

Is the elimination of cervical cancer possible in Canada without real equity in access to HPV-related prevention services?



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Action Globale

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The opinions expressed in this webinar are those of the presenter and do not necessarily reflect the views of CIDC, HPV Global Action or their partners

Moderator



Amélie McFadyen, M.A. Sexology

Chief Executive Officer,
HPV Global Action/VPH Action Globale

Webinar Objectives

- Review the distribution of burden of HPV in Canadian populations
- List examples of populations and health inequities in Canada
- Overcoming challenges in reaching populations who do not have equitable access to HPV prevention
- Examples of Adapted HPV prevention measures for people who are immunocompromised

Administrative Information

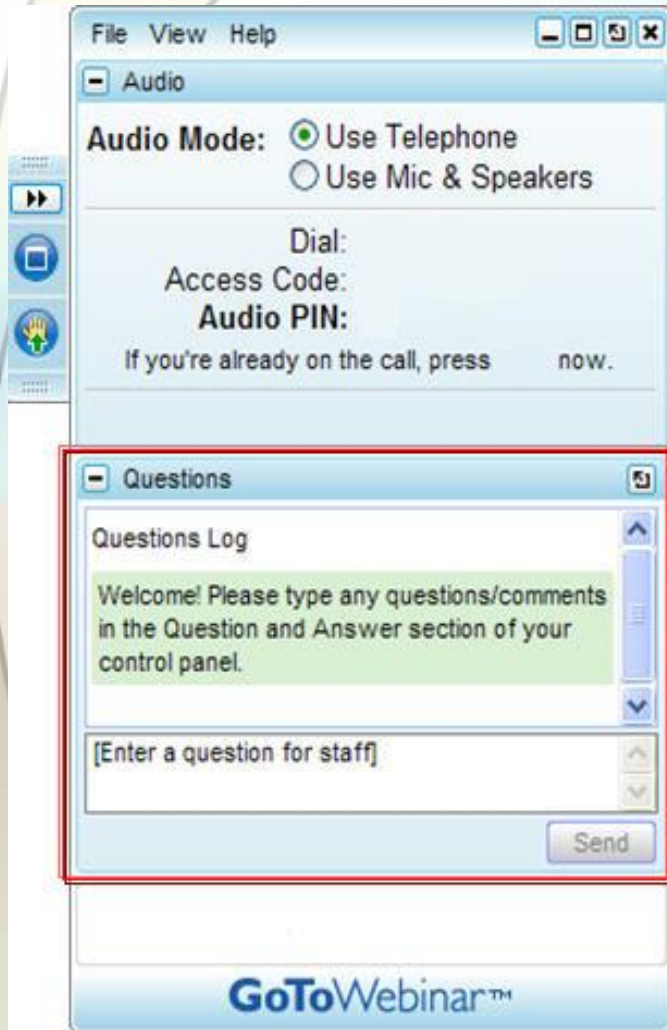
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- You can hear the audio for today's webinar via your computer by selecting "Use Mic & Speakers"
- Submit questions at any time by typing in the "Questions" pane on the control panel & click 'Send' button
- Questions will be answered at the end of the presentation

NOTE: For **mobile device** users:

- To open the questions pane, tap on the "?" or "Questions"
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Note: A recording of the presentation will be made available at www.CIDCgroup.org and hpvglobalaction.org



