



## Our Ongoing and Neglected HPV Pandemic

### The Value of HPV Vaccination in Adults: Accelerating towards elimination



**Presenter: Dr. Nancy Durand, MDCM, FRCS**

Associate Professor, Department of Obstetrics and Gynaecology,  
University of Toronto.

Sunnybrook Health Sciences Centre



**Panellist: Dr. Jennifer Blake, MD**

President and CEO,  
Society of Obstetricians and Gynecologists of Canada (SOGC)



**Panellist: Dr. Ian Witterick, MD**

President, Canadian Society of Otolaryngology-Head &  
Neck Surgeons  
Professor and Chair, Department of Otolaryngology-Head &  
Neck Surgery, Sinai Health Systems



**Moderator: Dr. Marc Steben MD, CCFM, FCFM**

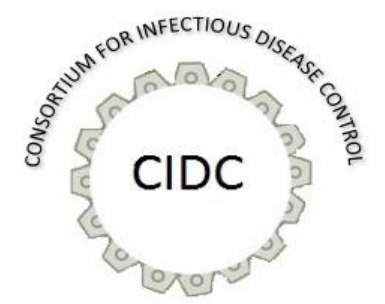
Chair of the Canadian Network on HPV Prevention  
Family Physician, Family Medicine Group, Montreal, QC  
Board Member, International Papillomavirus Society



**Organizer: George Wurtak BSc, MED**

Executive Director, Consortium for Infectious Disease  
Control  
Director, Canadian Network on HPV Prevention  
Founding Chair, International Indigenous HPV Alliance

# Administrative Notes



## How to participate:

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- Questions will be answered at the end of the presentation

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**Note:** A recording of the presentation will be made available at [www.CIDCgroup.org](http://www.CIDCgroup.org)





# Evaluation

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Completion of survey is requested to receive a certificate of participation  
– all registered participants will receive an email with this link

# Slides and Video Recording

The webinar **Slides and Recording** will be archived at:

<https://www.CIDCgroup.org>

# Moderator



## Dr. Marc Steben, MD

- Chair, Canadian HPV Prevention Network
- Family Physician, Family Medicine Group, Montreal
- Board member, International Papillomavirus Society
- Board member, American Sexually Transmitted Diseases Association
- Founding member, HPV Global Action

**International Papillomavirus Society  
HPV Awareness Day 2021 Video**



**HPV: A VIRUS WE  
ALL  
CAN BEAT**

[www.AskAboutHPV.org](http://www.AskAboutHPV.org)



sky\_English

**HPV: A VIRUS WE**

**ALL**

**CAN BEAT**

**#AskAboutHPV**

# COVID-19 Won't Be the Last (Or Worst) Pandemic: It's Time to Build Resilience Into Our Cervical Cancer Elimination Goals

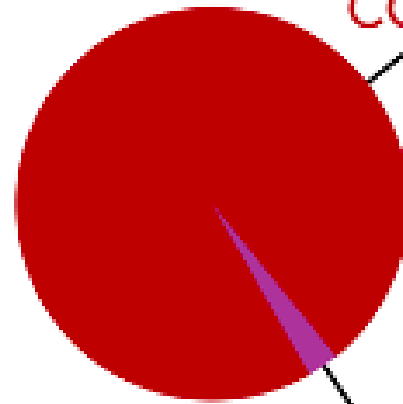
Marc Steben, MD;<sup>1</sup> Teresa Norris;<sup>2</sup> Zeev Rosberger, PhD<sup>3</sup>, on behalf of HPV Global Action \*

PEOPLE WORLDWIDE  
INFECTED WITH  
CORONAVIRUS



PEOPLE WORLDWIDE  
INFECTED WITH HPV

PEOPLE WORLDWIDE  
TALKING ABOUT  
CORONAVIRUS



PEOPLE WORLDWIDE  
TALKING ABOUT HPV

Illustration Javirroyo



# MANIFESTO

The world came together to fight one virus.

We're learning about it.

We're protecting ourselves.

But there's another virus we have the knowledge to beat.

It's not new.

It's been around thousands of years.

It spreads person to person, and without action it can lead to cancer.

We have the knowledge and the science to beat it.

Ask About HPV. It's a virus we all can beat.



# Impact de la vaccination sur l'incidence du cancer (Suède)

THE NEW ENGLAND JOURNAL OF MEDICINE

ORIGINAL ARTICLE

## HPV Vaccination and the Risk of Invasive Cervical Cancer

Jiayao Lei, Ph.D., Alexander Ploner, Ph.D., K. Miriam Elfström, Ph.D., Jiangrong Wang, Ph.D., Adam Roth, M.D., Ph.D., Fang Fang, M.D., Ph.D., Karin Sundström, M.D., Ph.D., Joakim Dillner, M.D., Ph.D., and Pär Sparén, Ph.D.

ABSTRACT

**BACKGROUND**  
The efficacy and effectiveness of the quadrivalent human papillomavirus (HPV) vaccine in preventing high-grade cervical lesions have been shown. However, data to inform the relationship between quadrivalent HPV vaccination and the subsequent risk of invasive cervical cancer are lacking.

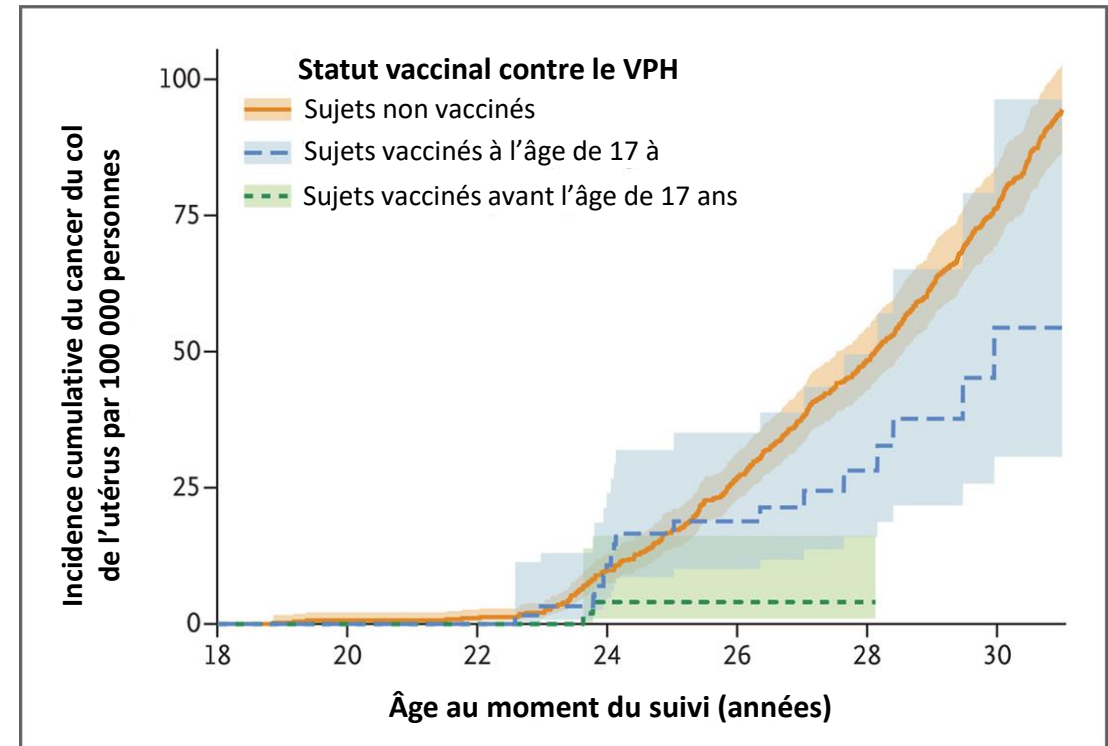
**METHODS**  
We used nationwide Swedish demographic and health registers to follow an open population of 1,672,983 girls and women who were 10 to 30 years of age from 2006 through 2017. We assessed the association between HPV vaccination and the risk of invasive cervical cancer, controlling for age at follow-up, calendar year, county of residence, and parental characteristics, including education, household income, mother's country of birth, and maternal disease history.

**RESULTS**  
During the study period, we evaluated girls and women for cervical cancer until their 31st birthday. Cervical cancer was diagnosed in 19 women who had received the quadrivalent HPV vaccine and in 538 women who had not received the vaccine. The cumulative incidence of cervical cancer was 47 cases per 100,000 persons among women who had been vaccinated and 94 cases per 100,000 persons among those who had not been vaccinated. After adjustment for age at follow-up, the incidence rate ratio for the comparison of the vaccinated population with the unvaccinated population was 0.51 (95% confidence interval [CI], 0.32 to 0.82). After additional adjustment for other covariates, the incidence rate ratio was 0.37 (95% CI, 0.21 to 0.57). After adjustment for all covariates, the incidence rate ratio was 0.12 (95% CI, 0.00 to 0.34) among women who had been vaccinated before the age of 17 years and 0.47 (95% CI, 0.27 to 0.75) among women who had been vaccinated at the age of 17 to 30 years.

**CONCLUSIONS**  
Among Swedish girls and women 10 to 30 years old, quadrivalent HPV vaccination was associated with a substantially reduced risk of invasive cervical cancer at the population level. (Funded by the Swedish Foundation for Strategic Research and others.)

N Engl J Med 2020;383:1340-8.  
DOI: 10.1056/NEJMoa1917338  
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1340 N ENGL J MED 383:14 NEJM.ORG OCTOBER 1, 2020



Chez les filles et les femmes suédoises âgées de 10 à 30 ans, le vaccin quadrivalent anti-VPH a été associé à une réduction importante du risque de cancer invasif du col de l'utérus à l'échelle de la population.

**NEWS**



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## **Cervical cancer: deaths increase as HPV vaccine is underused, says WHO**

Owen Dyer

# Presenter



## **Dr. Nancy Durand, MDCM, FRCS**

- **Sunnybrook Health Sciences Centre**
- **Associate Professor, Dept of Obstetrics and Gynaecology**  
**University of Toronto**



**The Value of HPV Vaccination in Adults:**  
*accelerating towards elimination of  
HPV-related diseases*

Nancy Durand, MDCM, FRCSC  
Sunnybrook Health Sciences Centre  
Associate Professor, University of Toronto  
Department of Obstetrics and Gynaecology  
Toronto, Ontario, Canada

