

# **Oral Cancer Risk Factors**

Linda M Kaste, DDS, MS, PhD

Diplomate, American Board of Dental Public Health

Professor, University of Illinois at Chicago College of Dentistry

# Objective and Content

## Objective:

- The session attendees will be able to: discuss updates about risk factors including subsite specific associations in the United States

## Meta-analyses:

- Traditional risk factors for oral cavity (OCC) and oropharyngeal (OPC) cancers
- HPV

INHANCE pooled data

# Methods

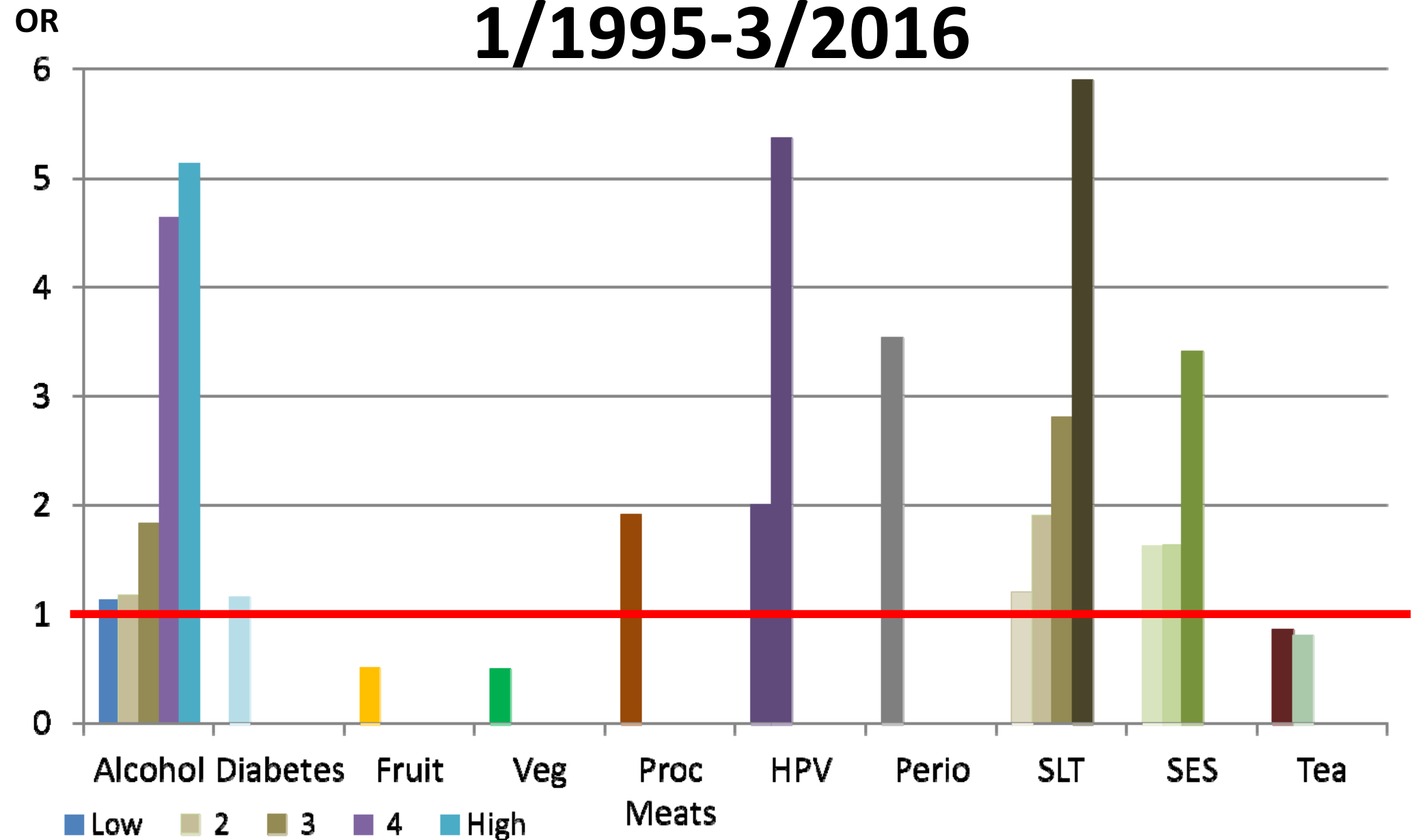
- Targeted literature review
  - Published January 1995 – March 2016
  - English
  - If at least one clinical trial was from the US
- MeSH terms
  - Behavior, risk
  - Risk reduction behavior
  - Risk factors
  - Risk assessment

# Meta-analyses of Oral Cavity Cancer (OCC)

## Risk Factors: 1995-2016

- 12 identified with statistical significance
- Tobacco (smoking)
  - No meta-analyses
  - Often included as an adjustment factor
- Most frequently assessed, 2 each
  - Alcohol
  - Diet
  - HPV
  - Smokeless tobacco