Evaluation

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Presenter

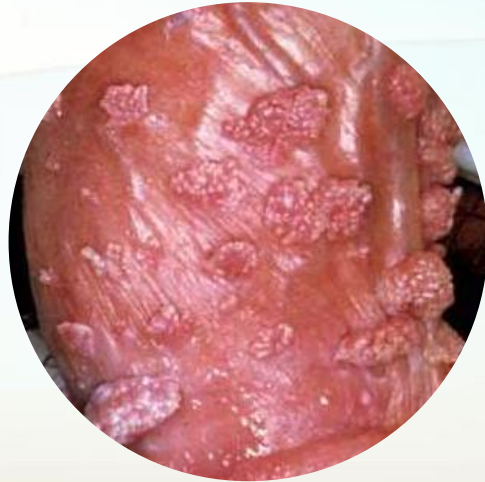


Dr. Ivan Litvinov MD, PhD, FRCPC

Director, Division of Dermatology,

McGill University

Understanding the burden of HPV in Canada and available prevention measures



McGill
UNIVERSITY

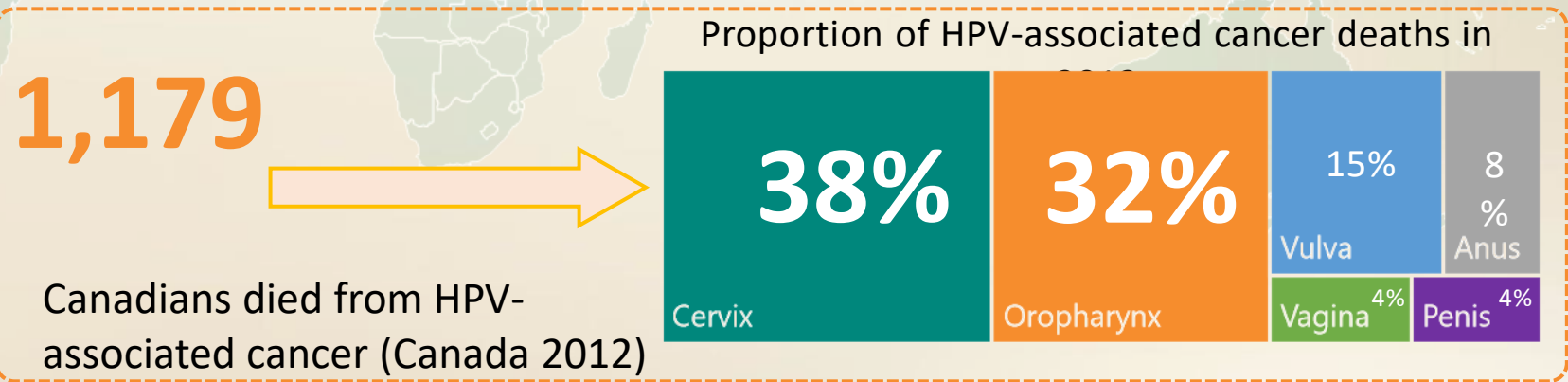
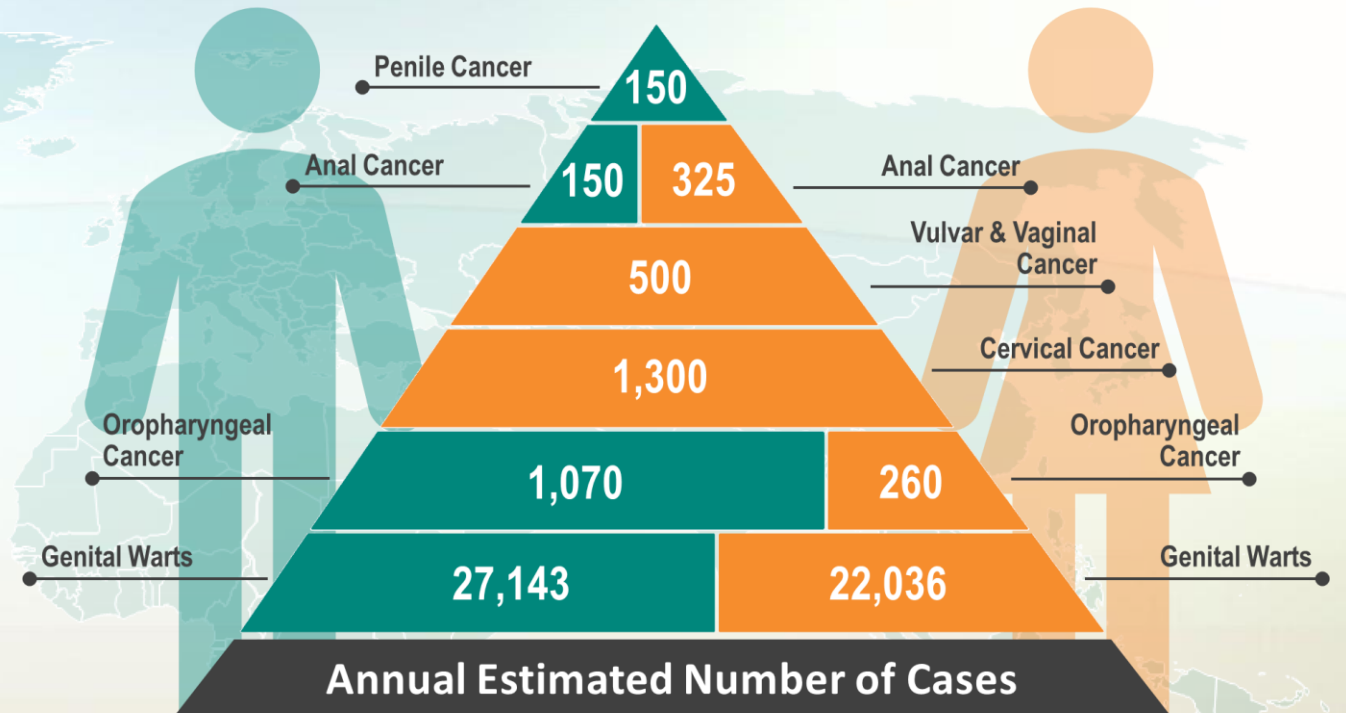
- Ivan V. Litvinov, M.D., Ph.D., FRCPC
- Director, Division of Dermatology
- McGill University Health Centre
- President, Skin Research Group of Canada

CANADIAN HPV-ASSOCIATED CANCERS STATISTICS

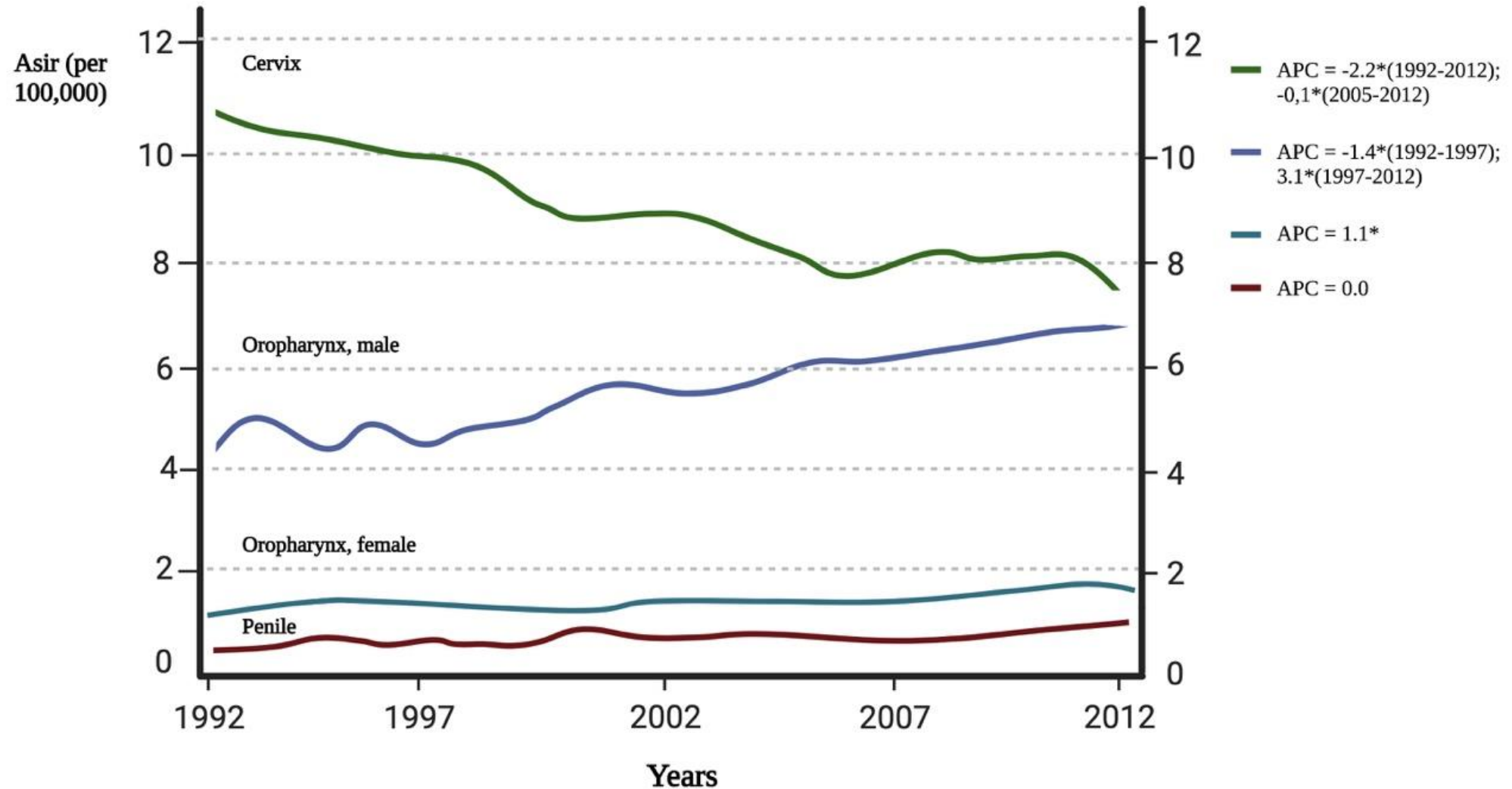
Canadian Cancer Statistics
2016
Special topic: HPV-associated cancers

