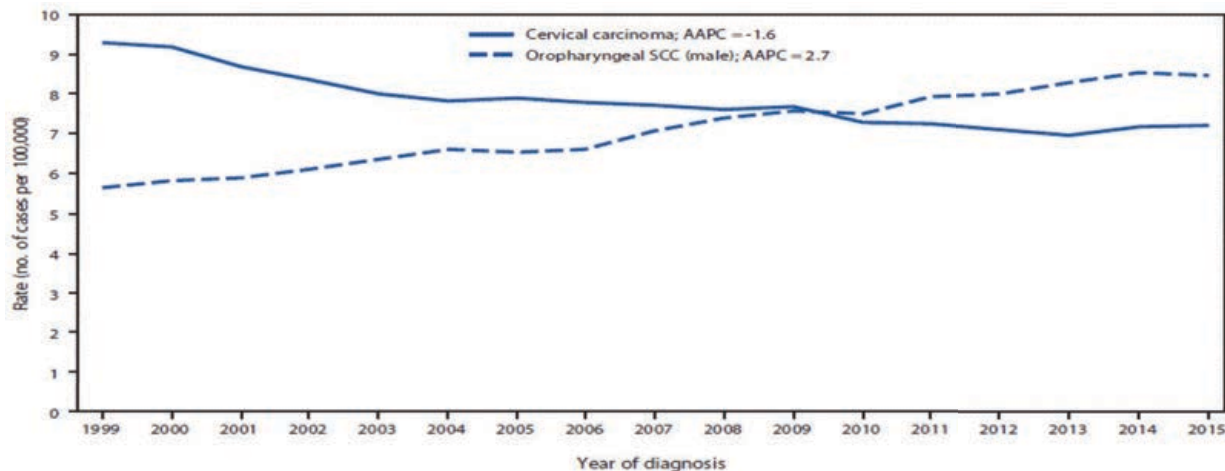
# Background

HPV now causes a growing majority (70-90%) of oropharyngeal squamous cell carcinomas (OPCs)

- Arise from lymphoid tissue of oropharynx
  - Palatine tonsils
  - Lingual tonsils, aka tongue base
- HPV16 causes vast majority (~90%)
- Improved prognosis compared with HPV-negative disease
- Highest incidence: middle-aged white men
- Incidence rising dramatically in U.S.



# HPV-OPC 'epidemic'



- OPC more common than cervical cancer in the U.S.
- Average annual percentage change in incidence, 1999-2015:
  - Cervical cancer: -1.6%
  - OPC, men: +2.7%





# HPV-positive vs. HPV-negative HNC patients



Characteristic	HPV-positive OPC (compared with HPV-negative HNC)
Smoking	Less common (~50% vs. >90% with tobacco history)
Sex	Higher male predominance (4-5x vs. 2-3x)
Race	Higher prevalence of non-Hispanic whites
Age	Younger (Median 50s vs. 60s)
Comorbidities	Fewer
Socioeconomic status	Higher income, more educated
Sexual behaviors	More sexual partners