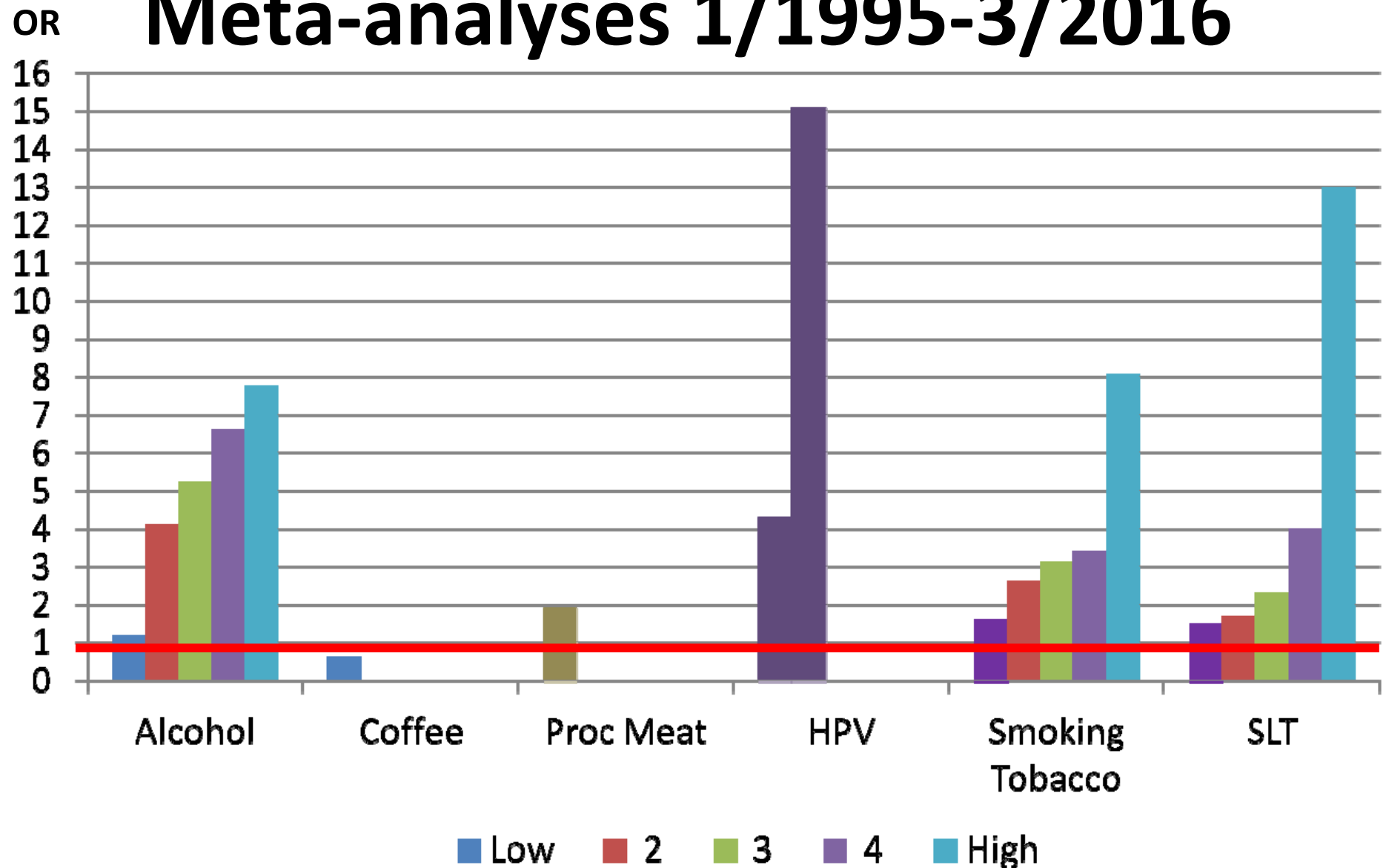
# Statistically Significant Risk Factors for Oral Cavity Cancers (OCC): Meta-analyses 1/1995-3/2016



# Meta-analyses of Oropharyngeal Cancer (OPC) Risk Factors: 1995-2016

- 7 identified
- Most frequently assessed with 2 was Alcohol
- Only one factor preventive = Coffee
- Particularly high risks
  - [note scale on next slide compared to 6 on previous slide]
  - Heavy alcohol drinking
  - HPV
  - Smoking tobacco
  - Smokeless tobacco

# Statistically Significant Risk Factors for Oropharyngeal Cancers (OPC): Meta-analyses 1/1995-3/2016



# INHANCE

**I**nternational **H**ead **A**nd **N**eck **C**ancer **E**pidemiology  
Consortium

Additional Insight on Risk Factors



# INHANCE

- International Head and Neck Cancer Epidemiology (INHANCE) Consortium
- <http://www.inhance.utah.edu/>
- Established in 2004
- Collectively:
  - 26,000+ cases
  - 34,000+ controls
- Conducted in various regions of the world

# INHANCE Pooled Data for Subsites of Interest: Reports 1/1995-3/2016

27 papers

- 8: Diet
- 5: Smoking Tobacco/Smoking Tobacco & Alcohol
- 4: Height/BMI
- 1: Age, Alcohol, Coffee, Diabetes, Family History, Marijuana, Mouthwash, Recreational Activity, Sex Behaviors, and SES