Government of Canada / Gouvernement du Canada
Canadian Cancer Society / Société canadienne du cancer

Produced by Canadian Cancer Society, Statistics Canada, Public Health Agency of Canada, Provincial/Territorial Cancer Registries cancer.ca/statistics



Incidence of HPV-driven cancers, 1992-2012

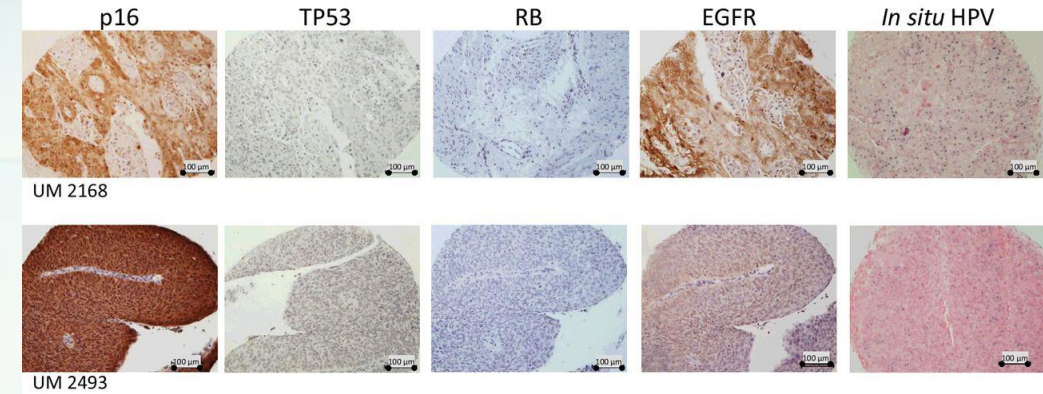


HPV-Associated Cancer Prevalence Between 1993 and 2005 Based on Seven US Population-Based Cancer Registries.¹⁴

Cancer tissue site	% positive for HPV	% Positive for high-grade HPV types 16 and 18
Anus	91.1%	79.4%
Oropharynx	70.1%	60.2%
Penis	63.3%	47.9%
Oral	32.0%	32.2%
Laryngeal	20.9%	7.5%
Skin	High	---

How do we know/test if a given cancer is caused by HPV?

HIV	Sex	Age	BDbx ID	Site	p16	TP53	RB	Cyclin D1	EGFR	HPV PCR-MA	In situ HPV
-	M	64	UM2168	FOM	16	1	1	1	16	HPV18	Positive
-	M	45	UM2493	Tonsil	16	1	1	1	1	HPV16	Positive



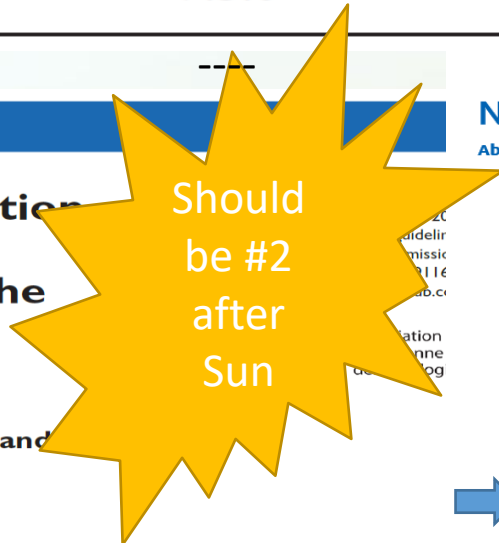
Review Article

Review of Evidence and Recommendations for Human Papillomavirus (HPV) Vaccination of Canadian Males Over the Age of 26 Years

Alex Derstenfeld¹, Kyle Cullingham^{2,3}, Zhuo Cai Ran^{3,4}, and Ivan V. Litvinov^{1,3,5}