# HPV-OPC patient counseling

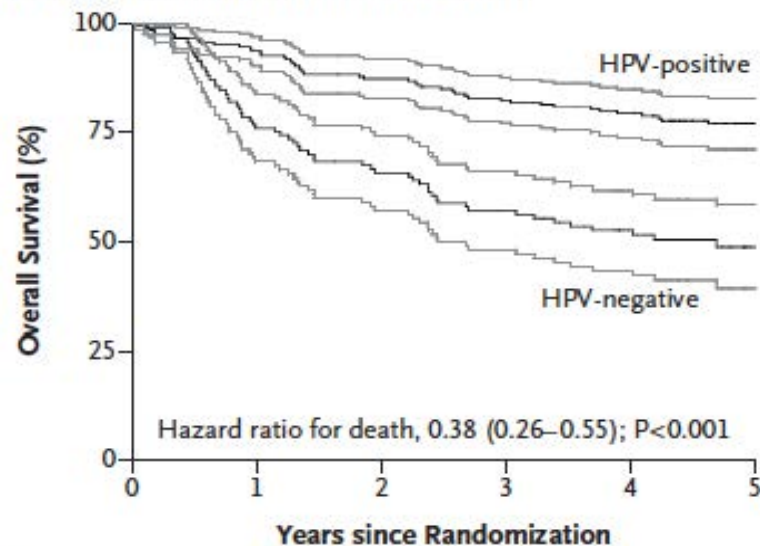
- Unique psychosocial considerations of STI-related cancer
  - Guilt, self-blame
  - Concern for transmission between partners
- Significant HPV knowledge gaps among OPC patients
  - Poor performance on questions re: transmission, prevalence, health consequences
  - Sources utilized for information:  
81% internet vs. 38% healthcare provider
- Incumbent on care team to provide guidance re: accurate information (area of future study)



# 1. Why does HPV matter? (Why are you telling me this?)

- Improved survival
- Different AJCC staging system
- Deintensified treatment (under investigation)

A Overall Survival According to Tumor HPV Status



Ang et al *NEJM* 2010



## 2. How did I get HPV-OPC?

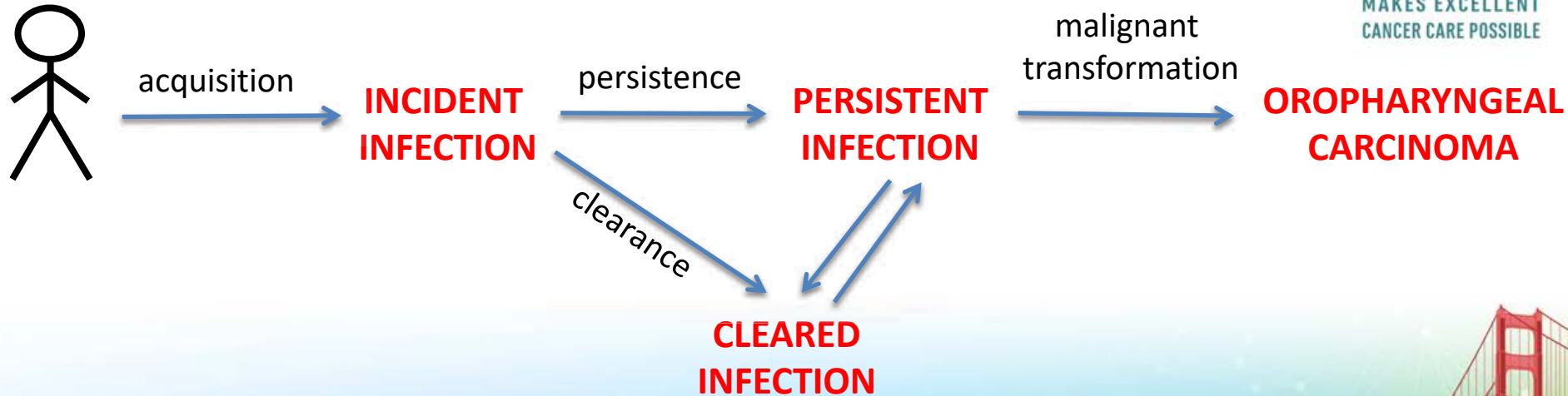
- HPV is a very common sexually transmitted infection of the anogenital tract and oral cavity/oropharynx
  - >80% U.S. individuals exposed to HPV by 45 years old
  - Prevalence:

	Any HPV	HR-HPV
Anogenital	42.5%	22.7%
Oral	7.3%	4%

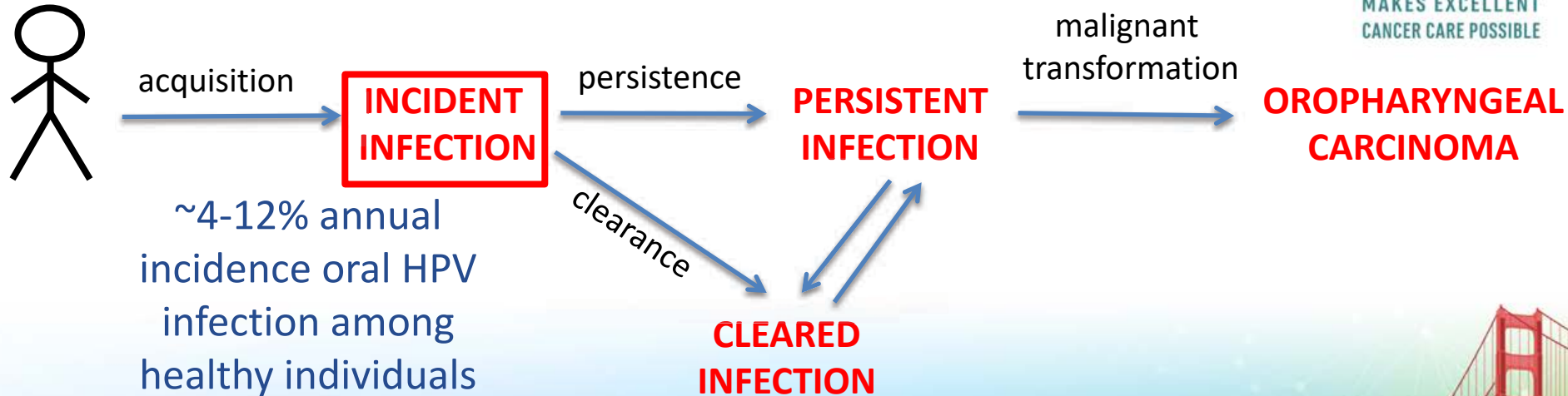
- Oral HPV infection is the putative precursor to HPV-OPC



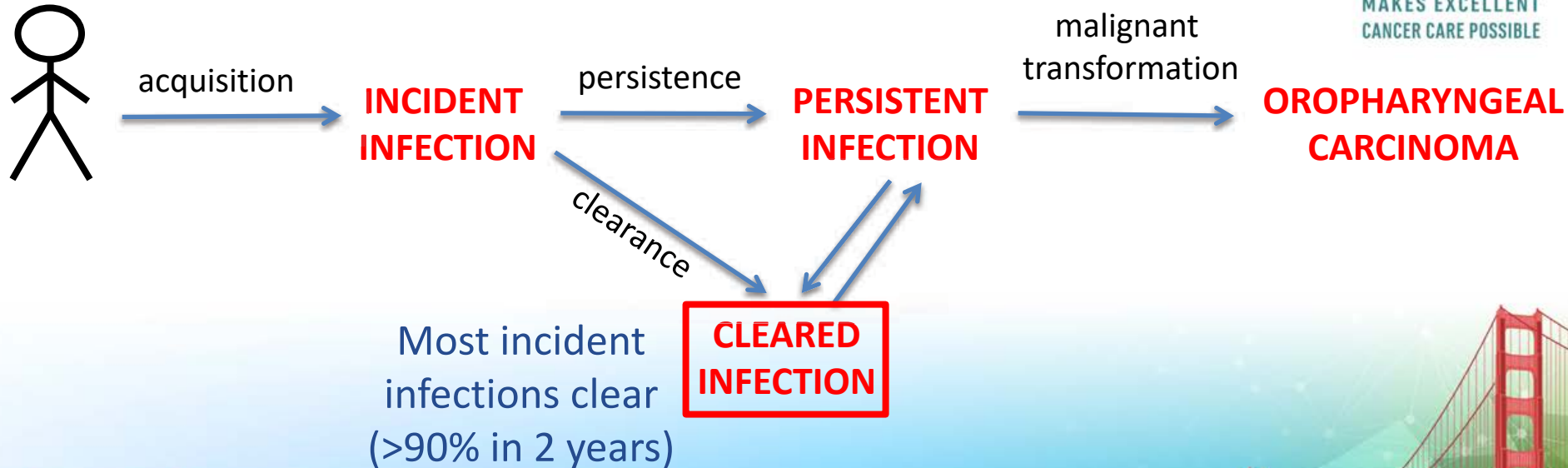
# Progression from oral HPV infection to HPV-OPC