OCC = Oral Cavity Cancer

OPC = Oropharyngeal Cancer

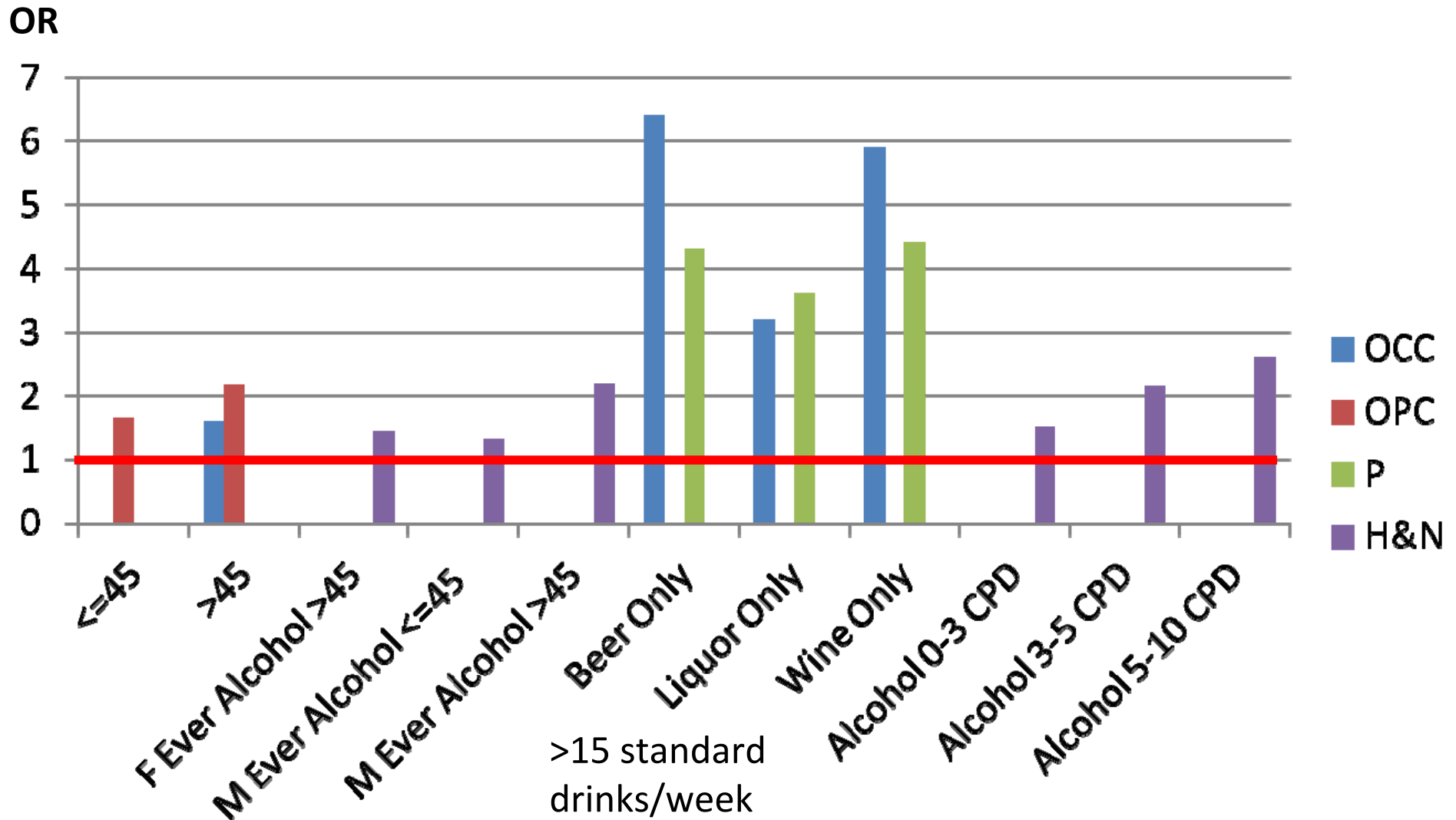
P = Cancer of the Pharynx