# Presenter Disclosure:

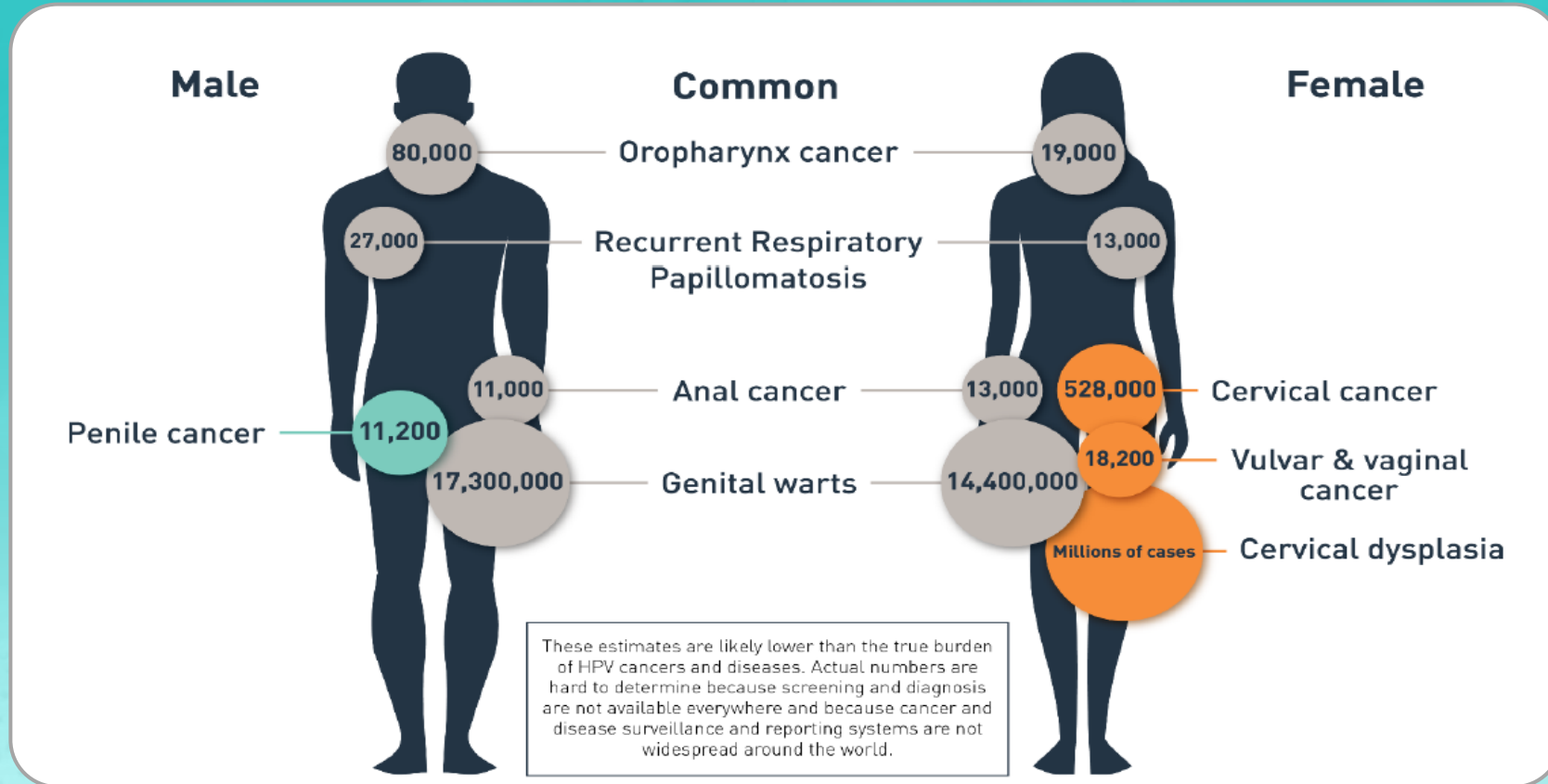
- **Presenter:** Dr. Nancy Durand  
Sunnybrook Health Sciences Centre  
Toronto, Ontario, Canada
- **Relationships with commercial interests:**
  - Speakers Bureau/Honoraria: Merck Canada, Merck Global
  - Consulting Fees: Merck Canada & Merck Global Advisory Boards
- **Other:** Associate Professor,  
University of Toronto  
Dept. of Obstetrics and Gynaecology  
Sunnybrook Health Sciences Centre

# Learning Objectives:

- Describe the changing burden of HPV-related diseases
- Discuss clinical trials: 4vHPV and 9VHPV in adult females and males
- Explain benefits of vaccination of those with previous disease
- Outline current state of vaccination and screening programs in Canada
- List strategies for counselling to improve uptake

# Global Incidence of HPV-related Diseases

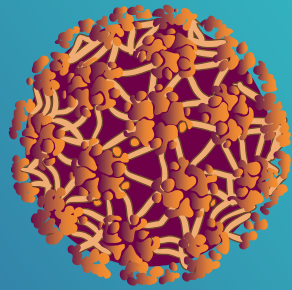
Worldwide HPV is estimated to cause 5% of human cancers in women and men<sup>1-13</sup>



- Screening
- Diagnosis
- Reporting
- Surveillance

1. Forman D et al. Global burden of HPV and related diseases. *Vaccine*. 2012;30S:F12–F23. 2. Ferlay J et al. GLOBOCAN 2012. [http://globocan.iarc.fr/old/summary\\_table\\_site.html.asp?selection=4162&title=Cervix+uteri&sex=2&type=0&>window=1&africa=1&america=2&asia=3&europe=4&oceania=5&build=6&sort=0&submit=%C2%A0Execute](http://globocan.iarc.fr/old/summary_table_site.html.asp?selection=4162&title=Cervix+uteri&sex=2&type=0&>window=1&africa=1&america=2&asia=3&europe=4&oceania=5&build=6&sort=0&submit=%C2%A0Execute). Accessed April 4, 2018. 3. CDC. HPV and oropharyngeal cancers. [https://www.cdc.gov/cancer/hpv/basic\\_info/hpv\\_oropharyngeal.htm](https://www.cdc.gov/cancer/hpv/basic_info/hpv_oropharyngeal.htm). Accessed April 4, 2018. 4. Derkay C et al. *Laryngoscope*. 2008;118(7):1236–1247. 5. Niyibizi J et al. *J Ped Otorrhinolaryngology*. 2014;78:186–197. 6. Wiatrak BJ et al, *Laryngoscope*. 2004;114:1–23. 7. Campisi P et al. *Laryngoscope*. 2009;120:1233–1245. 8. Ilmarinen T. <https://helda.helsinki.fi/handle/10138/41053>. Accessed April 4, 2018. 9. Executive summary: the state of world health, 1995. World Health Organization website. [http://www.who.int/whr/1995/media\\_centre/executive\\_summary1/en/index.html](http://www.who.int/whr/1995/media_centre/executive_summary1/en/index.html). Accessed October 10, 2017. 10. Greer CE et al. *J Clin Microbiol*. 1995;33:2058–2063. 11. Public Health England. Health Protection Report. 2013;7:9–5. <http://webarchive.nationalarchives.gov.uk/20140714090310/http://www.hpa.org.uk/hpr/archives/2013/hpr2313.pdf>. Accessed October 10, 2017. 12. Bruni L et al. ICO Information Centre on HPV and Cancer (HPV Information Centre) World Report. July 2017. <http://www.hpvcentre.net/statistics/reports/XWX.pdf>. Accessed April 4, 2018. 13. Plummer M et al. *Lancet Global Health*. 2016;4:pe609–pe616.

# Rationale for Adult HPV Vaccination



**Risk of new exposure**



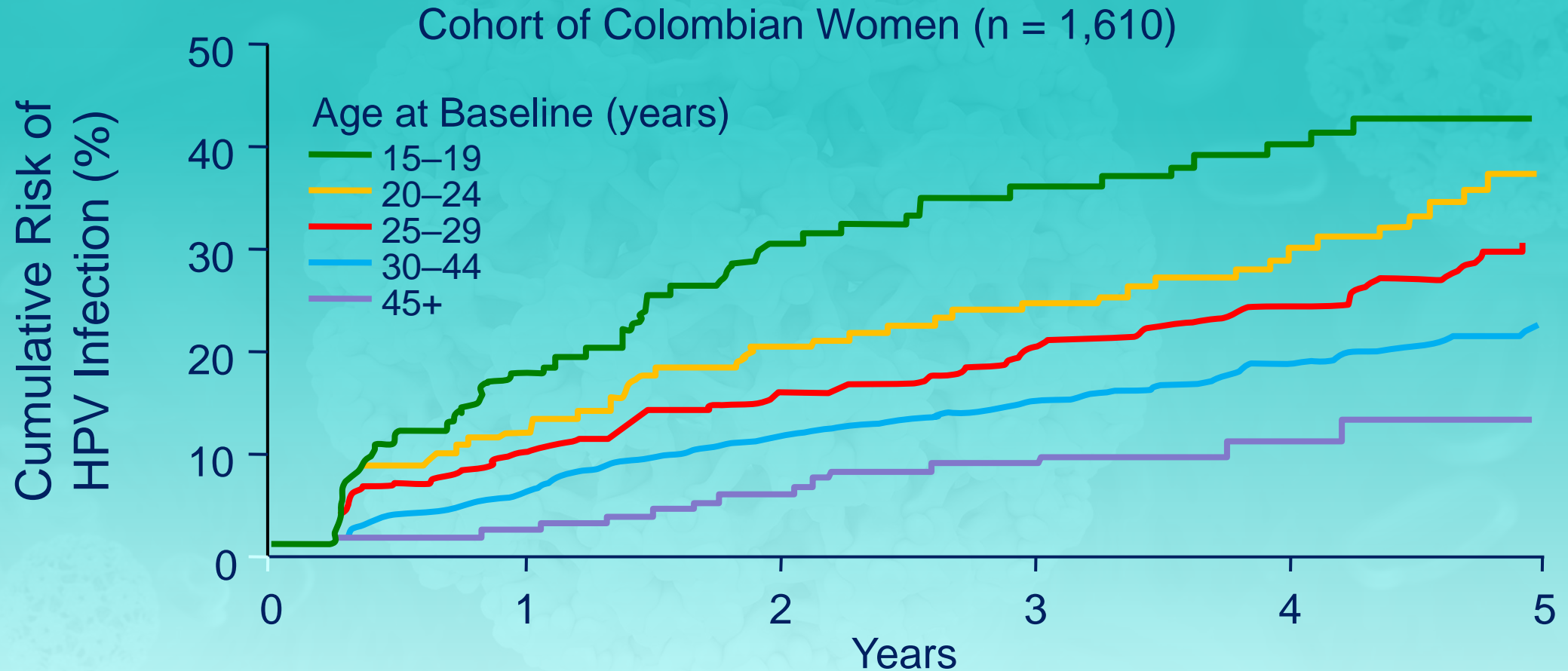
**Efficacy of vaccination at reducing disease**



**Vaccination reduces recurrence in previously exposed adults**



# Women Continue to Acquire New HPV Infection Throughout Their Lifetime



# HPV Infection Is Common Among Adults<sup>a</sup>



## HPV Prevalence



**25–29**  
years old

**35–39**  
years old

**45–49**  
years old

**18–59 Years**

**NHANES Survey 2007–2010<sup>1</sup>**

**20–24**  
years old

**30–34**  
years old

**40–44**  
years old

**18–70 Years**

**HIM Study<sup>2</sup>**

70%  
60%  
50%  
40%  
30%  
20%  
10%

<sup>a</sup>Infection with any of 37 HPV types.

NHANES = National Health and Nutrition Examination Survey; HIM = Human Papillomavirus Infection in Men study.

1. Shi R et al. *BMC Res Notes*. 2014;7:544. 2. Giuliano AR et al. *Cancer Epidemiol Biomarkers Prev*. 2008;17:2036–2043.