Abstract

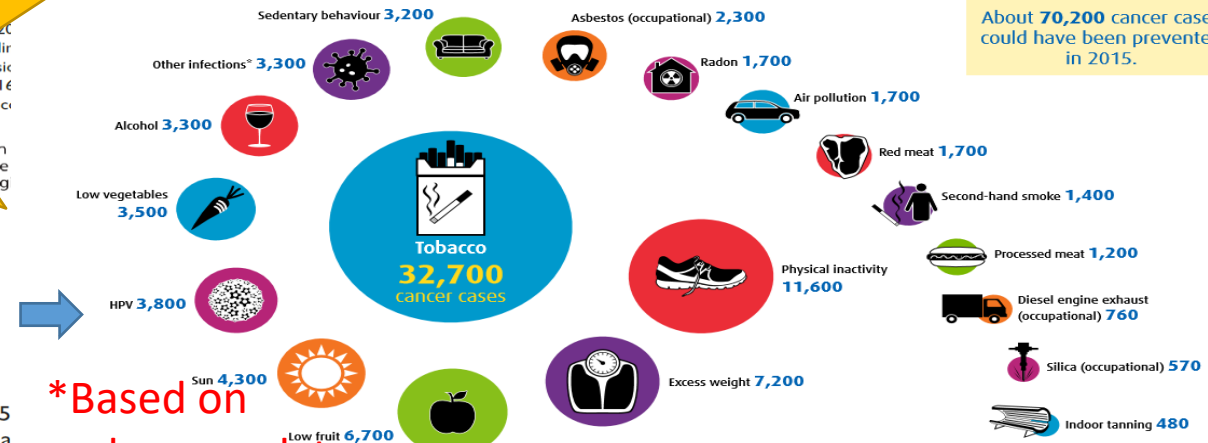
Human papillomavirus (HPV) remains the most common sexually transmitted infection with a lifetime incidence of over 75%. Based on US data from the Centers for Disease Control and Prevention (CDC), 64% of invasive HPV-associated cancers are attributable to HPV 16 or 18 (65% for females; 63% males) and may be prevented by vaccination with either the quadrivalent or nonavalent HPV vaccine. Public HPV vaccination programs are now the norm for women aged 9-45 years and men aged 9-26 years in Canada. Yet, only recently have guidelines begun to consider vaccination of men older than 26 years of age. There now exist compelling reasons to recommend vaccination against HPV amongst males >26 years of age. Recognizing that the risks posed by HPV infection persist beyond 26 years of age, that the vaccination of men aged 26-45 years with the HPV vaccine confers immunogenicity at levels demonstrably efficacious against HPV-related diseases, and that the Food and Drug Administration recently expanded the HPV vaccination to include older men, it is argued that HPV vaccination in men older...



Number of cancer cases that could be prevented in Canada

About 4 in 10 cancer cases can be prevented through healthy living and policies that protect the health of Canadians.

About 70,200 cancer cases could have been prevented in 2015.



*Based on melanoma data

Not all risk factors have the same impact on cancer risk. This image shows the number of cancer cases diagnosed in 2015 that are due to key modifiable risk factors.**

**Other infections category includes Epstein-Barr virus (EBV), hepatitis B virus (HBV), hepatitis C virus (HCV), *Helicobacter pylori* bacteria (*H. pylori*), human herpesvirus type 8 (HHV-8) and human T-cell leukemia/lymphoma virus type 1 (HTLV-1).
***See website for details on data and risk factor definitions.

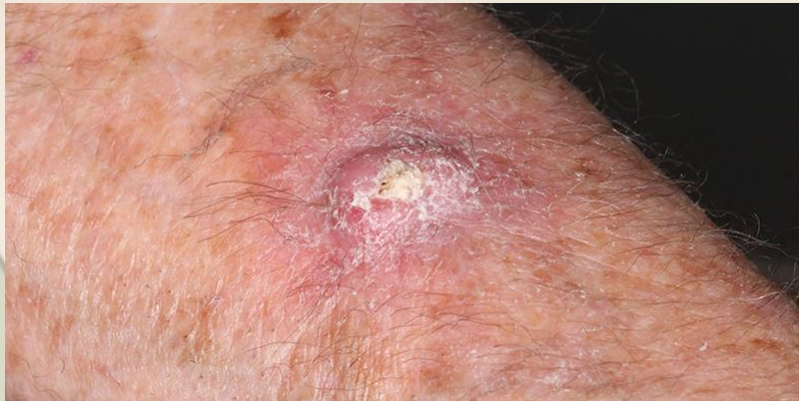
Epithelioma/Carcinoma Cuniculatum



- Carcinoma cuniculatum is a rare form of squamous cell carcinoma with well-differentiated tumoral keratinocytes.
- The clinical presentation is variable and usually patients show a verrucous exophytic tumoral mass of the plantar region.
- A chronic infection by human papillomaviruses (HPV; types 1–4, 6, 11, and 18) has been suggested to play a role in the pathogenesis.
- The tumor rarely metastatizes but it is capable of a slow and progressive invasion into the deeper tissues, (*i.e.*, subcutaneous fat and bone).

Cutaneous Squamous Cell Carcinoma

- **Cutaneous squamous cell carcinoma (cSCC)** is the second most common cancer. cSCC traditionally accounts for 20%-50% of skin cancers.
- BCC/SCC cancers are not reported to cancer registries in the United States or Canada.
- Every year ~5.4 million keratinocyte carcinomas are diagnosed and treated in the United States alone (2012 estimated incidence of cSCC is ~700,000 cases).