H&N = Cancer of the Head and Neck

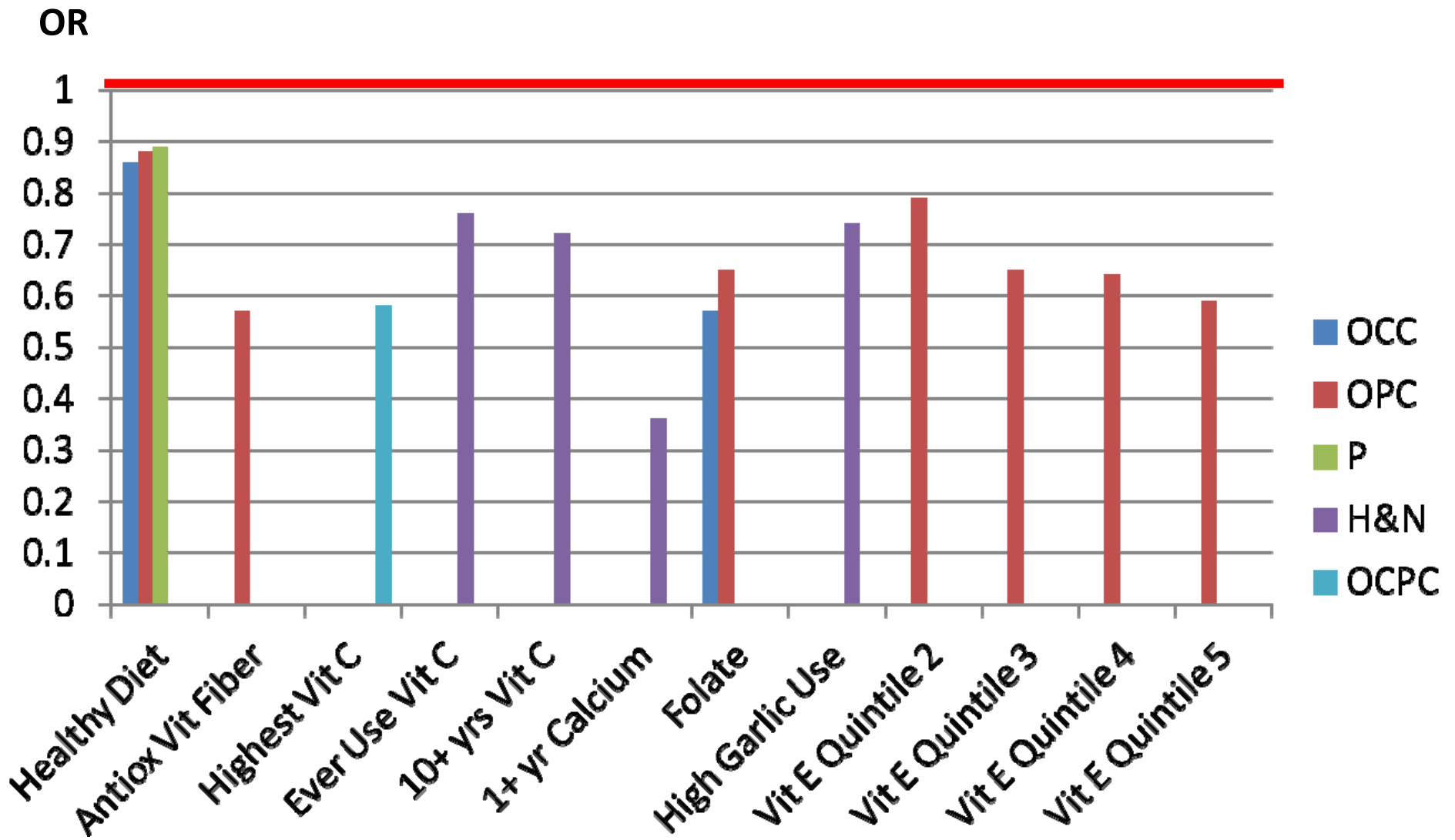
OCPC = Oral Cavity and Pharynx Cancer

BOT = Cancer at the Base of Tongue