# HR-HPV Prevalence in Mid-adult Women

- 2007-2010 study of 518 online daters age 25-65
- 37 major US cities
- 28% > age 40

- prevalence high-risk HPV 35.9%
- 41% women had multiple high-risk HPV types
- prevalence unrelated to age

# Persistent HPV Infection Increases With Age<sup>1,2,a</sup>

Costa Rica study

15%  
<25 years

25%  
25–34 years

27%  
35–44 years

42%  
45–64 years

23%  
18–30 years

32%  
31–44 years

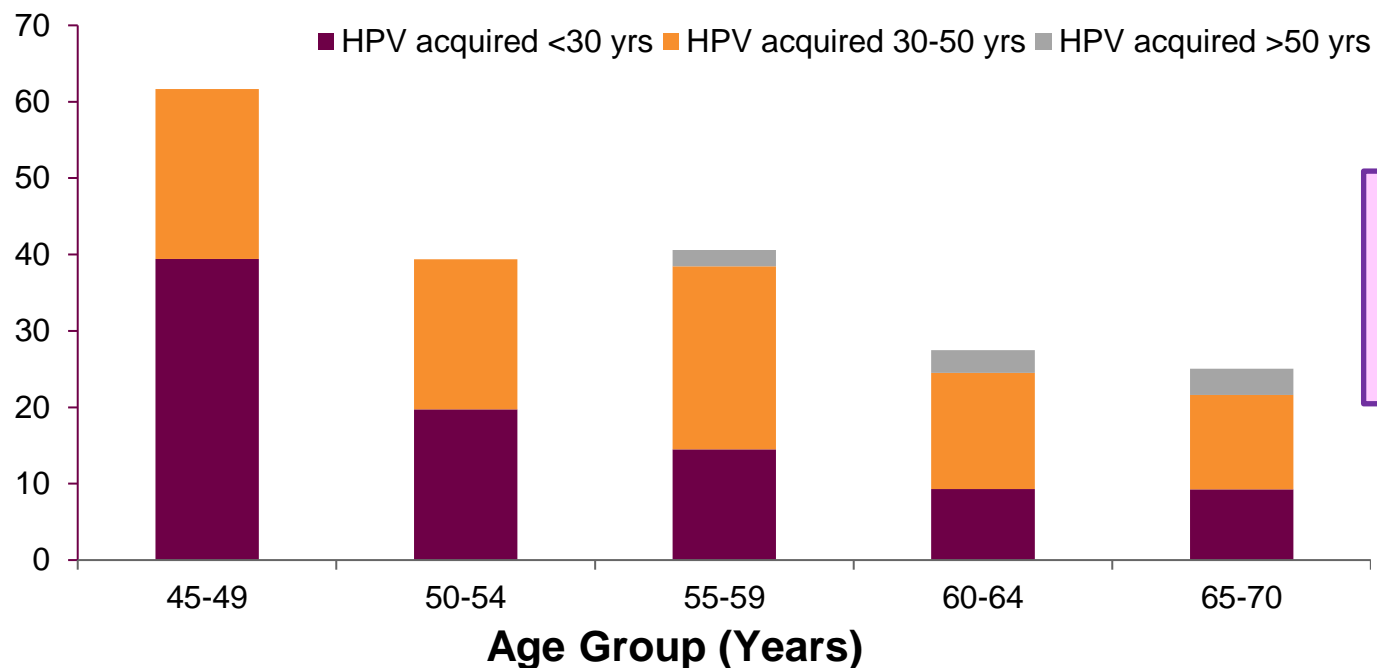
52%  
45–70 years

HIM study

<sup>a</sup>Persistent infection with any of 37 HPV types in males and >40 types in females.<sup>1,2</sup>  
1. Nyitray AG et al. *J Infect Dis.* 2011;204:1711–1722. 2. Castle PE et al. *J Infect Dis.* 2005;191:1808–1816.

# Modeling HPV Infections Acquired by Women 30 to 50 Years of Age Contribute to the Incidence of CIN 3+<sup>1a</sup>

## Model Projections for the Incidence of CIN 3+ and Age of Acquisition of the Linked HPV Infection



50% of causal infections for CIN3 acquired age 30-50

<sup>a</sup>HPV transmission model for cervical cancer development based on Wolfsburg epidemiological study (WOLVES), which follows 2,326 women 20–26 years of age since 2009 and Wolfsburg primary HPV screening project (WOLPHSCREEN), which has recruited 25,286 women 30–75 years of age since 2006.

CIN 3+=cervical intraepithelial neoplasia grade 3 or worse.

1. Petry KU et al. Abstract presented at the 31st International Papillomavirus Conference; February 28–March 4, 2017; Cape Town, South Africa. Abstract HPV17-0632.

# Burden of HPV-Related Disease in Males Is Increasing

Genital warts  
Recurrent respiratory papillomatosis

>90% caused by  
HPV 6 and 11<sup>1,2</sup>

Anal cancer  
Penile cancer  
Oropharyngeal and oral cavity cancers



≈30%–90% caused by  
HPV 16 and 18<sup>3–5</sup>

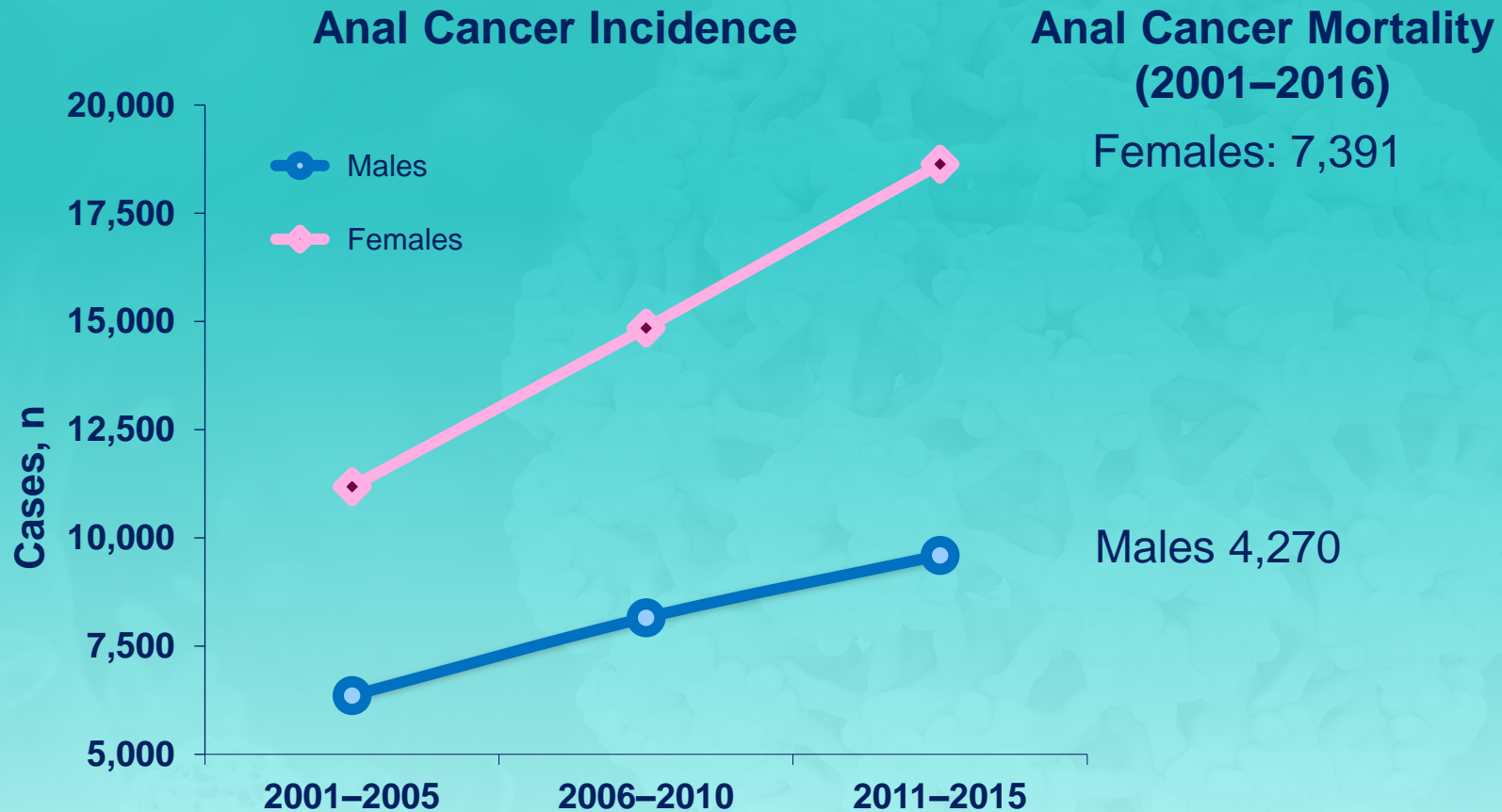
**There are no routinely available, recommended screening methods for cancers caused by HPV in men**

None of the available HPV vaccines are indicated to prevent oropharyngeal cancer, penile cancer, or recurrent respiratory papillomatosis.

HPV = human papillomavirus.

1. Greer CE et al. *J Clin Microbiol.* 1995;33:2058–2063. 2. Freed GL et al. *Int J Pediatr Otorhinolaryngol.* 2006;70:1799–1803. 3. De Vuyst H et al. *Int J Cancer.* 2009;124:1626–1636. 4. Miralles-Guri C et al. *J Clin Pathol.* 2009;62:870–878. 5. Kreimer AR et al. *Cancer Epidemiol Biomarkers Prev.* 2005;14:467–475.

# Anal Cancer Incidence and Mortality in US Is Increasing: 2001–2015<sup>1</sup>



Incidence of SCCA has also increased across:



All races



Age >50 years

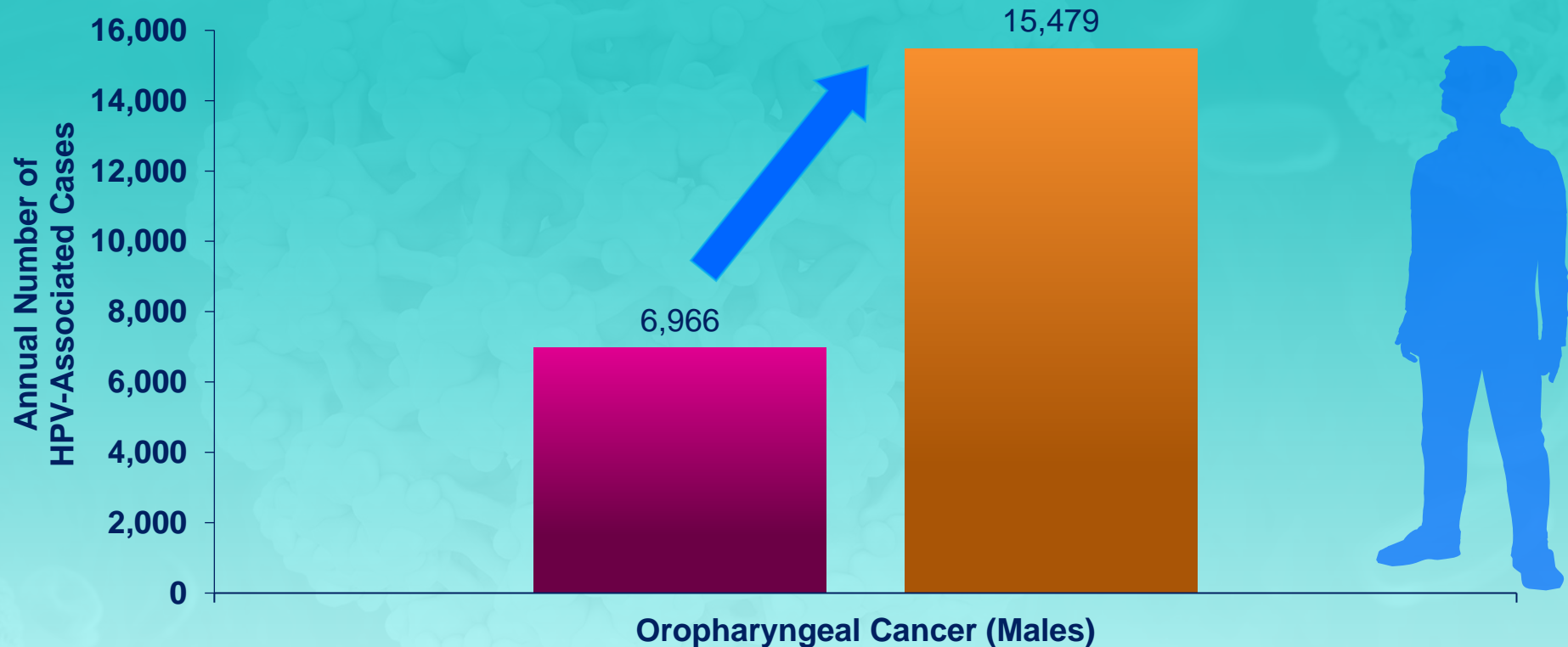


All stages of diagnosis

SCCA = squamous cell carcinoma of the anus.