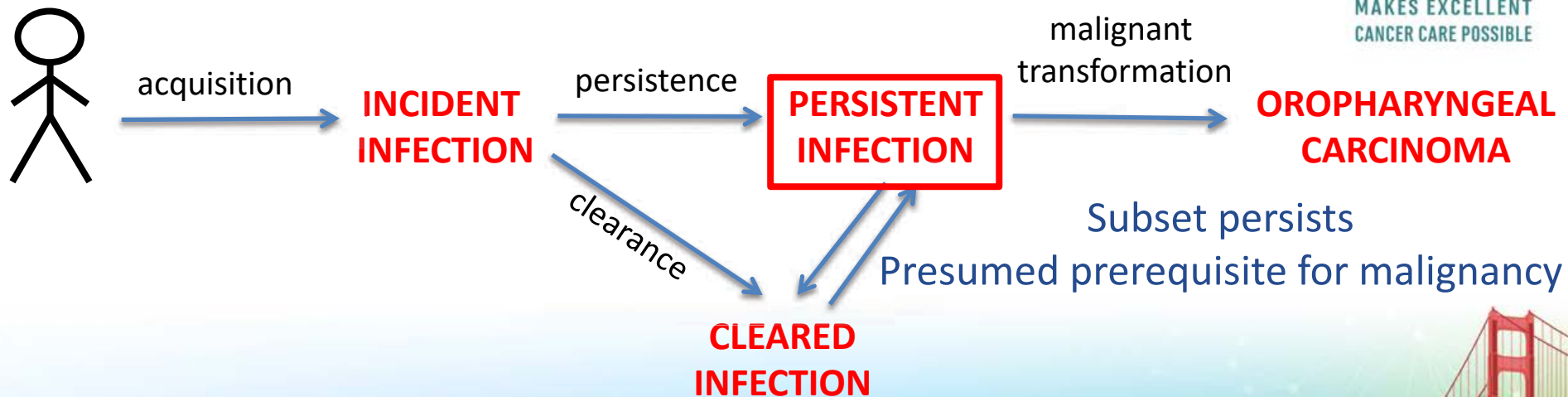
# Progression from oral HPV infection to HPV-OPC



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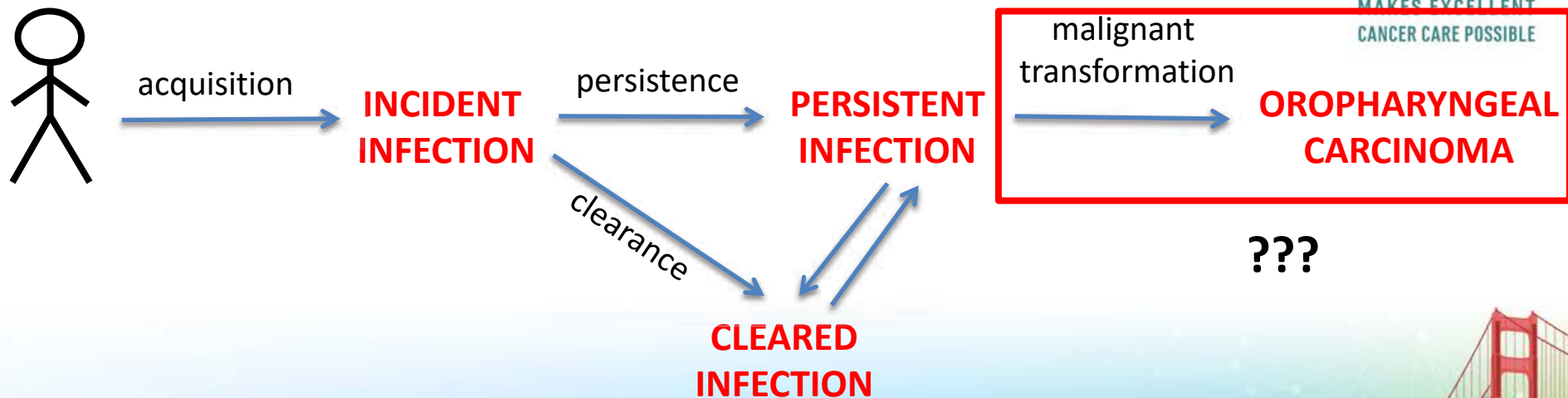