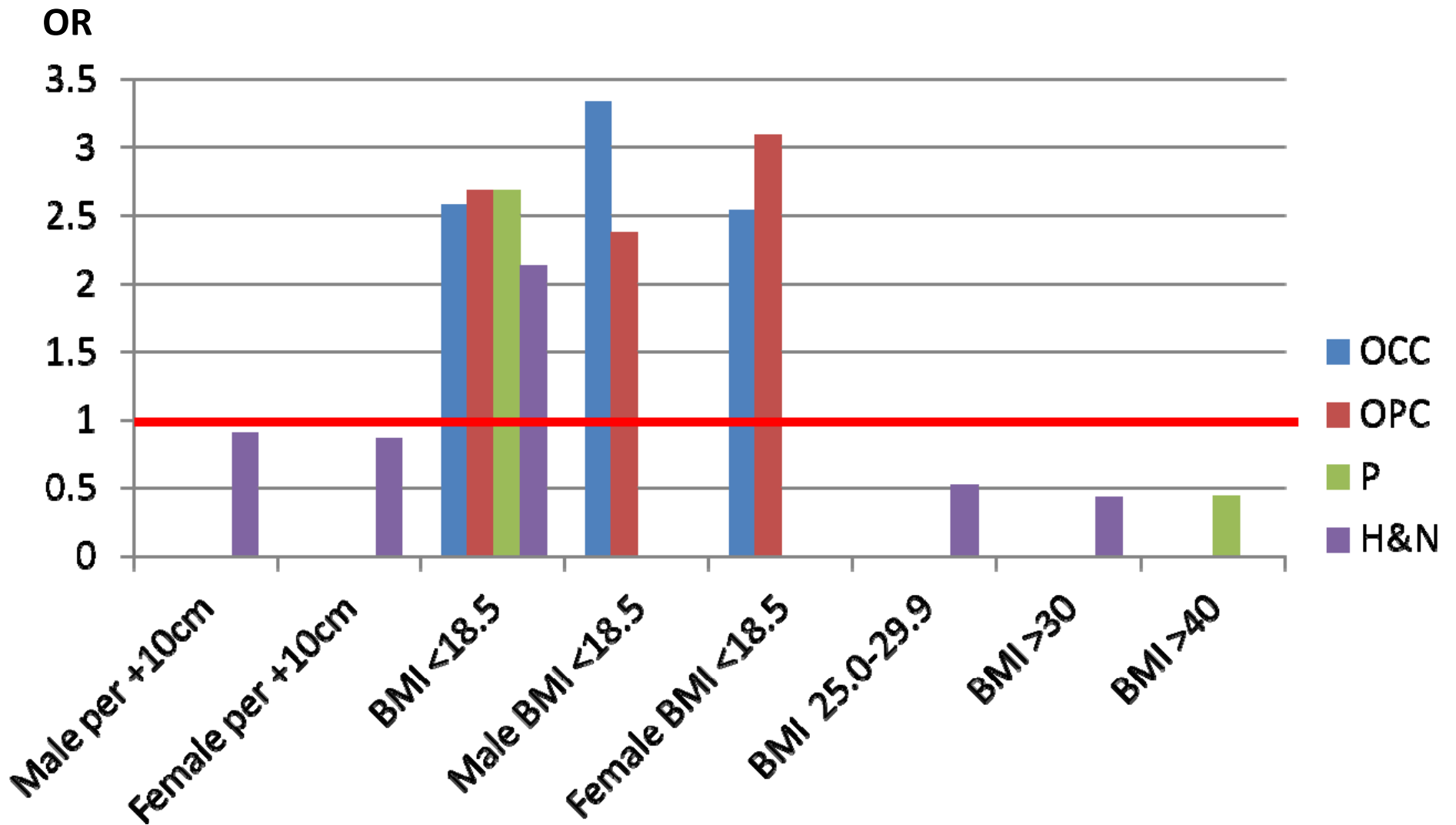
# INHANCE Age and Alcohol



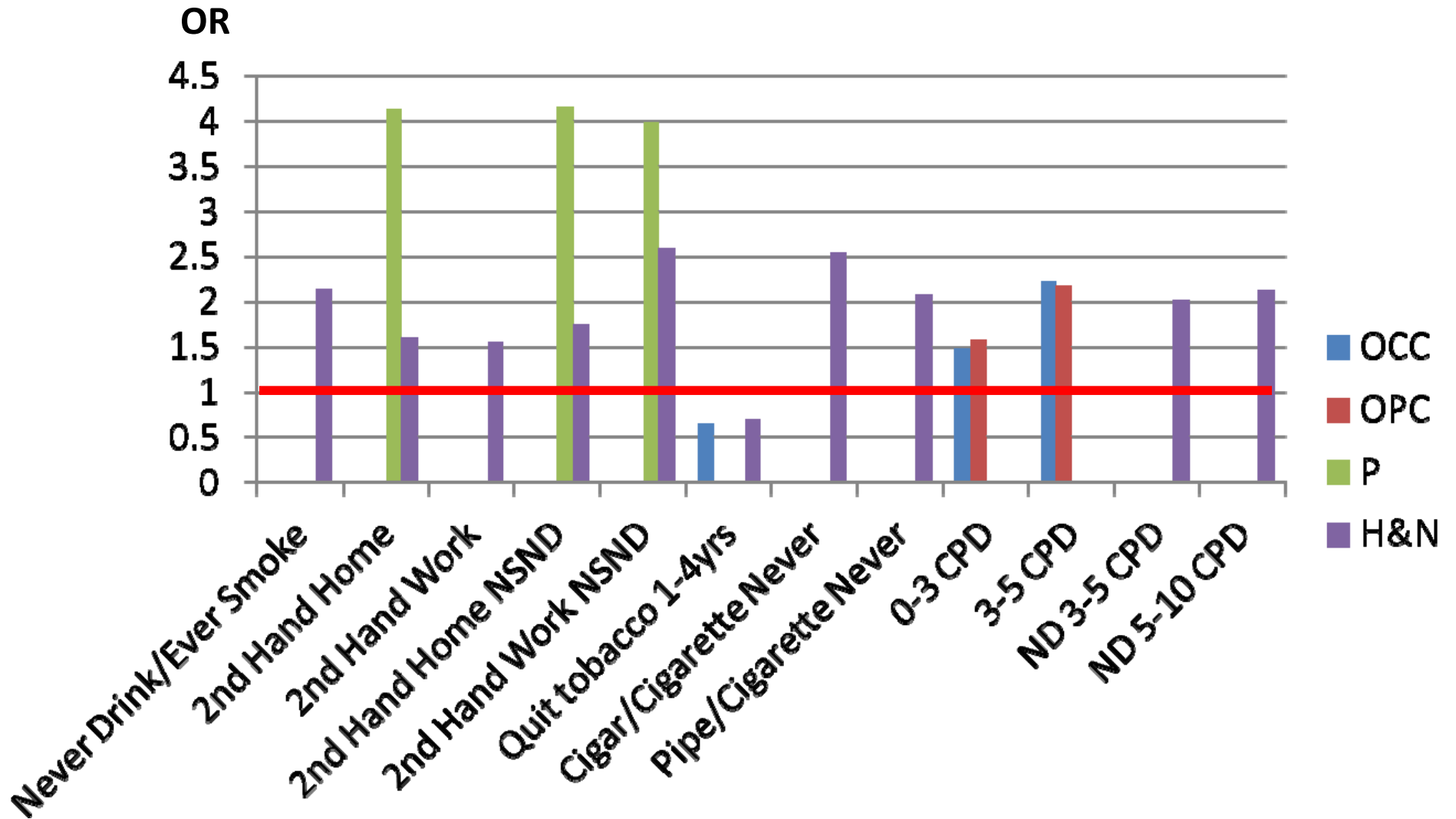
# INHANCE Diet (Preventive)