1. Deshmukh AA et al. *J Natl Cancer Inst.* 2019. [Epub ahead of print]

# US: Males Diagnosed With HPV-Related Oropharyngeal SCC Doubled Over the Past 15 Years<sup>1</sup>



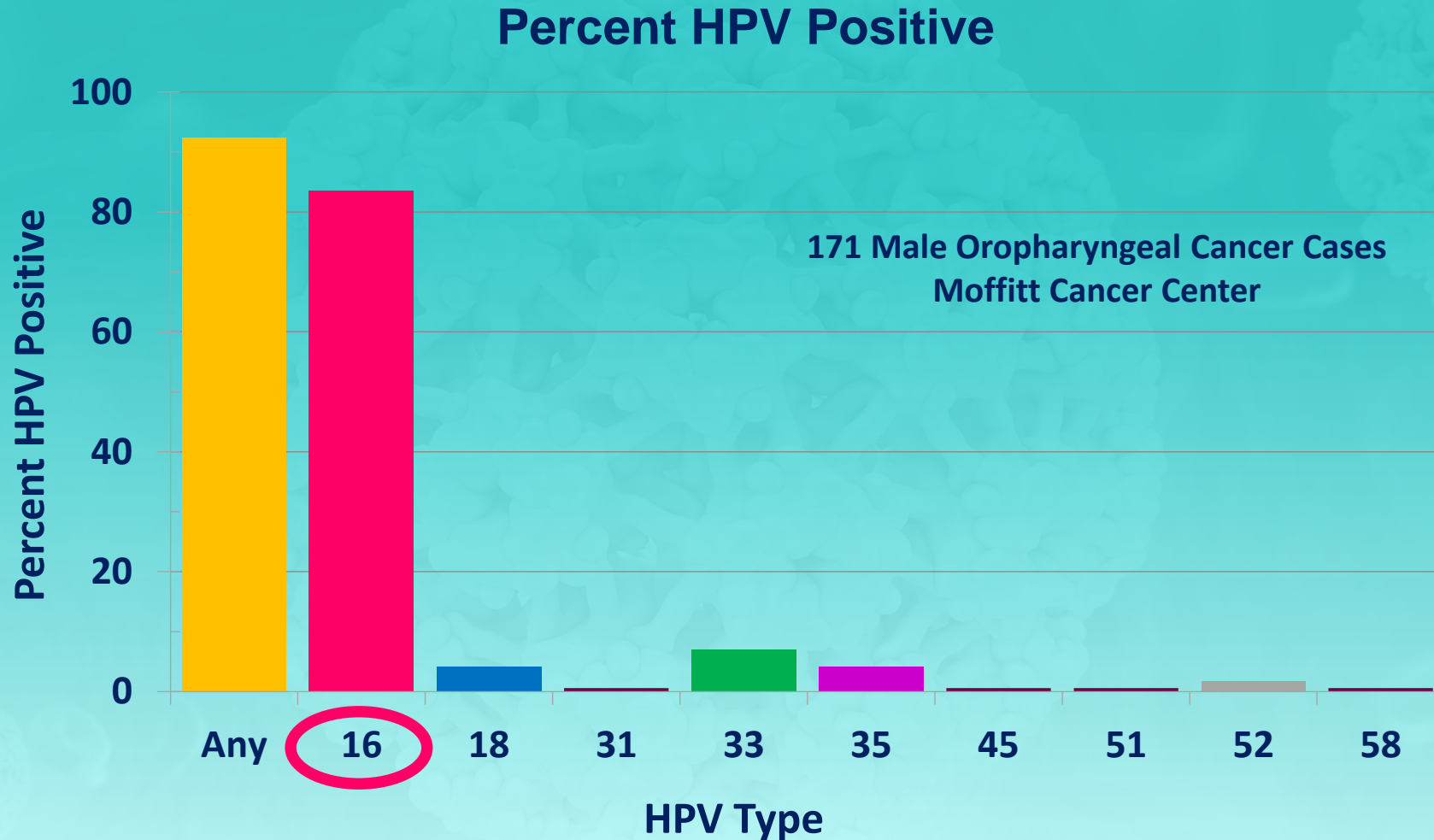
In Canada, HPV vaccines are not yet indicated to prevent oropharyngeal cancer.

HPV = human papillomavirus; SCC = squamous cell carcinoma.

1. Van Dyne EA et al. *MMWR Morb Mortal Wkly Rep.* 2018;67:918–924.

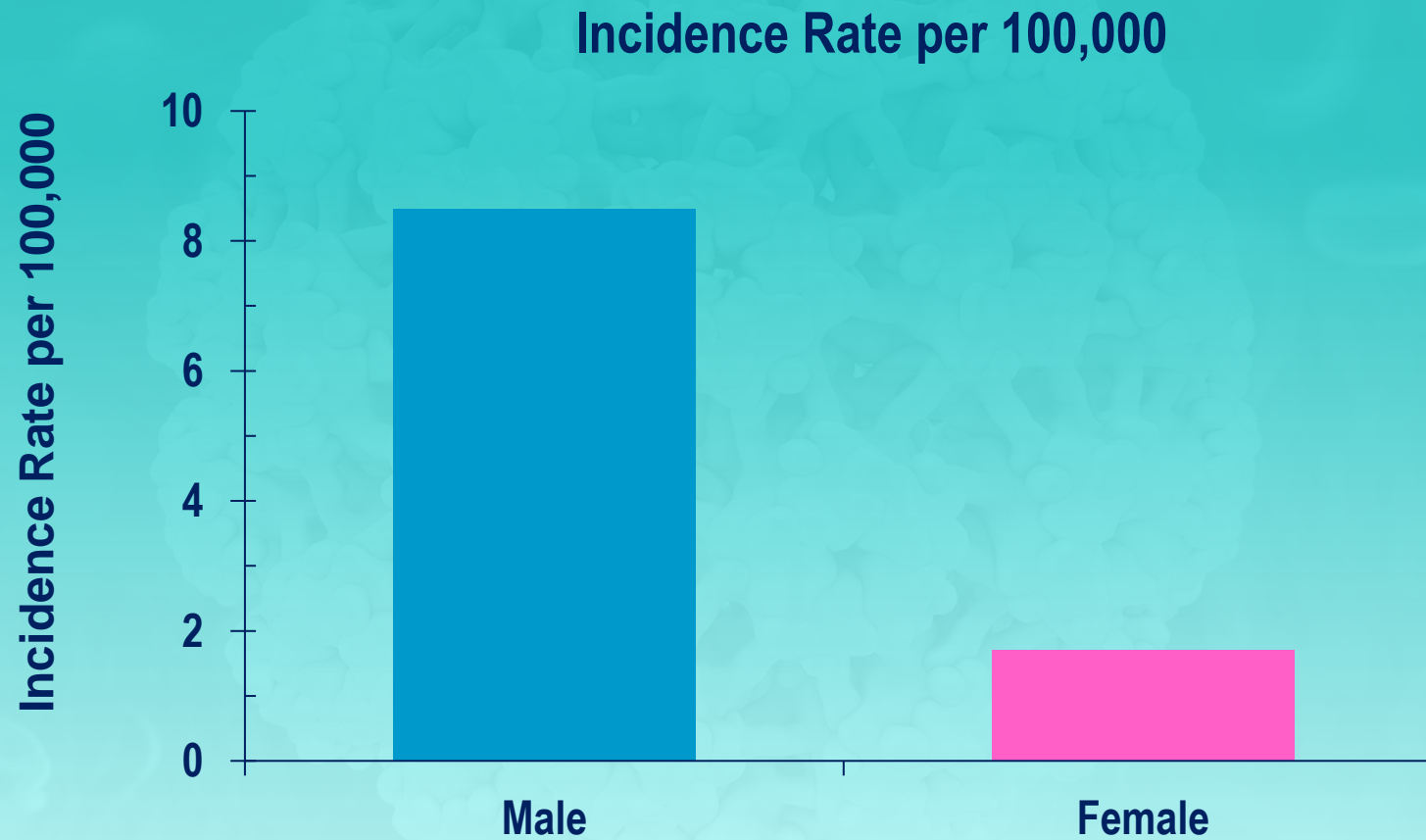


# HPV Type Distribution in Oropharyngeal Cancers



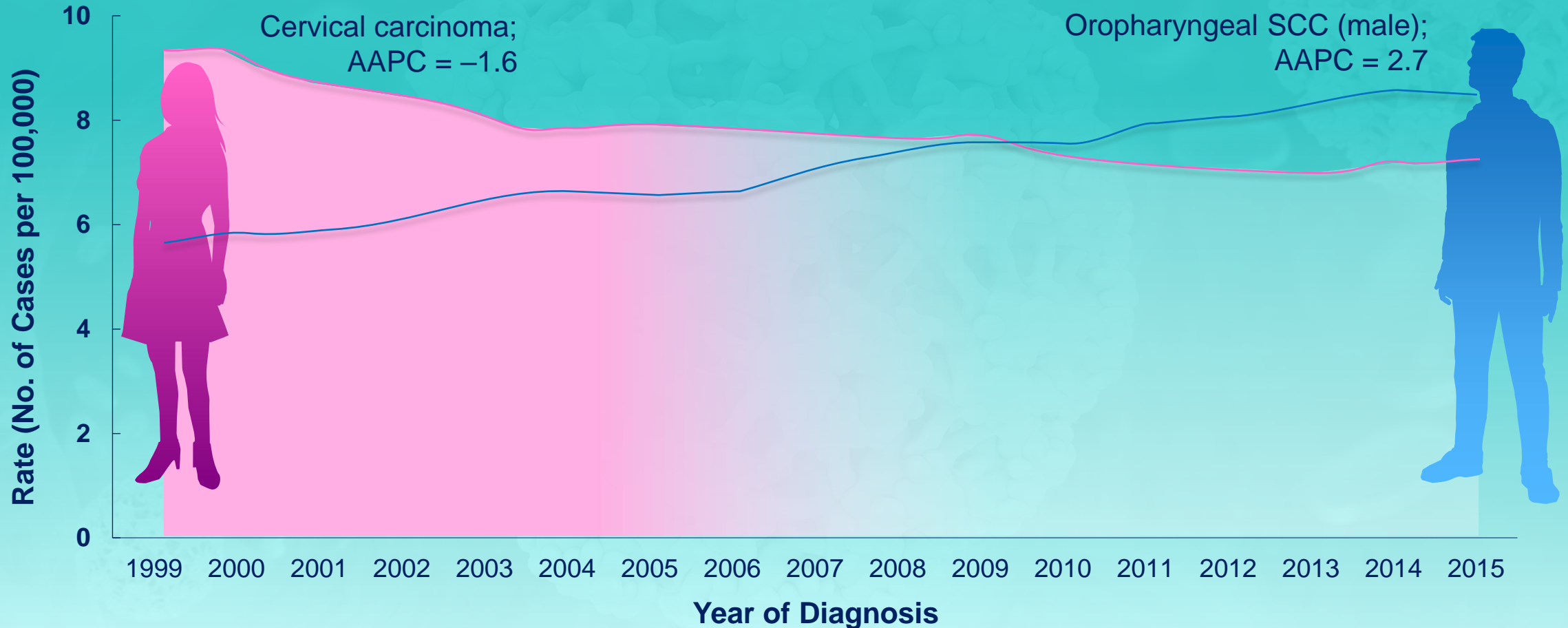
Outside of the USA, currently no HPV vaccines are approved for the prevention of oropharyngeal cancer and other head and neck cancers caused by HPV types 16, 18, 31, 33, 45, 52, 58.