# Progression from oral HPV infection to HPV-OPC





# Progression from oral HPV infection to HPV-OPC



# 3. Are oral HPV infection and HPV-OPC caused by oral sex?

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

## Case–Control Study of Human Papillomavirus and Oropharyngeal Cancer

Gypsyamber D'Souza, Ph.D., Aimee R. Kreimer, Ph.D., Raphael Viscidi, M.D., Michael Pawlita, M.D., Carole Fakhry, M.D., M.P.H., Wayne M. Koch, M.D., William H. Westra, M.D., and Maura L. Gillison, M.D., Ph.D.

OPC associated with:

- Higher # oral sex partners      6+: OR 3.4, 95%CI 1.3-8.8
- Higher # vaginal sex partners      26+: OR 3.1, 95%CI 1.5-6.5



# Risk factors for oral HPV infection and HPV-OPC



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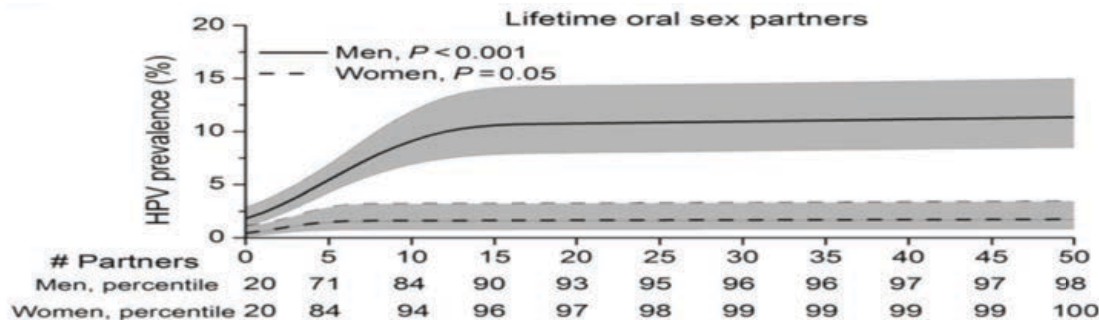
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	Risk factors	Incident infection	Prevalent infection	Persistent infection	HPV-OPC
Sexual behaviors	➤ Oral sex	X	X		X
	➤ Any sex	X	X		X
	➤ Deep kissing	X	X		
Other factors	➤ <b>Male sex</b>		X	X	X
	➤ <b>Tobacco use</b>	X	X	X	X
	➤ Age		X	X	X
	➤ Race		X		X
	➤ Immune suppression/ HIV infection	X	X	X	X
	➤ Marijuana use		X		X