# INHANCE Height & BMI



# INHANCE Tobacco



# INHANCE

## Exclusive/Joint Tobacco Smoking

H&N

OR

4.5

4

3.5

3

2.5

2

1.5

1

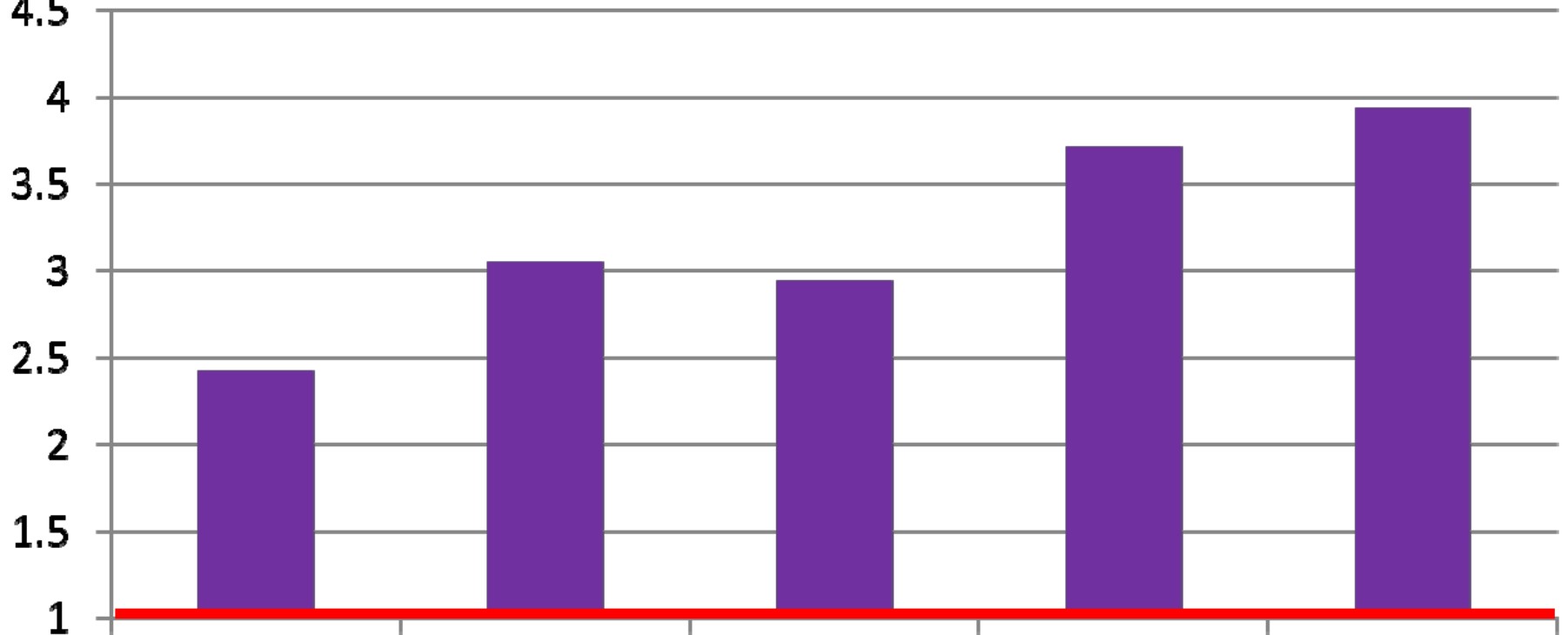
Cigarette, Cigar, Pipe

Cigarette, Cigar

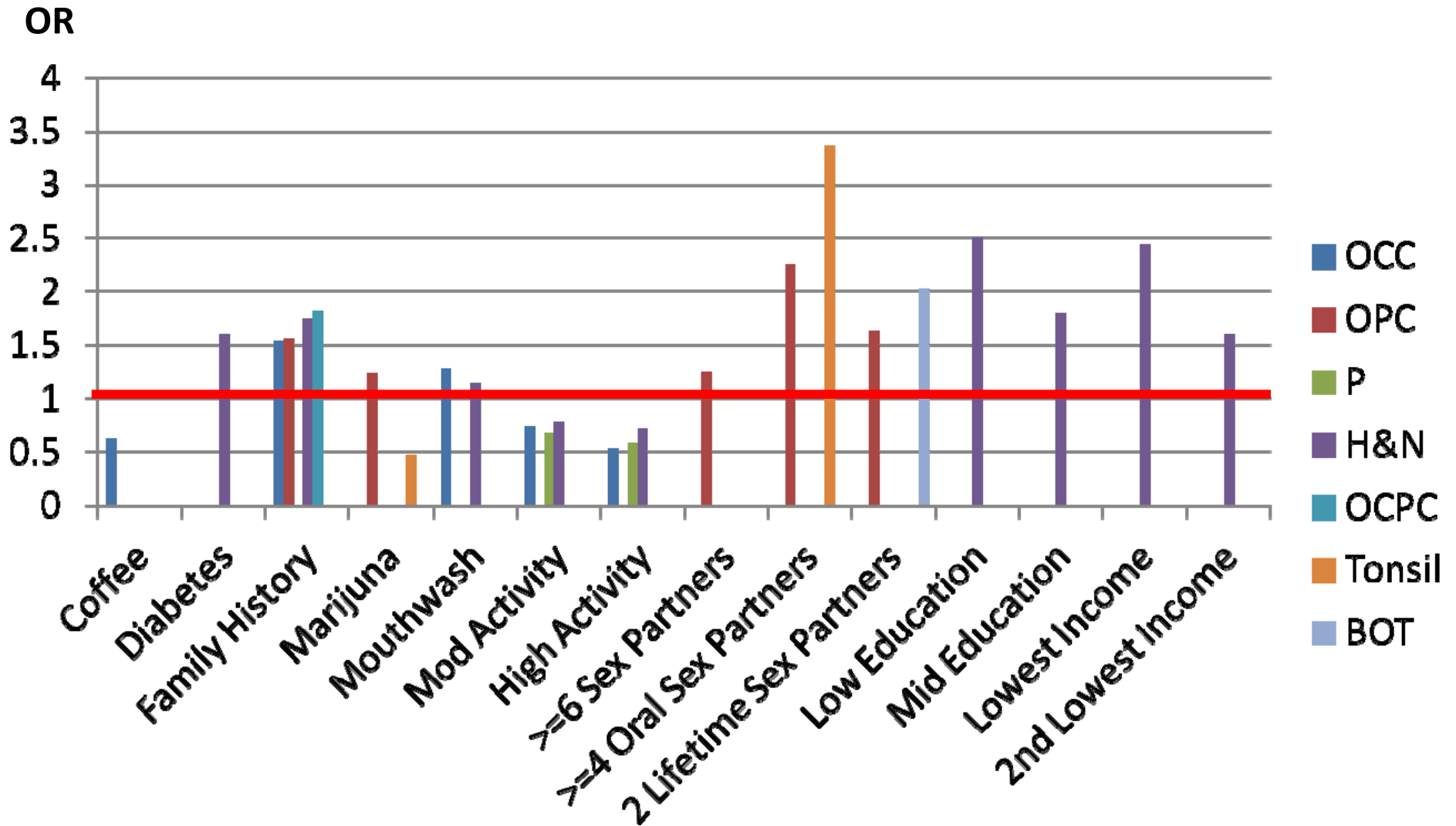
Cigarette, Pipe

Pipe Only

Cigarette Only



# INHANCE Other





# Summary of Risk Factors

- Many factors associated with  $>$  risk of OC
  - HPV and sexual behaviors of great concern
- Tobacco exposure remains a major factor
  - Albeit smoking not a focus of recent OCC meta-analysis
- Few factors associated with  $<$  risk of OC
  - Importance of dietary factors and wellness
- Site matters
- Genetics and genetic interactions with etiological agents will bring further perspectives for improving early detection and prevention