# Age-Standardized Oropharyngeal Cancer Incidence Significantly Higher in Males Compared to Females



US NPCR and SEER data 2015

# US: Rates of Cervical Cancer Are Declining While HPV-Related Oropharyngeal SCC in Males Is Rising<sup>1</sup>



In Canada, HPV vaccines are not indicated to prevent oropharyngeal cancer.

HPV = human papillomavirus; SCC = squamous cell carcinoma; AAPC = average annual percent change.

1. Van Dyne EA et al. *MMWR Morb Mortal Wkly Rep.* 2018;67:918–924.

# **Clinical Data in Adult Women**

# 4vHPV: Mid-Adult Women Trial Females Aged 24–45 Years

*Randomized controlled trial*  
(N=3,692)  
*Years 1–4 of follow-up*

**89%**

**Efficacy against persistent infection, abnormal paps and genital warts<sup>a,b</sup>**

Castellsagué et al 2011<sup>1</sup>



**10**  
years

*Long-term extension trial*  
*years 4-10*  
(N=599)

**0**

**Cases of HPV abnormal paps or genital warts**

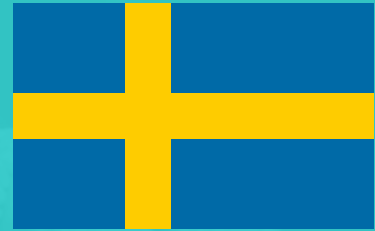
Data on file. MSD<sup>2</sup>;  
Walia A 2019<sup>3</sup>

<sup>a</sup>Related to HPV types 6, 11, 16, and 18.

<sup>b</sup>EGL includes condyloma, VIN, and VaIN.

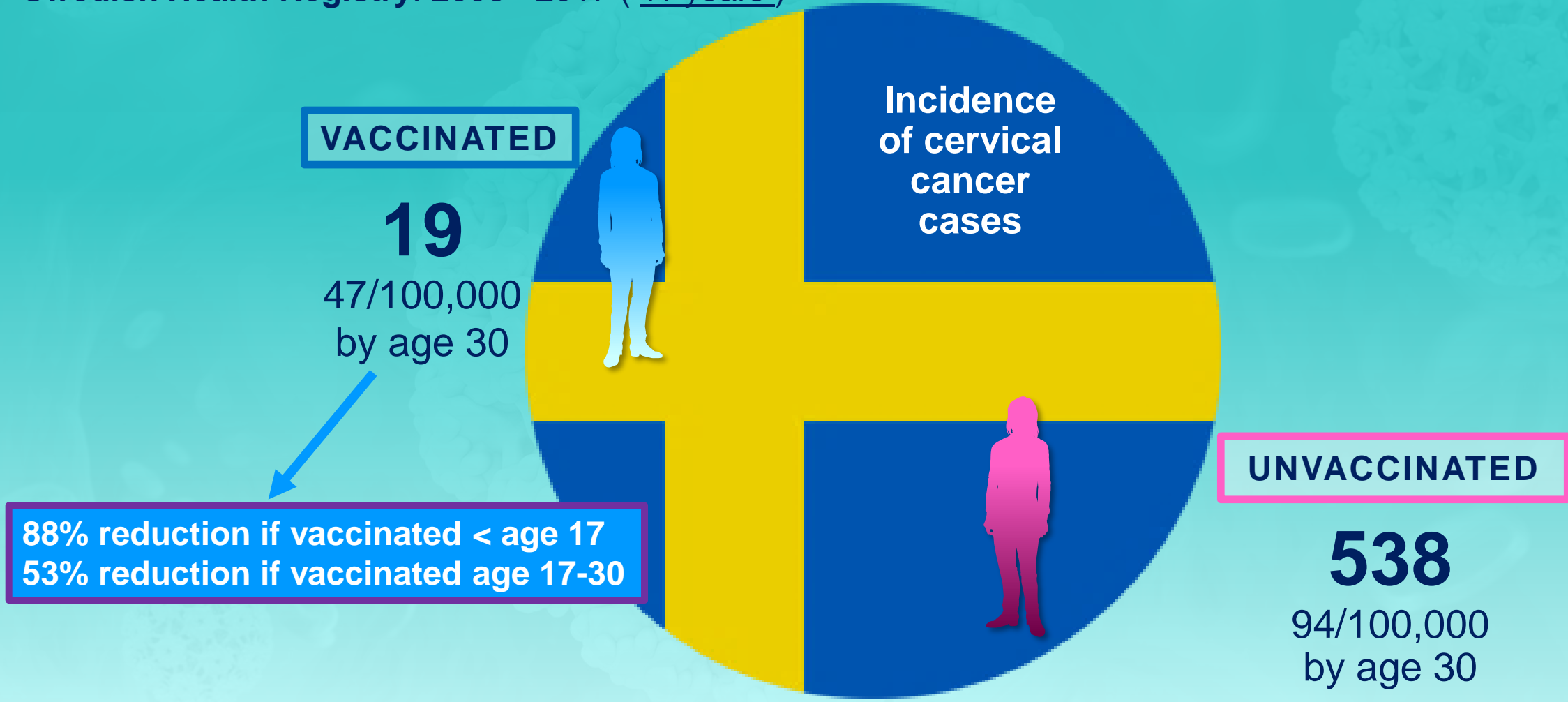
4vHPV = 4-valent human papillomavirus; CIN = cervical intraepithelial neoplasia; DOF = data on file; EGL = external genital lesions; ASCUS = atypical squamous cells of undetermined significance; LSIL = low-grade squamous intraepithelial lesion; VIN = vulvar intraepithelial neoplasia; VaIN = vaginal intraepithelial neoplasia.

1. Castellsagué X et al. *Br J Cancer*. 2011;105:28–37. 2. Data on File. MSD. 3. Data presented by Walia A on Nov 14, 2019 at “6th NCI cancer centers HPV Vaccination Summit.”



# Swedish Females: Trends in Cervical Cancer<sup>1</sup>

Swedish Health Registry: 2006 - 2017 ( 11 years )



Per 100,000 woman-years  
527,871 vaccinated females aged 10-30 years  
1,145,112 non-vaccinated females aged 10-30 years.

1. Lei, J et al. NEJM.Oct 2020; 383;14: 1340-1348.

# Clinical Data in Adult Males

# Clinical Data in Adult Males

Aug 2020: 9vHPV was approved by Health Canada for males over age 26



# 4vHPV Male Trial Against EGW and HG-AIN Males (16–26 Years)<sup>1,a</sup>

**89%**

reduction in genital warts<sup>b</sup>

≈**3**  
years

**75%**

reduction in AIN 2/3  
(MSM subset)<sup>b</sup>

≈**2**  
years

**10**  
years

*Long-term  
extension trial  
years 4-10*

**0**

Cases of EGL or  
HG-AIN

**Seropositivity rates for  
HPV 6/11/16/18 remained high**

<sup>a</sup>Base study in males vaccinated between the ages of 16 and 26 years; <sup>b</sup>Related to HPV types 6, 11, 16, and 18.

4vHPV = 4-valent human papillomavirus; HPV = human papillomavirus; AIN = anal intraepithelial neoplasia; MSM = men who have sex with men; AE = adverse event; ISR = injection-site reaction; SAE = serious adverse event.

Giuliano AR et al. *N Engl J Med.* 2011;364:401–411; Goldstone S, et al. EUROGIN 2018. FC 4-2.

The background of the slide is a light teal color with a subtle, semi-transparent microscopic image. The image shows several large, spherical cell clusters, likely representing HPV-infected cells or viral particles, with a textured, granular surface. The central cluster is the largest and most prominent, while several smaller ones are scattered around it. The overall appearance is that of a biological or medical illustration.

# **HPV Vaccine Impact on Oral HPV**

# 9vHPV vaccine V503-049 Phase III Trial

- 6000 adult males age 20-45
- USA, Mexico, Columbia, Peru and Brazil; 105 sites
- Feb 2000 – July 2024
- Randomized placebo controlled trial

## Objectives:

1. Efficacy against vaccine type oral persistent infection 6 months +
2. Type-specific antibody response at month 7
3. Safety and tolerability

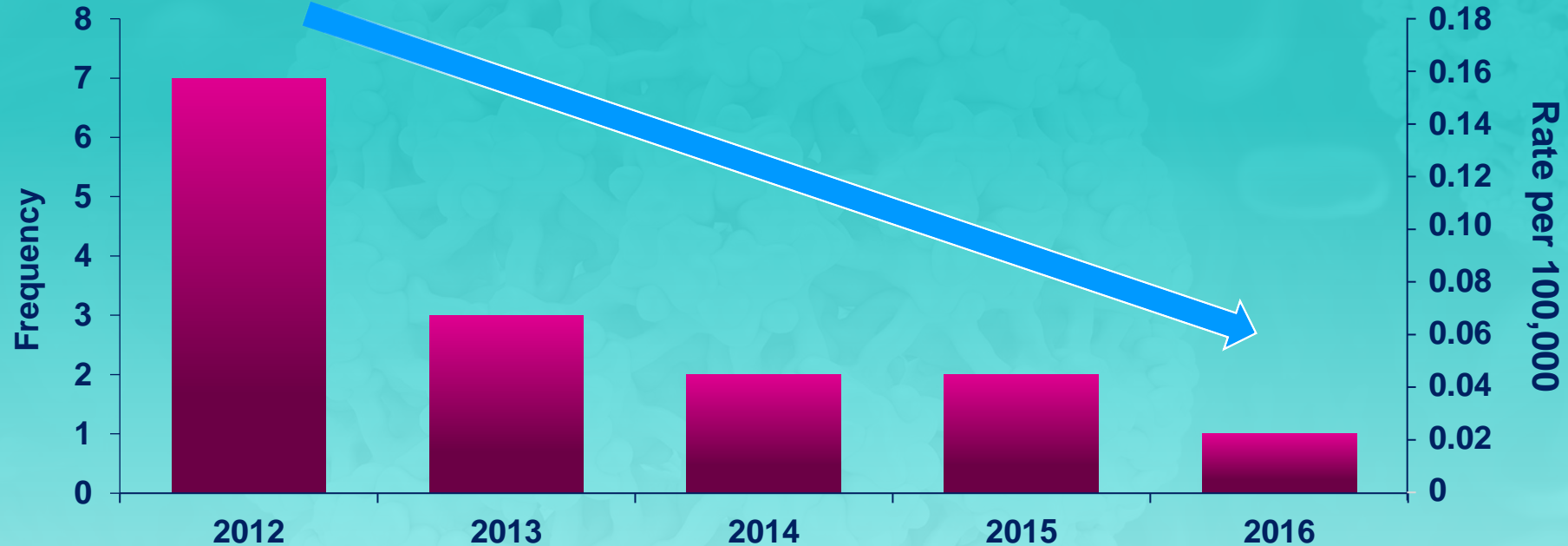
# USA, UK:

## Real World Impact on Oral HPV Prevalence Post-Vaccination

- Declining oral HPV prevalence among males and females age 18-33 in USA
- Declining oral HPV prevalence among males and females age 12-24 in UK



# Australia: Significant Reduction in Juvenile-Onset RRP Incidence After GNV<sup>1,a</sup>



- Significant reductions in RRP incidence in the 5- to 10-year period following national HPV vaccination program implementation were observed in persons <15 years of age
  - Rates of juvenile-onset RRP decreased from 0.16 to 0.02 per 100,000 from 2012 to 2016 ( $P=0.034$ )

<sup>a</sup>RRP cases were determined using a prospective population-based surveillance study designed to capture all new cases of juvenile RRP. Incidence rates were calculated using the Australian Bureau of Statistics Resident Population for children aged 0–14 years, per year.