Cutaneous squamous cell carcinoma: Estimated incidence of disease, nodal metastasis, and deaths from disease in the United States, 2012

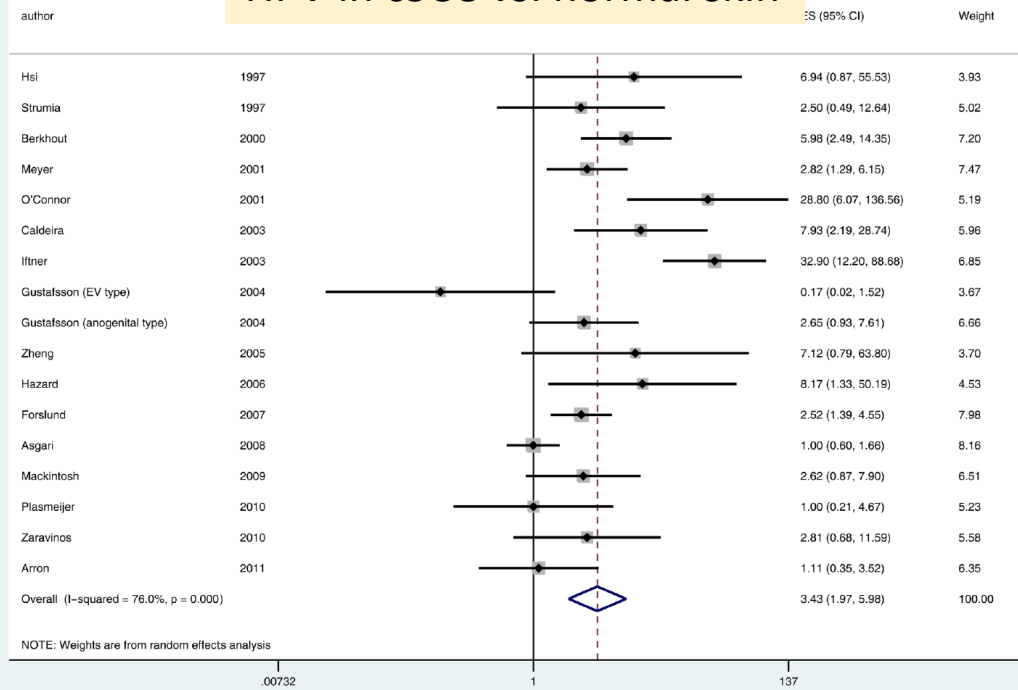
Pritesh S. Karia, MPH, Jiali Han, PhD, and Chrysalyn D. Schmults, MD, MSCE
Boston, Massachusetts

Background: It is estimated that over 700,000 new cases of cutaneous squamous cell carcinoma (CSCC) are diagnosed annually in the United States. However, CSCC has been excluded from national cancer registries. Thus the precise incidence of CSCC, along with metastases and deaths resulting from it, is unknown.

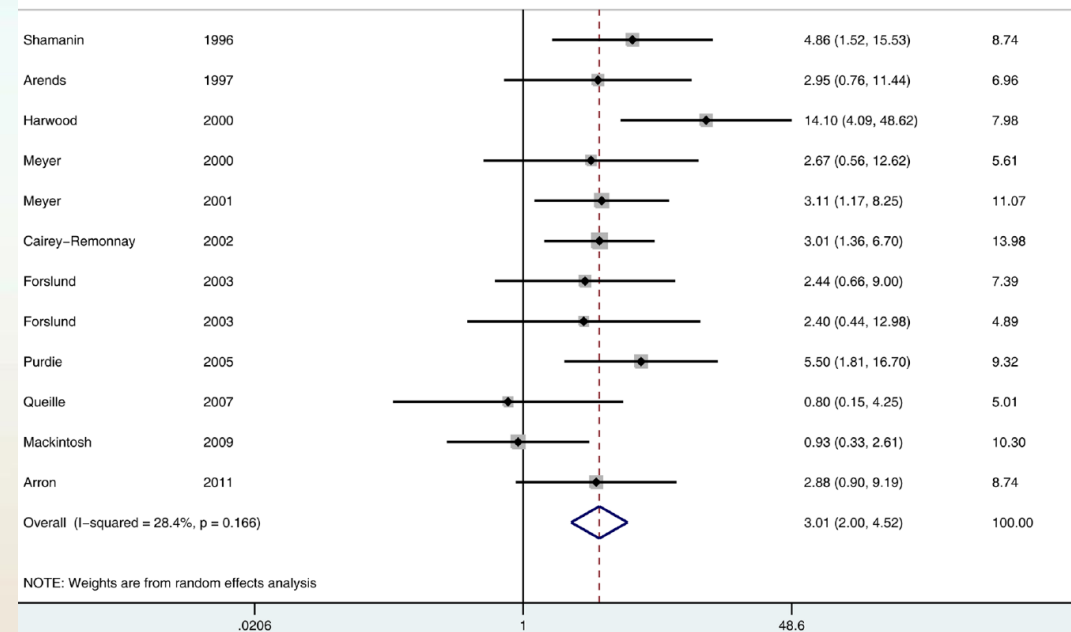
Role of HPV in Skin Squamous Cell Carcinoma

- The role of HPV in **cutaneous squamous cell carcinoma (SCC)** remains to be elucidated. **HPV** is thought to act as a possible co-carcinogen in the development of **SCC**.
- Studies indicate that human skin is “littered” with HPV, where it may be contributing to this 2nd most common human cancer (cSCC).

HPV in cSCC vs. normal skin



HPV in cSCC from immunosuppressed vs. immunocompetent patient



J Am Acad Dermatol. 2014 April ; 70(4): 621–629. doi:10.1016/j.jaad.2014.01.857.

Role of human papillomavirus in cutaneous squamous cell carcinoma: A Meta-analysis

Jennifer Wang, BA^{1,*}, Bishr Aldabagh, MD^{2,*}, Justin Yu, BS³, and Sarah Tuttleton Arron, MD, PhD²

* Based on studies in epithelioma cuniculatum we know that HPV; types 1–4, 6, 11, and 18 together with sun exposure, immunosuppression, immunosenescence in elderly patients may be involved.