# Reference

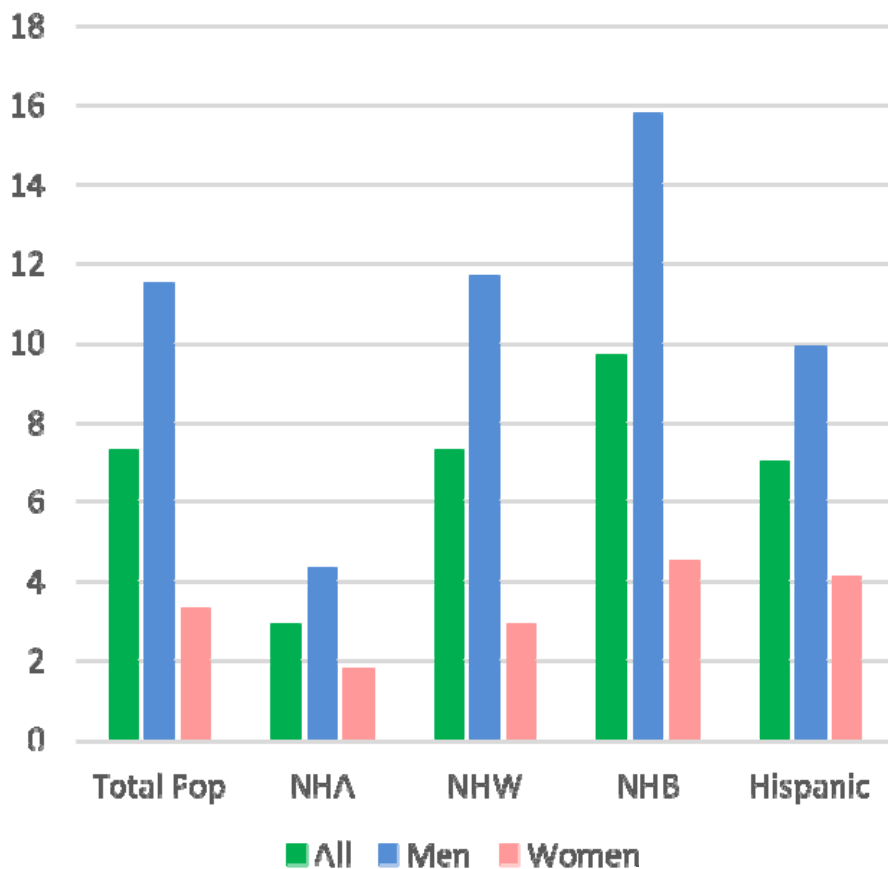
LeHew CW, Weatherspoon DJ, Peterson CE, Goben A, Reitmajer K, Sroussi H, Kaste LM.

The Health System and Policy Implications of Changing Epidemiology for Oral Cavity and Oropharyngeal Cancers in the United States from 1995 to 2016.

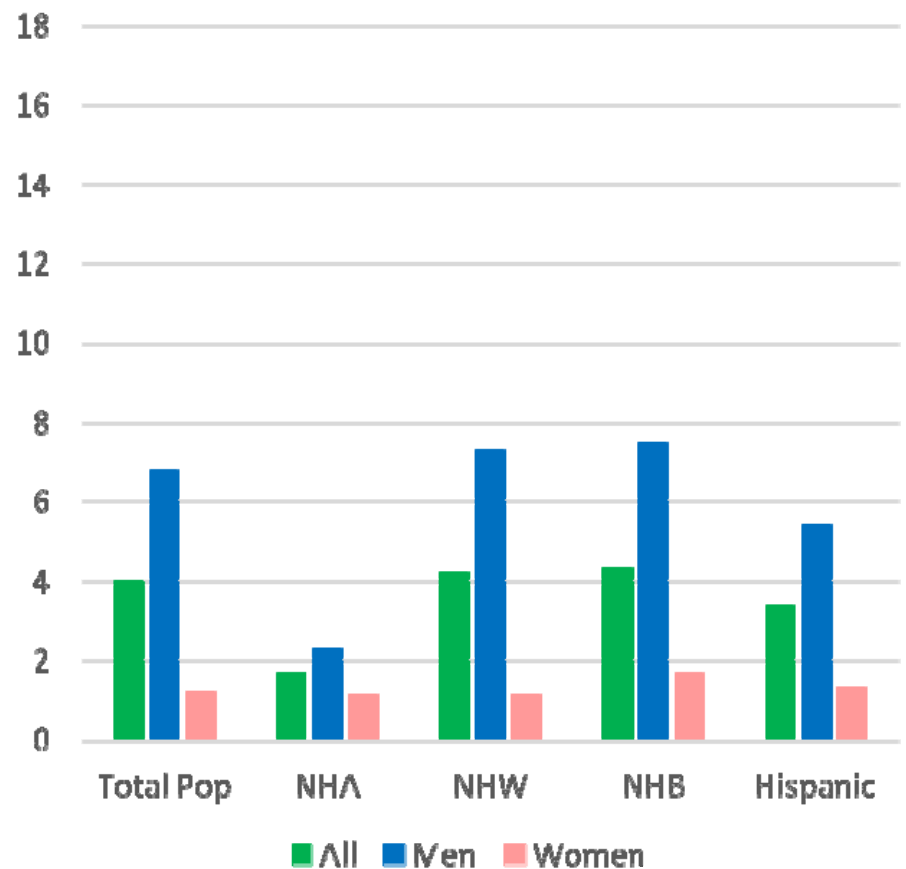
Epidemiologic Reviews 2017: In Press.