# Male sex & oral HPV infection

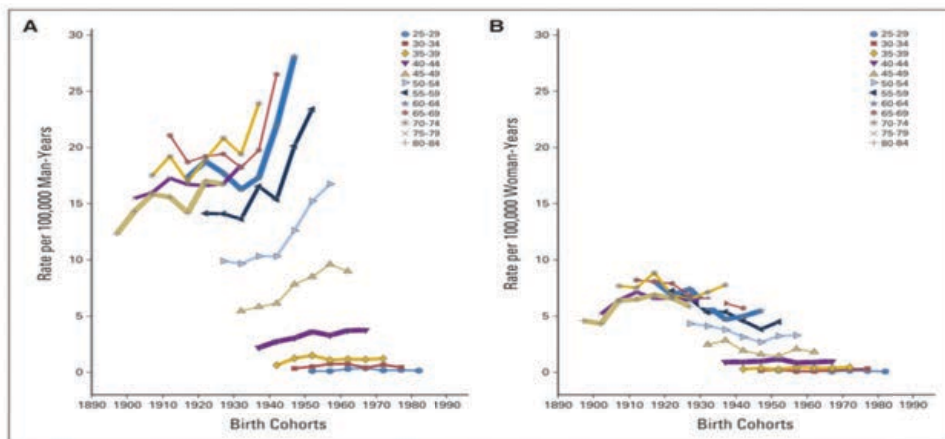
- Men have 3-5x higher prevalence oral HPV infection
- NHANES: Male sex modifies association of oral sex with prevalent oral oncogenic HPV infection



- Performing oral sex on a woman higher risk than on a man
- Immunologic differences by sex & anatomical site of exposure
- Low rates of viral clearance among men

# Male sex & OPC

- OPC 4.2x more common among men than women
  - Incidence rising among men but not women



**Fig 1.** Shown are incidence rates for oropharyngeal cancers among (A) men and (B) women, stratified by cohort year of birth (in 10-year overlapping groups) and age (in 5-years groups). Data were derived from nine cancer registries covered by the National Cancer Institute's SEER program (1973 to 2011). Oropharyngeal cancers include the base of tongue, lingual tonsil, soft palate, uvula, tonsil, oropharynx, and Waldeyer's ring.

- OPC 3.2x more common among lesbians & bisexual women than heterosexual women





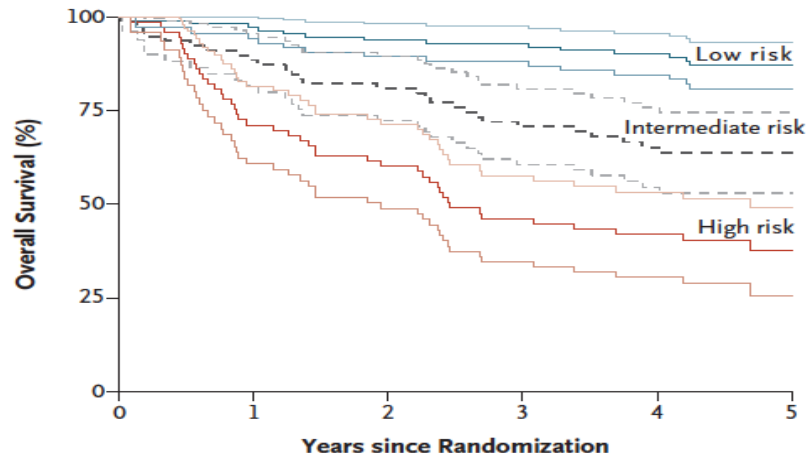
# Smoking & oral HPV infection

- Increasing measures of smoking behaviors associated with higher prevalence, incidence and persistence of oral HPV infection
  - Prevalence 4x higher among current vs. never/former smokers
  - Due to smoking-related local immune suppression?