RRP=recurrent respiratory papillomatosis; GNV = gender-neutral vaccination; HPV = human papillomavirus.

# Canada: Impact of HPV vaccination on JoRRP

(juvenile onset recurrent respiratory papillomatosis)



Cases reported to national database from 11 pediatric academic health centers across Canada.

	HPV pre-vaccination era 1994-2007	HPV vaccination era 2008-2012
incidence / 100,000 children	0.24	<b>0.168</b>
prevalence / 100,000 children	1.11	<b>0.778</b>

An earlier than expected decrease in the incidence and prevalence of JoRRP has been detected at the national level.

The background of the slide is a light teal color with a subtle, repeating pattern of microscopic cell clusters, likely representing HPV-infected cells or viral particles. The text is centered in a bold, dark blue font.

# **HPV Vaccination in Those with History of HPV Disease**

# Evidence for Vaccination of Women Undergoing Procedures for HPV-Related Disease

1. Joura et al. 2012; Post-hoc Analysis – POSITIVE
2. Kang et al. 2013; Retrospective Cohort Study – POSITIVE
3. Ghelardi et al. 2016; Prospective Case-Control Study – POSITIVE
4. Garland et al. 2016; Post-hoc Analysis – POSITIVE
5. Hildesheim et al. 2016; Post-hoc Analysis – NO DIFFERENCE
6. Ghelardi et al. 2018; Prospective Case-Control Study – POSITIVE
7. Piarelli et al. 2018; Prospective Randomized Controlled Study – POSITIVE
8. Sand et al. 2019; Prospective Population-based Study – TREND but NS
9. Karimi-Zarchi et al. 2020; Randomized Controlled Study – POSITIVE
10. Petrillo et al. 2020; Observational Retrospective Study – POSITIVE
11. Ghelardi et al. 2021; Prospective Case-Control Study – POSITIVE



# 4vHPV Vaccine Reduces Disease Recurrence in Adult Females up to Age 45 With Previous Disease

HPV vaccination reduces recurrence of abnormal paps

70-80%

HPV vaccination reduces recurrence of genital warts

75%

HPV vaccination reduces recurrence of VIN2/3

78%

<sup>a</sup>Related to HPV types 6, 11, 16, and 18.

<sup>b</sup>Women previously treated for cervical squamous intraepithelial lesion.

4vHPV = 4-valent human papillomavirus; CIN = cervical intraepithelial neoplasia; LEEP = loop electrosurgical excision procedure.

1. Kang WD et al. *Gynecol Oncol.* 2013;130:264–268. 2. Ghelardi A et al. *Gynecol Oncol.* 2018;151:229–234. 3. Pieralli A et al. *Arch Gynecol Obstet.* 2018;298:1205–1210; 4. Ghelardi A et al. *Vaccines* 2021; 9:83-94.

# Men Have a High Burden of Recurrent Infection and HPV-related Diseases



Disease Recurrence	Burden of Recurrence
Genital Infection and Warts in Males (HIM Study) <sup>1,2</sup>	<b>20% – 31%</b> infection recurrence <sup>1</sup>
	<b>44%</b> genital wart recurrence <sup>2</sup>
Genital Warts (Canada) <sup>3</sup>	<b>~49%</b>
High-Grade Anal Lesions in MSM <sup>5</sup>	<b>~60%-70%</b> in MSM <b>~90%</b> in HIV-infected MSM

# 4vHPV Vaccine Reduces Disease Recurrence in Adult Males With Previous Disease

HPV vaccination reduces recurrence of high-grade anal pre-cancerous cells

52%

HPV vaccination reduces recurrence of genital warts

50%

# HPV Vaccination Recommendations for those with disease

- Canada
  - GOC (Society of Gyn Oncologists of Canada) recommendation<sup>1</sup>
  - Funded vaccine for colpo HSIL, RRP in Manitoba<sup>2</sup>, for EGW, abnormal pap in PEI<sup>3</sup>
- Germany
  - Consider for women with CIN before or after treatment with aim to reduce recurrence<sup>4</sup>
- Ireland
  - Emerging evidence that HPV vaccination of women treated for CIN2+ reduces risk of recurrent disease, HPV4 or HPV9 may be considered<sup>5</sup>
- Italy
  - Strong recommendation for CIN2/3<sup>6</sup>
  - Improves follow-up outcomes; reduces adverse outcomes of repeated treatments
- Spain
  - Recommended and funded for patients who have undergone Rx<sup>7</sup>

1. GOC White Paper June 2018 - Opportunistic HPV Vaccination: An Expanded Vision [https://g-o-c.org/wp-content/uploads/2015/01/18\\_EEE\\_WhitePaper\\_FINAL\\_Jun18.pdf](https://g-o-c.org/wp-content/uploads/2015/01/18_EEE_WhitePaper_FINAL_Jun18.pdf); 2. <https://www.gov.mb.ca/health/publichealth/cdc/vaccineeligibility.html>; 3. <https://www.princeedwardisland.ca/en/information/health-and-wellness/human-papillomavirus-hpv-vaccine-gardasilr-9>; 4. Paul Ehrlich Society "Evidence- and consensus-based guideline on vaccine prevention of HPV-associated neoplasia" May 2020 <https://www.awmf.org/leitlinien/detail/ll/082-002.html>; 5. <https://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/chapter10.pdf>; 6. [http://www.aepcc.org/wp-content/uploads/2020/03/AEPCC\\_revista07\\_EN-VACCINATION.pdf](http://www.aepcc.org/wp-content/uploads/2020/03/AEPCC_revista07_EN-VACCINATION.pdf); 7. [https://snlg.iss.it/wp-content/uploads/2020/07/LLGG-197-GISci\\_et\\_al-vaccino-HPV-20luglio\\_Racc1.pdf](https://snlg.iss.it/wp-content/uploads/2020/07/LLGG-197-GISci_et_al-vaccino-HPV-20luglio_Racc1.pdf)

The background of the slide is a light teal color with a subtle, repeating pattern of microscopic cells. A large, prominent cluster of these cells is centered in the background, creating a textured, organic appearance. The text is overlaid on this background.

# **Provincial HPV Vaccination Programs and Cervical Screening in Canada**

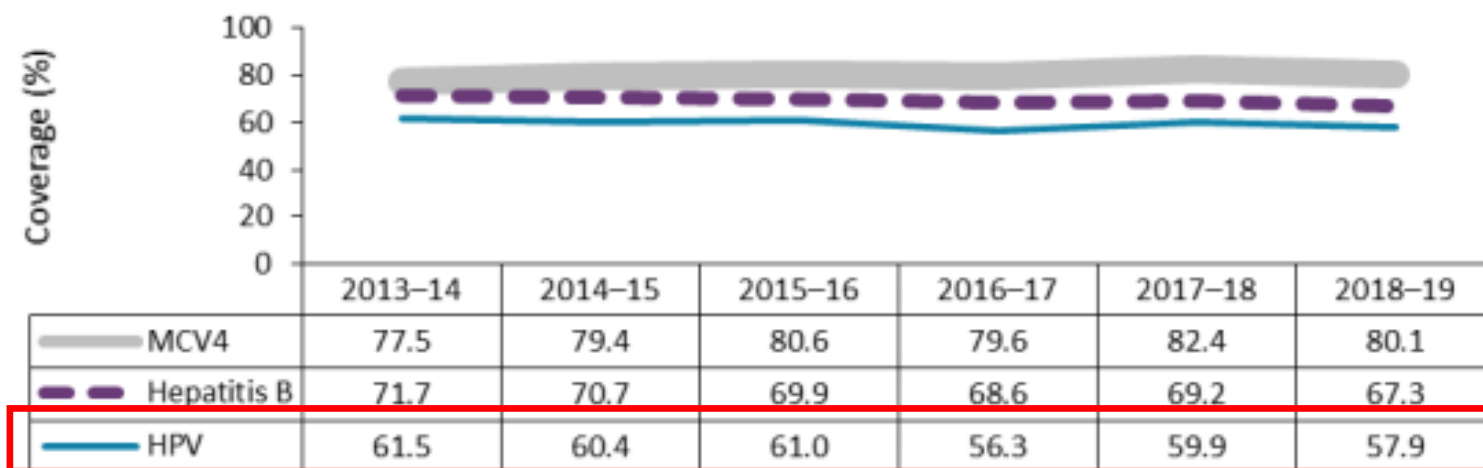
# Provincial HPV Vaccination Programs

- All provinces and territories now vaccinate boys and girls in school-based programs
- All have additional funded doses for high-risk individuals such as MSM
- Most of these programs were halted in spring due to COVID; plans are underway to restart in some regions
- Alberta is now covering HPV vaccination for all males and females up to and including age 26 as of July 1, 2020
- Yukon is covering HPV vaccination for all males and females up to and including age 26 as of Jan 1, 2021

# Ontario HPV Vaccination Program – low uptake

## School-Based Immunization Programs among 12-Year-Olds

Figure 9. Immunization coverage for quadrivalent meningococcal conjugate vaccine (MCV4), human papillomavirus (HPV) and hepatitis B among 12-year-olds in Ontario: 2013–14 to 2018–19 school years



# Cervical Screening During COVID-19

CANADA

**COVID-19 has put routine cancer screening for many in Ontario on hold**

Diagnostic Pap tests in Ontario Cervical Screening Program dropped by 48%

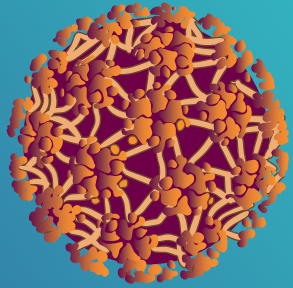
- March 2019 – 87,877
- March 2020 – 45,847



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# **Counseling Adults for HPV Vaccination**