# Prevalence of HPV in Adults Aged 18-69 United States, 2011-2014 (NHANES)

## Any Oral HPV (%)



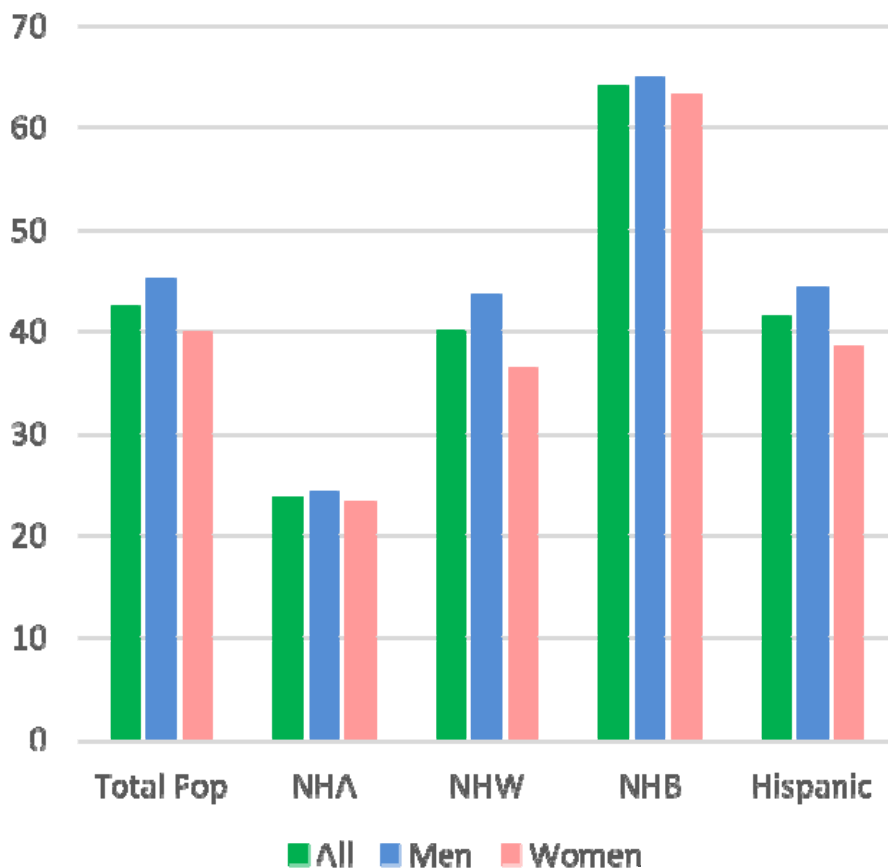
## High-risk Oral HPV (%)



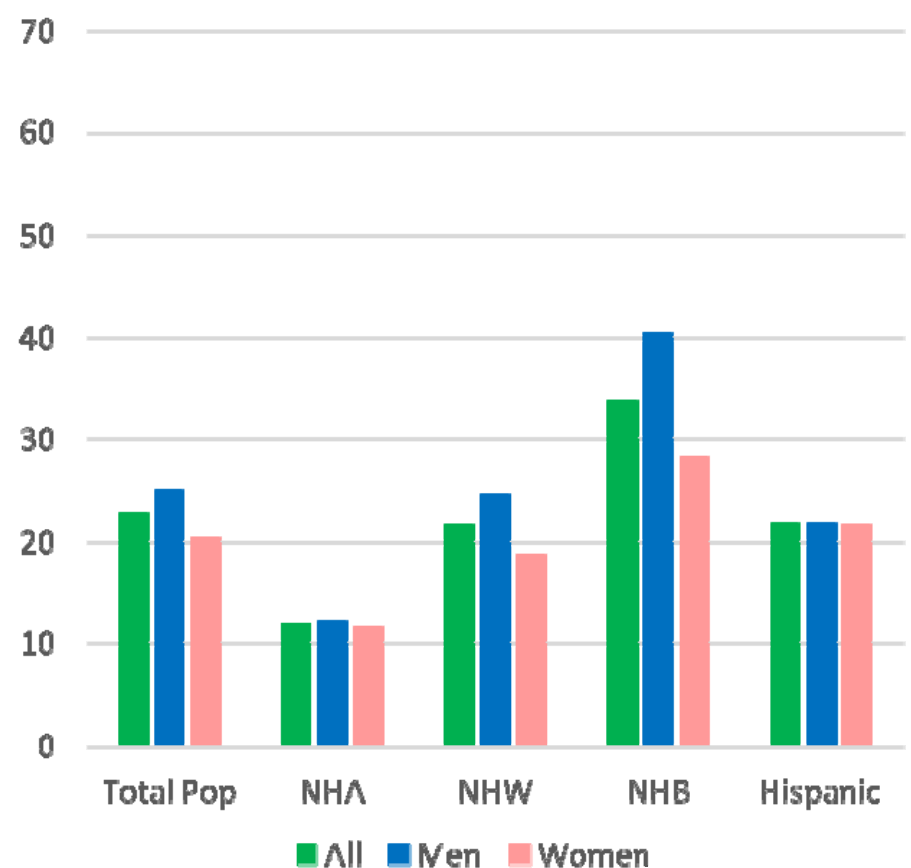
McQuillan G, et al. Prevalence of HPV in Adults Aged 18-69: United States, 2011-2014. NCHS data brief, no. 280. Hyattsville, MD: National Center for Health Statistics. 2017.

# Prevalence of HPV in Adults Aged 18-69 United States, 2011-2014 (NHANES)

## Any Genital HPV (%)



## High-risk Genital HPV (%)



McQuillan G, et al. Prevalence of HPV in Adults Aged 18-69: United States, 2011-2014. NCHS data brief, no. 280. Hyattsville, MD: National Center for Health Statistics. 2017.

# Reference

McQuillan G, Kruszon-Morgan D, Markowitz LE, Unger ER, Paulose-Ram R.

Prevalence of HPV in adults aged 18-69: United States, 2011-2014.

NCHS data brief, no. 280. Hyattsville, MD: National Center for Health Statistics. 2017.

<https://www.cdc.gov/nchs/data/databriefs/db280.pdf>

Accessed April 6, 2017.

Thank you!