# Smoking & HPV-OPC

- Smoking increases risk of HPV-OPC (RR 2.3)
- Higher burden of genetic alterations
- Smoking associated with worse survival for HPV-OPC



## Risk stratification for HPV-OPC:

- $\leq 10$  pack-years: low
- $> 10$  pack-years: depends on N stage
  - N0-N2a: low
  - N2b-N3: intermediate



# 4. How long ago did I get the oral HPV infection that caused my cancer?

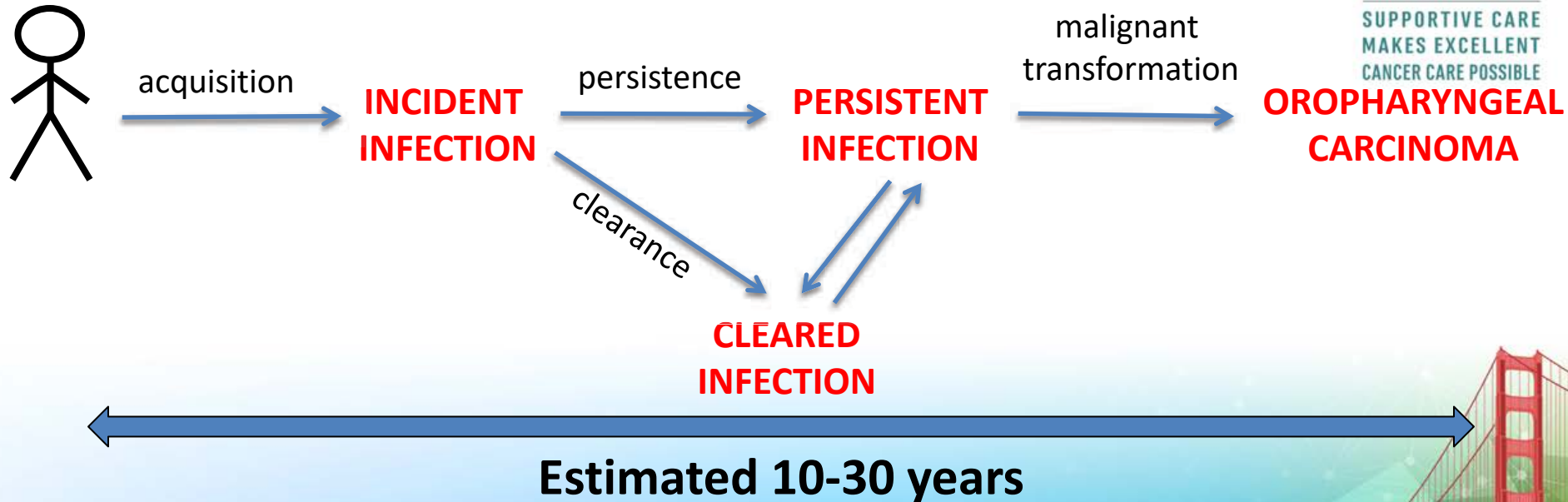


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# Latency period from infection to cancer

- **Oral HPV16 infection** ave. 4 years prior to HPV-OPC
  - Oral HPV16 DNA in oral rinses → 22-fold higher odds OPC ave. 4 years later
- **HPV16 antibodies** 10+ years before cancer
  - Seropositivity for HPV16 L1/2 antibodies
  - Seropositivity for HPV16 E6 antibodies >90% sensitive & specific for HPV-OPC



## 5. How many people with oral HPV infection get cancer?

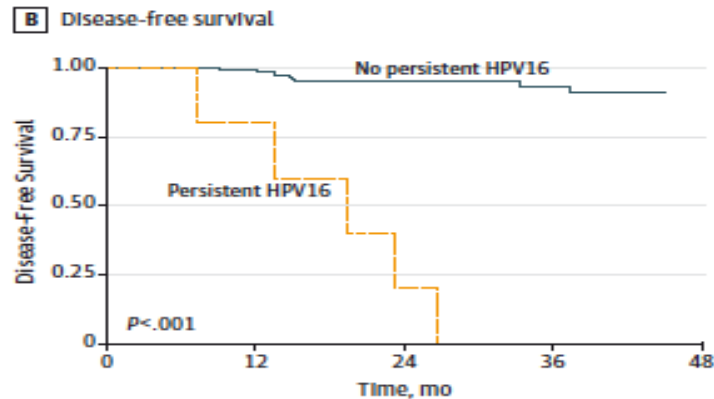
- Oncogenic HPV prevalence: 400 per 10,000
- Lifetime risk of HPV-OPC: 37 per 10,000
- High risk group: Men 50-59 years old
  - 8.1% oncogenic oral HPV prevalence
  - 0.7% lifetime risk of OPC