# Rationale for Adult HPV Vaccination



**Risk of new exposure**

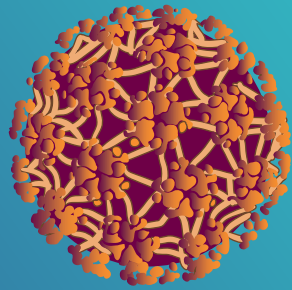


**Efficacy of vaccination at reducing disease**



**Vaccination reduces recurrence in previously exposed adults**

# Rationale for Adult HPV Vaccination



**Risk of new exposure**



**Efficacy of vaccination at reducing disease**



**Vaccination reduces recurrence in previously exposed adults**

**Partners should also be vaccinated for HPV**

# Why should you get vaccinated for HPV?



This is a vaccine  
to protect you  
against ***cancer***



HPV cancers are  
***preventable***



We don't want  
to ***lose you to  
this disease***

# Counseling for Adult HPV Vaccination



**Don't assume a young adult (female or male) was already vaccinated**



**Remember that the adults you counsel about HPV vaccination are also the parents of children**

# HPV Vaccination Counselling – “The Message”

**Keep it simple**

**Effective**

**Safe**

**Recommended**

# Adult HPV Vaccination Reduction in Recurrent Disease

- Cervical dysplasia, LEEP
- EGW
- HG-AIN
- VIN



**It's never too late!**



**HPV infection is common in adults<sup>1,2</sup>**



**Long-term vaccination efficacy in adult women<sup>3</sup>**



**Vaccination efficacy in previously exposed adults<sup>5-9</sup>**

**Let's end HPV-related cancers**



# Panellist



**Dr. Jennifer Blake, MD**  
President and CEO,  
Society of Obstetricians and  
Gynecologists of Canada (SOGC)

# Panellist



## **Dr. Ian Witterick, MD**

President, Canadian Society of  
Otolaryngology-Head & Neck Surgeons

Professor and Chair, Department of  
Otolaryngology-Head & Neck Surgery, Sinai  
Health Systems



# HPV in the H&N

Ian Witterick MD, MSc, FRCSC

Professor & Chair

Department of Otolaryngology – Head & Neck Surgery, University of Toronto

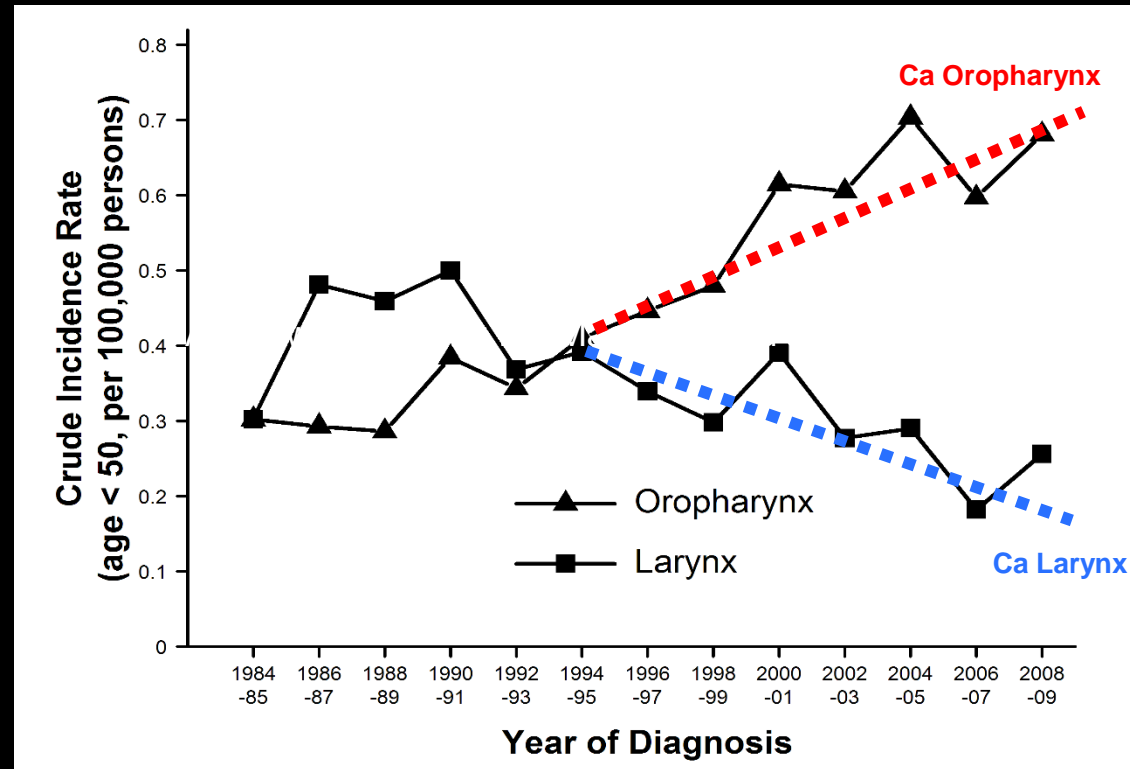
President Canadian Society of Otolaryngology – Head & Neck Surgery

# Disclosures

- Advisory Boards
  - GSK
  - Medtronic Canada
  - Sanofi Genzyme
- Shares
  - Proteocyte Diagnostics

# Evolving Head and Neck Cancer Landscape

## Incidence Rates of Laryngeal vs Oropharyngeal Cancer In Ontarians *under 50 Years* (per 100,000)



**HPV-associated head and neck cancer: a virus-related cancer epidemic**

THE LANCET Oncology  
FULL-TEXT ARTICLE

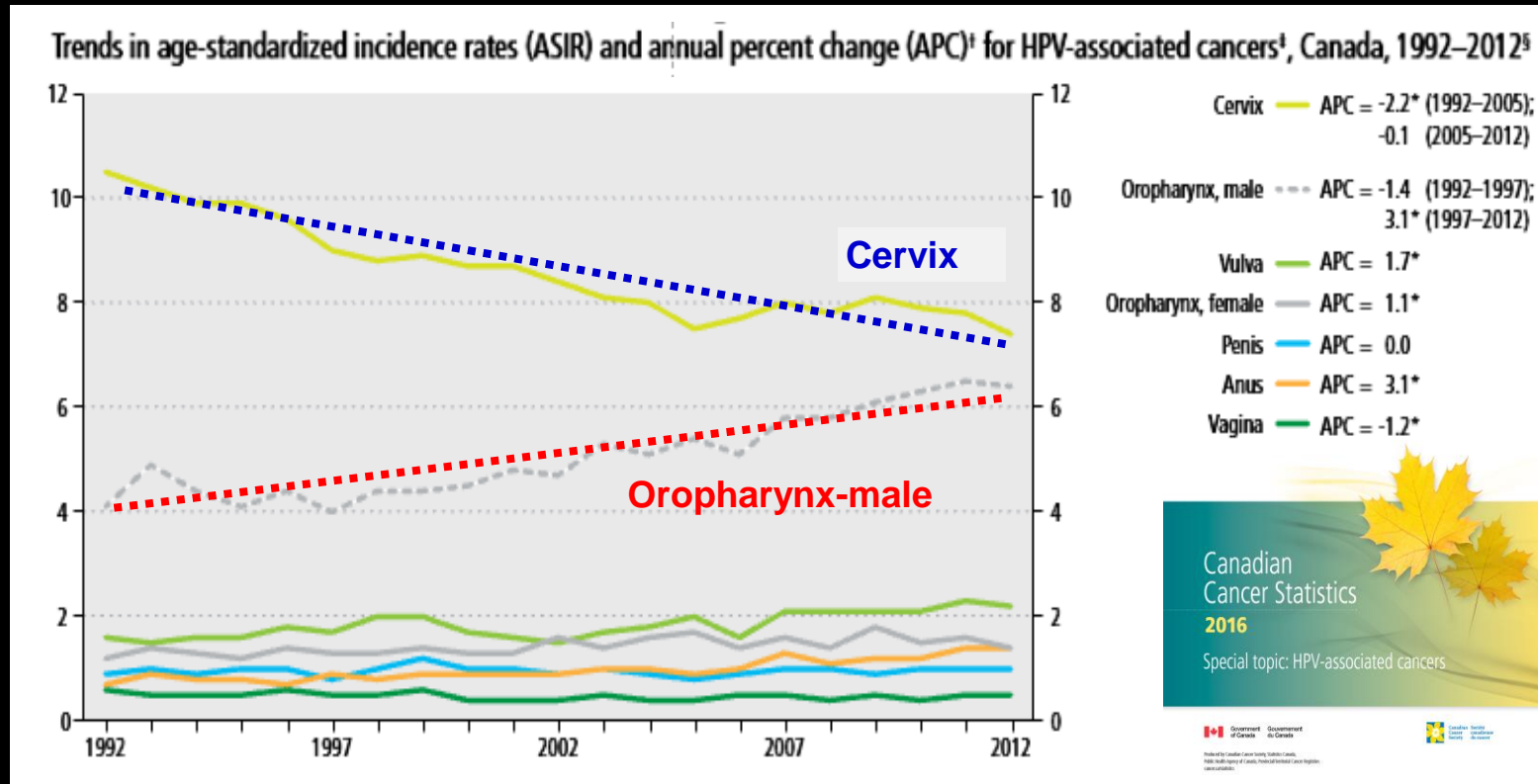
Lancet Oncol 2010; 11: 781-89



Shanthi Marur, Gypsyamber D'Souza, William H Westra, Arlene A Forastiere

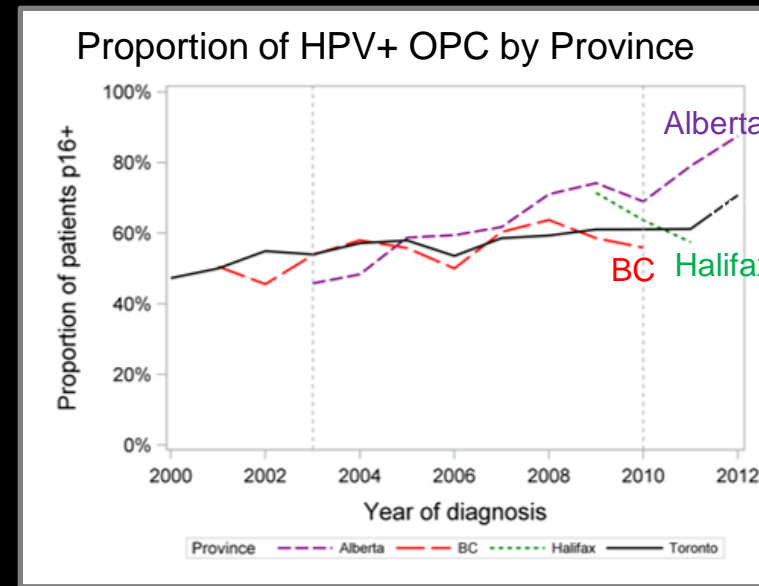
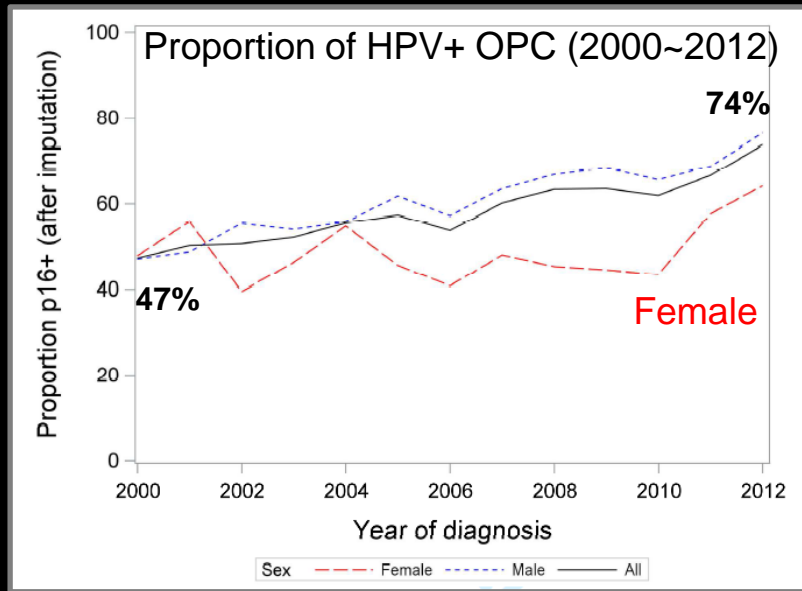
# HPV Mediated Cancer in Canada:

## Canadian Cancer Statistics 2016



- The incidence of cervical cancer is declining
- The incidence of males with oropharyngeal cancer (OPC) is rising

# Multi-provincial Time-trends Study of Incidence of HPV+ OPC (2000~2012) [Liu, Huang, O'Sullivan et al. 2017]



- Data of 3643 OPC patients in 4 Canadian Provinces\*:
  - Proportion of HPV+ OPC increased significantly in males
- The estimate proportion of HPV+ OPC
  - Had risen from approximately 47% in 2000 to 74% in 2012

### Data from 4 Canadian Provinces:

- Ontario (Toronto)
- BC (6 regional cancer centres)
- Alberta (Edmonton, Calgary)
- Nova Scotia (Halifax)

Human papillomavirus in oropharyngeal cancer in Canada: analysis of 5 comprehensive cancer centres using multiple imputation

Sтивен Хаббард MSc, Карен П. Чу MSc, Ханси Ли MSc, Мелба Шерр MSc, Мелба Белзак MSc, Роберт Ли MSc, Скотт Марк MSc, Брендан Дублан MSc, Шан-Хуа Хуанг MSc, Стефанье Сюе MSc, Мелба Полланд MSc, Девиан-Хан MSc, Шенон Т. Чанг MSc, Вэй Лу PhD, Кейтлин Ли MSc

Liu, Huang, et al. CMAJ 2017

# Difference of HPV+ HNC vs Cervical Cancer



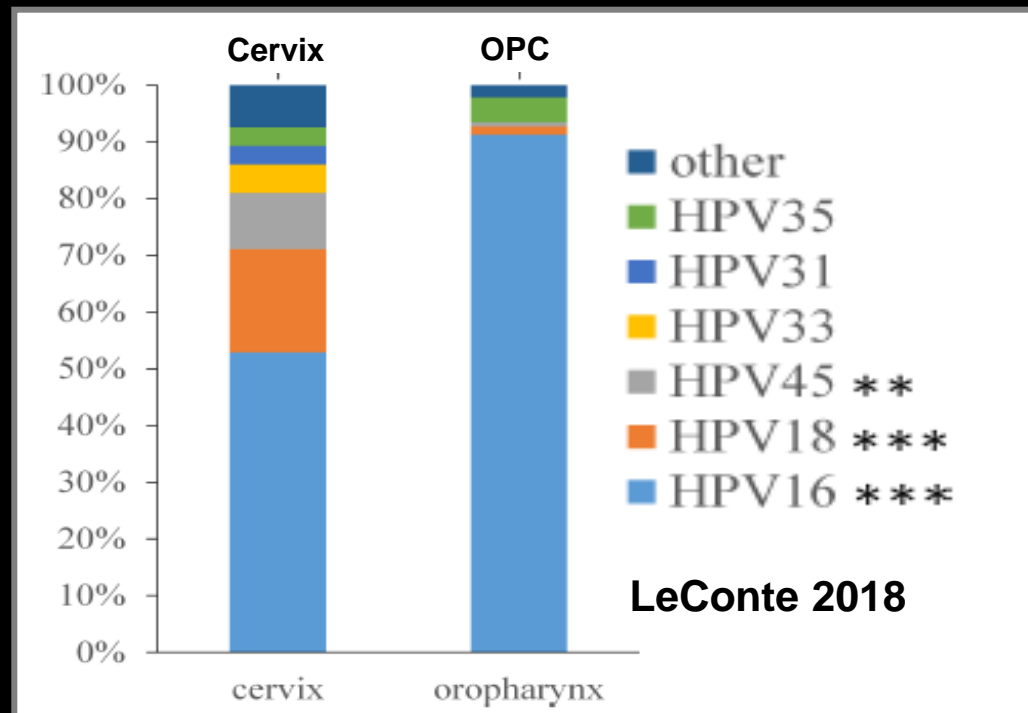
# High-risk HPV Subtypes: Ca Cervix vs OPC

## Eurogin Roadmap: Comparative epidemiology of HPV infection and associated cancers of the head and neck and cervix

Int. J. Cancer: 134, 497–507 (2014) © 2013 UICC

Maura L. Gillison<sup>1</sup>, Xavier Castellsagué<sup>2</sup>, Anil Chaturvedi<sup>3</sup>, Marc T. Goodman<sup>4</sup>, Peter Snijders<sup>5</sup>, Massimo Tommasino<sup>6</sup>, Marc Arbyn<sup>7,8</sup> and Silvia Franceschi<sup>6</sup>

	Cervical Cancer	Oropharyngeal Cancer
HPV as Etiology	~100%	26%
HPV 16	~55%	>90%
HPV18	~10%	2%



Courtesy Ms. Sophie (Shao Hui) Huang

# Summary: Similarity and Differences

	<b>Cervical Cancer</b>	<b>Oropharyngeal cancer</b>
<b>% of HPV+ cancer</b>	>95%	>70% in US and Canada
<b>Epidemiology</b>	Developing countries	Developed countries
<b>Viral transmission</b>	Sexual Intercourse	Oral Sex
<b>Age</b>	Relatively younger (peak: 45 years in China)	Relatively older (peak: 55 years)
<b>Gender</b>	Females	Male dominant (>80%)
<b>Screening program</b>	Yes	None
<b>Prevention</b>	HPV vaccine (Approved in 2009 in US; in 2016 in China)	HPV vaccine (approved for used in both boys and girls in 2012)

# Prevention of HPV+ OPC

# Could tonsillectomy prevent it?

Published OnlineFirst April 20, 2015; DOI: 10.1158/1940-6207.CAPR-15-0101

Research Article

Cancer  
Prevention  
Research

## The Impact of Tonsillectomy upon the Risk of Oropharyngeal Carcinoma Diagnosis and Prognosis in the Danish Cancer Registry

Carole Fakhry<sup>1,2</sup>, Klaus K. Andersen<sup>3</sup>, Jane Christensen<sup>3</sup>, Nishant Agrawal<sup>1</sup>, and David W. Eisele<sup>1</sup>

	Tonsil Carcinoma (Relative Risk)*	BOT Carcinoma (Relative Risk)*
No tonsillectomy	1.0	1.0
Tonsillectomy <1 year before OPC	<b>252.2 (210.3-302.3)</b>	<b>117.4 (71.5-192.8)</b>
Tonsillectomy ≥1 year before OPC	<b>0.4 (0.2-0.7)</b>	1.1 (0.6-2.1)

\* Adjusted for age, calendar period, education, and gender

**Remote tonsillectomy reduces the risk of diagnosis with tonsillar carcinoma but has no impact on risk of BOT carcinoma**

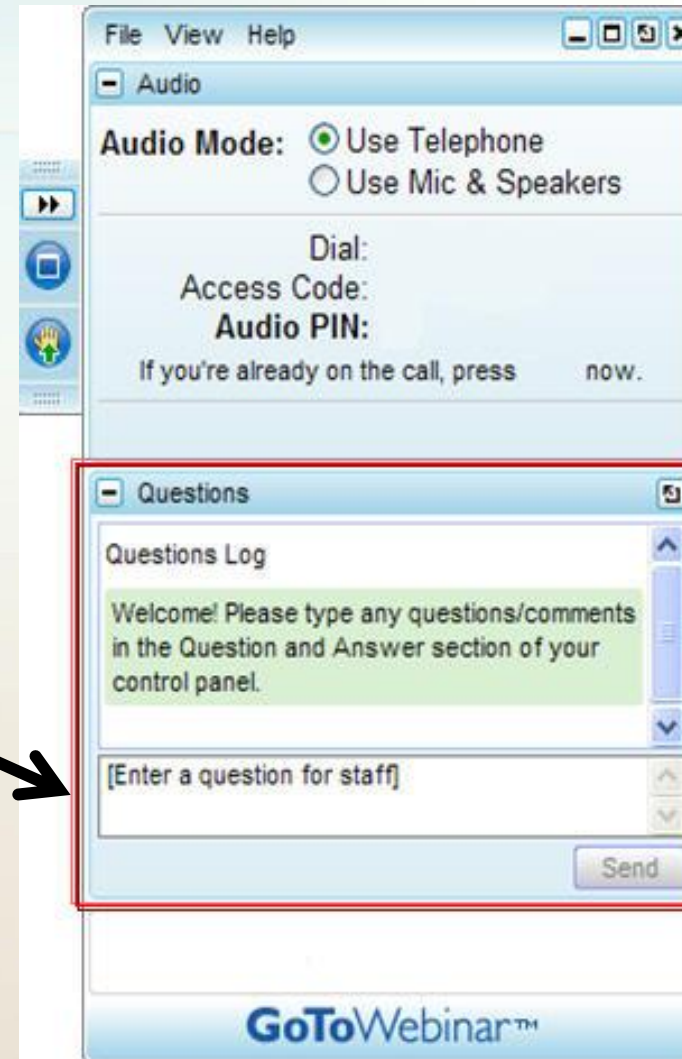
# Rationales for Vaccination Males: Canadian Perspectives

- Male is more susceptible to HPV infection
  - Higher cervix-to-penis viral transmission
  - Weaker immune response
- Unlike PAP test for cervical cancer, there is no screening program for male to detect HPV+ HNC
- Principles of health equity
- Indirect benefit to female partner
- Direct benefit male in a male-to-male relationship
- Cost – effectiveness

# Question & Answer Period



Submit your text question using  
the Questions pane



**HPV: A VIRUS WE**

**ALL**

**CAN BEAT**

**#AskAboutHPV**

# TAKE ACTION

There are a number of actions that individuals and organizations can take on March 4th. Whatever action you choose – big or small – you will be helping to end the harm caused by HPV.



# Our Ongoing and Neglected HPV Pandemic

## HPV Prevention in the Adult Population: protecting those at higher risk



- **Evaluation:**
- <https://www.questionpro.com/a/TakeSurvey?tt=qU0%2Bh4dNUW0%3D>

**Slide Set, Video recording, HPV documents at: [www.CIDCgroup.org](http://www.CIDCgroup.org)**

- Find out about news and upcoming events....

....Join the **Canadian HPV Prevention Network** at: [www.CIDCgroup.org](http://www.CIDCgroup.org)

(it's free! Fill out the 'Contact' form on the website)

**Thank you for participating!**

More Info: George Wurtak, Executive Director, CIDC      [GWurtak@CIDCgroup.org](mailto:GWurtak@CIDCgroup.org)

This educational program is made possible through the support of **Merck Canada Inc.** and with assistance by BD Diagnostics and Immunize Canada

The opinions expressed in this webinar are those of the presenters and do not necessarily reflect the views of CIDC or its partners