Human Papillomavirus Community in Healthy Persons, Defined by Metagenomics Analysis of Human Microbiome Project Shotgun Sequencing Data Sets

Yingfei Ma,^a Ramana Madupu,^b Ulas Karaoz,^c Carlos W. Nossa,^d Liying Yang,^a Shibu Yooseph,^e Patrick S. Yachimski,^f Eoin L. Brodie,^c Karen E. Nelson,^b Zhiheng Pei^{a,g}

New York University, School of Medicine, New York, New York, USA^a; J. Craig Venter Institute, Rockville, Maryland, USA^b; Ecology Department, Earth Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, California, USA^c; Gene by Gene, Ltd., Houston, Texas, USA^d; J. Craig Venter Institute, La Jolla, California, USA^e; Vanderbilt University School of Medicine, Nashville, Tennessee, USA^f; The Department of Veterans Affairs New York Harbor Healthcare System, New York, New York, USA^g

ABSTRACT
 Human papillomavirus (HPV) causes a number of neoplastic diseases in humans. Here, we show a complex normal HPV community in a cohort of 103 healthy human subjects, by metagenomics analysis of the shotgun sequencing data generated from the NIH Human Microbiome Project. The overall HPV prevalence was 68.9% and was highest in the skin (61.3%), followed by the vagina (41.5%), mouth (30%), and gut (17.3%). Of the 109 HPV types as well as additional unclassified types detected, most were undetectable by the widely used commercial kits targeting the vaginal/cervical HPV types. These HPVs likely represent true HPV infections rather than transitory exposure because of strong organ tropism and persistence of the same HPV types in repeat samples. Coexistence of multiple HPV types was found in 48.1% of the HPV-positive samples. Networking between HPV types, co-occurrence or exclusion, was detected in vaginal and skin samples. Large contigs assembled from short HPV reads were obtained from several samples, confirming their genuine HPV origin. This first large-scale survey of HPV using a shotgun sequencing approach yielded a comprehensive map of HPV infections among different body sites of healthy human subjects.

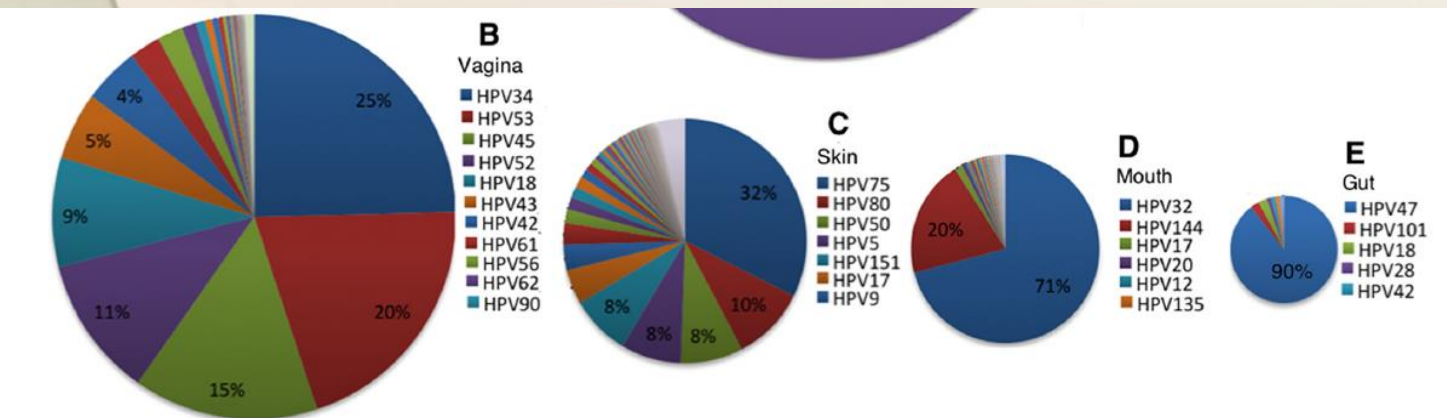
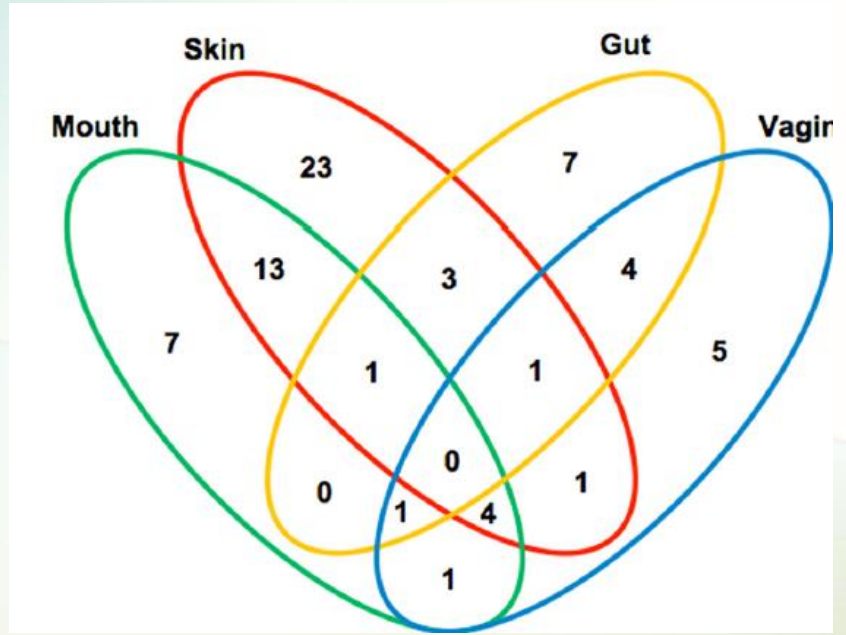