## 6. Am I contagious?

- HPV DNA is detectable in up to 80% of oral rinses from HPV-OPC patients
  - Unknown infectious potential in this form
  - After successful treatment, HPV DNA rarely detected; persistence is poor prognostic factor



## 7. Is my partner at risk for HPV-OPC?

- May be at slightly increased risk - shared exposures
- HPV-related cancers among partners of HPV-OPC patients:
  - Slightly increased (1-3%) risk of HPV-related cancers among partners of patients with other HPV-related cancers
  - Case reports of concurrent HPV-OPC among couples (N=9)
- Oral HPV infection prevalence among partners of HPV-OPC patients is similar to general population
  - HOTSPOT study: Oncogenic HPV detected in 1.2% of partners vs. 61% HPV-OPC patients



## 8. Should I change my behavior with my current partner?

- No evidence to support change in sexual practices for HPV-OPC patients
- Oral HPV not casually transmitted



## 9. What should I tell my partner(s) about my HPV status?

- No specific obligation to share HPV status with partners
- Former/current partners:
  - Already exposed
  - Exposure is common; progression to cancer is rare
  - Follow cervical cancer screening guidelines
- Future partners:
  - Consider protection – barrier use associated with decreased oral HPV infection



# 10. Does everyone who has HPV-OPC have a history of promiscuity?

No!

Table 2. Associations of Oropharyngeal Cancer with Sexual Behaviors.*		
Sexual Behavior	Patients with Oropharyngeal Cancer (N = 100)	Control Patients (N = 200)
	number (percent)	
Lifetime no. of vaginal-sex partners		
0–5	31 (31)	108 (54)
6–25	41 (41)	63 (32)
≥26	28 (28)	29 (14)
Lifetime no. of oral-sex partners		
0	12 (12)	38 (19)
1–5	46 (46)	110 (55)
≥6	42 (42)	52 (26)

D'souza et al *NEJM* 2007



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# 11. Should my partner be screened for oral HPV infection or HPV-OPC?



- No screening currently recommended



# Screening for HPV-OPC

- Criteria for evidence-based screening (secondary prevention):

## Screening for Human Papillomavirus-Driven Oropharyngeal Cancer: Considerations for Feasibility and Strategies for Research

Aimée R. Kreimer, PhD <sup>1</sup>; Meredith S. Shiels, PhD<sup>1</sup>; Carole Fakhry, MD <sup>2</sup>; Mattias Johansson, PhD<sup>3</sup>;  
Michael Pawlita, MD<sup>4</sup>; Paul Brennan, PhD<sup>5</sup>; Allan Hildesheim, PhD<sup>1</sup>; and Tim Waterboer, PhD<sup>5</sup>

1. High enough incidence of disease
  2. Sensitive & specific screening tool/biomarker
  3. Ability to diagnose cancer/precancer in individuals with positive screen
  4. Effective treatment for early-stage disease identified through screening
  5. Reduced morbidity/mortality as a result of screening
- Optimistic estimate to detect 1 case: >6000 white men screened!
  - Clinical trials currently investigating screening (MOUTH, HOUSTON)



## 12. Should I get the vaccine?

- No evidence to support vaccination among HPV-OPC patients
- Therapeutic HPV16 vaccines are being studied in clinical trials



# Summary

- HPV is common;  
oral HPV infection is rare;  
transformation to HPV-OPC is rarer still
- Patients needn't sacrifice intimacy over  
transmission concerns (but everyone should  
sacrifice smoking)
- Vaccinate!



# Thank you