TABLE 2 HPV prevalence in human subjects by organ

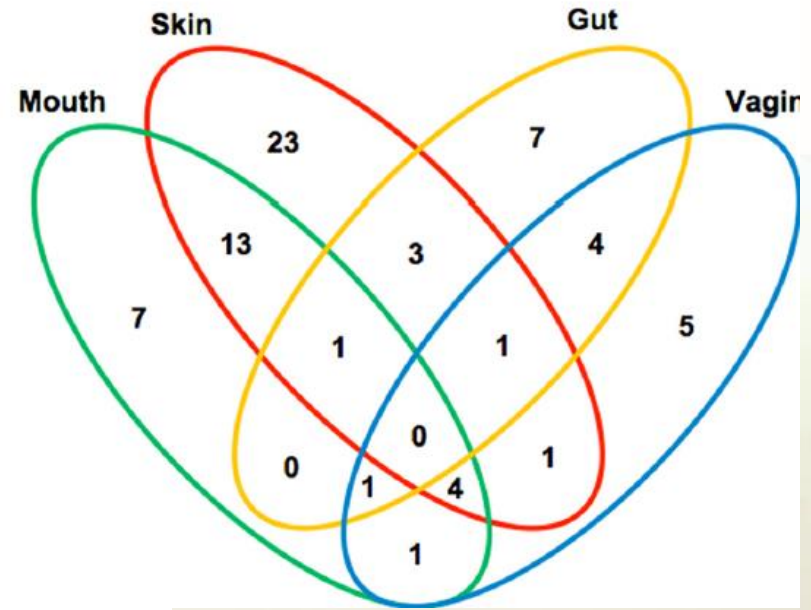
Organ	No. of subjects	No. of HPV ⁺ subjects ^a	HPV prevalence (%)
Vagina	41	17	41.50
Skin	75	46	61.30
Mouth	90	27	30.00
Gut	98	17	17.30
Total	103	71	68.90

^a HPV⁺, HPV positive.

Snapshot of one population in time...

- Skin: HPV 18, 45, 58

	Mouth	Skin	
1, 138	107,12,147 148,155,17	10,104,109,110,111,112 115,116,119,120,122	
26	19,20,24,36	124,127,129,130,132	
32	4,49,5,50,58	133,136,137,139,14,141	
145	8,80,9,98	143,149,15,151,156,2	
		22,23,37,48,60,65,75,76 92,93,95,96	
		28,47	Gut
		101,18,42	68
135	144,126	103,106,16,39,43	
62	146,153	118,121,128,131,134	
66	21,38,N	142,150,34,45,88	
		67,72,73,74,83,89 90,91	Vagina



Think of the future of your patients!!!

- 100,800 solid organ transplants are performed every year worldwide.
- People may require immunosuppression for a variety of reasons.



New Canadian Product Monograph indication in men:

GARDASIL[®]9 is indicated in boys and **men 9 through 45 years** of age for the prevention of infection caused by HPV types 6, 11, 16, 18, 31, 33, 45, 52 and 58 and the following diseases associated with the HPV types included in the vaccine:

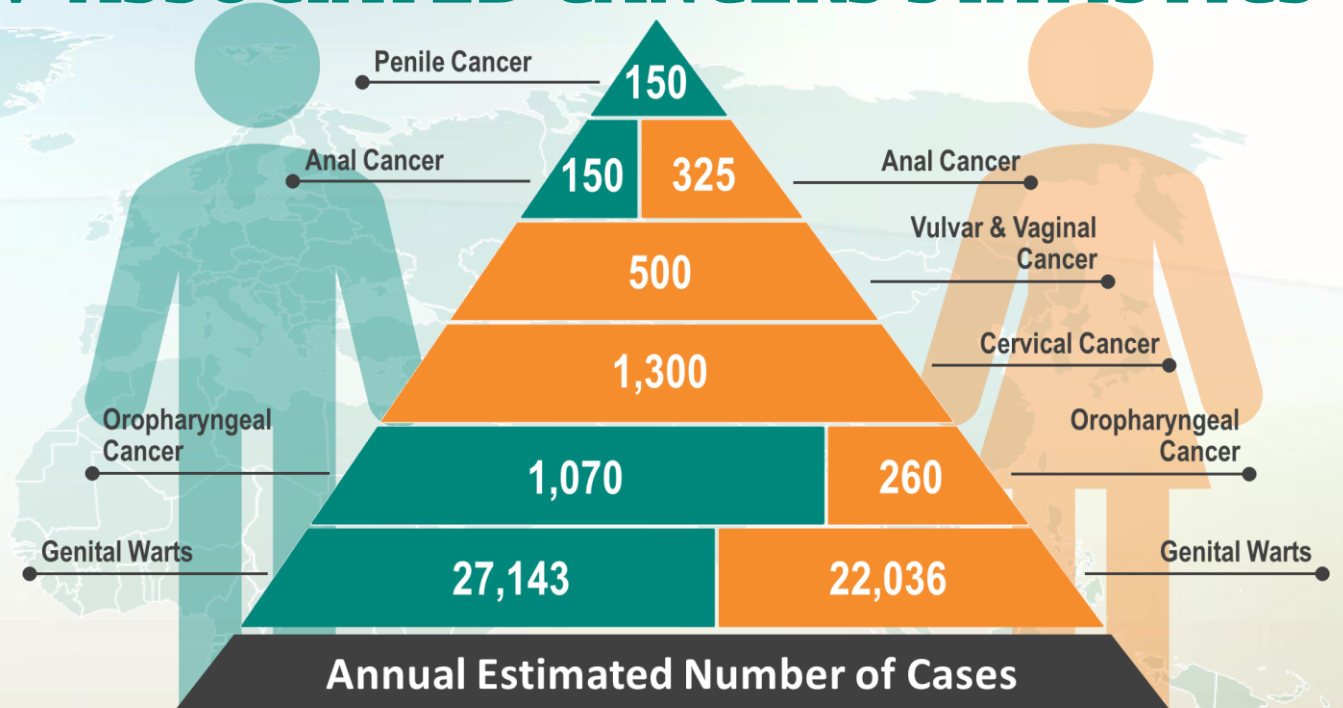
- **Prevention of oropharyngeal and head and neck cancers caused by HPV (new indication by Health Canada in 2022)**
- Anal cancer caused by HPV types 16, 18, 31, 33, 45, 52, and 58
- Genital warts (condyloma acuminata) caused by HPV types 6 and 11
- And anal intraepithelial neoplasia (AIN) grades 1, 2, and 3 caused by HPV types 6, 11, 16, 18, 31, 33, 45, 52 and 58.
- Skin Cancer (~700,000 cases per year in the US alone)?



CANADIAN HPV-ASSOCIATED CANCERS STATISTICS

Canadian Cancer Statistics
2016
 Special topic: HPV-associated cancers

Produced by Canadian Cancer Society, Statistics Canada,
 Public Health Agency of Canada, Provincial/Territorial Cancer Registries
 cancer.ca/statistics

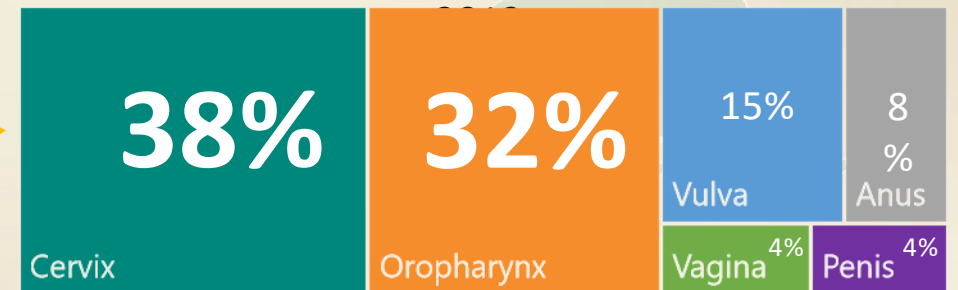


At least...

1,179

Canadians died from HPV-associated cancer (Canada 2012)

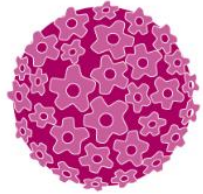
Proportion of HPV-associated cancer deaths in



Should we multiply these numbers by 10 or 15?

*SCC/BCC cancers not reported to cancer registries.
Data on these cancers not available.

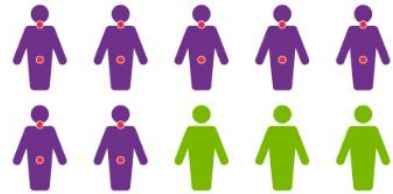
Get vaccinated against HPV to reduce your cancer risk



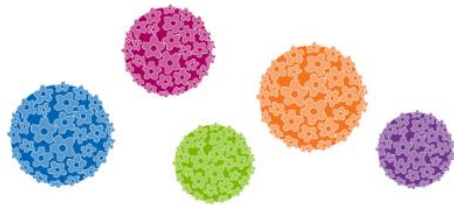
HPV
increases the risk of
more than 6 different cancers



3,800
new cancer cases
are due to HPV



7 out of 10
Canadian adults will have an
HPV infection in their lifetime*



The number of new cancer cases
due to HPV will increase
from 3,800 to 6,600 in 2042



Together, we could prevent about 5,300 cancer cases
by 2042 if more Canadian children were vaccinated against HPV

*See website for details on data and additional definitions.



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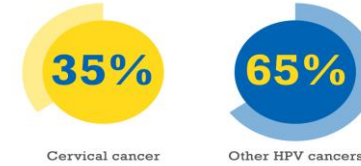
4,375 Canadians
will be diagnosed with
an HPV cancer in 2016



cancer.ca/statistics
© Canadian Cancer Society 2016



35% of HPV cancers
are in the cervix



cancer.ca/statistics
© Canadian Cancer Society 2016



HPV mouth and throat
cancers are on the rise



cancer.ca/statistics
© Canadian Cancer Society 2016

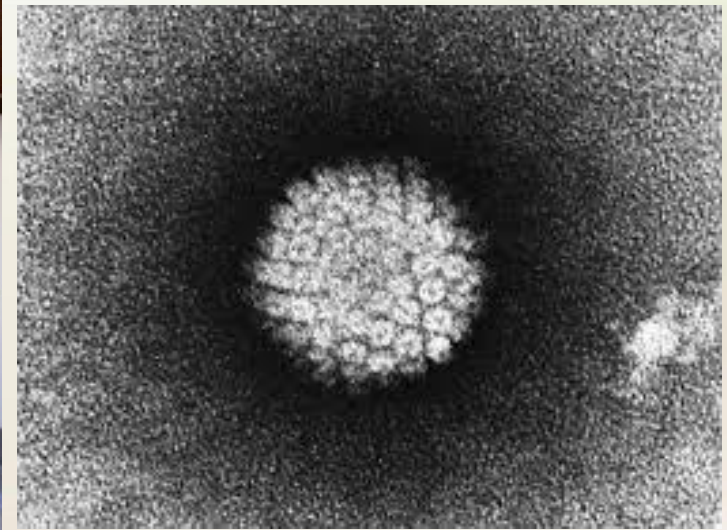
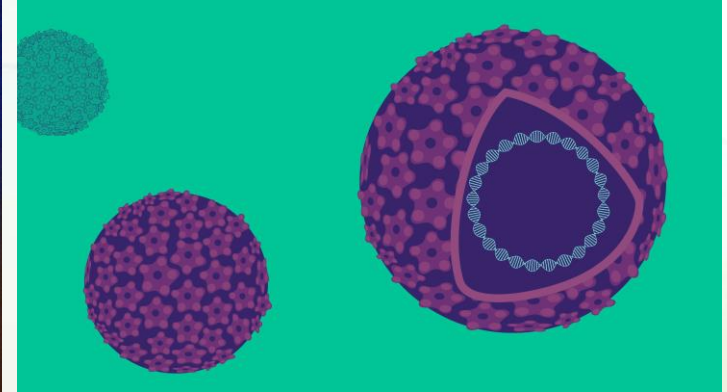


1 in 3
new HPV cancers
is in males



cancer.ca/statistics
© Canadian Cancer Society 2016

Benefits of HPV Vaccine



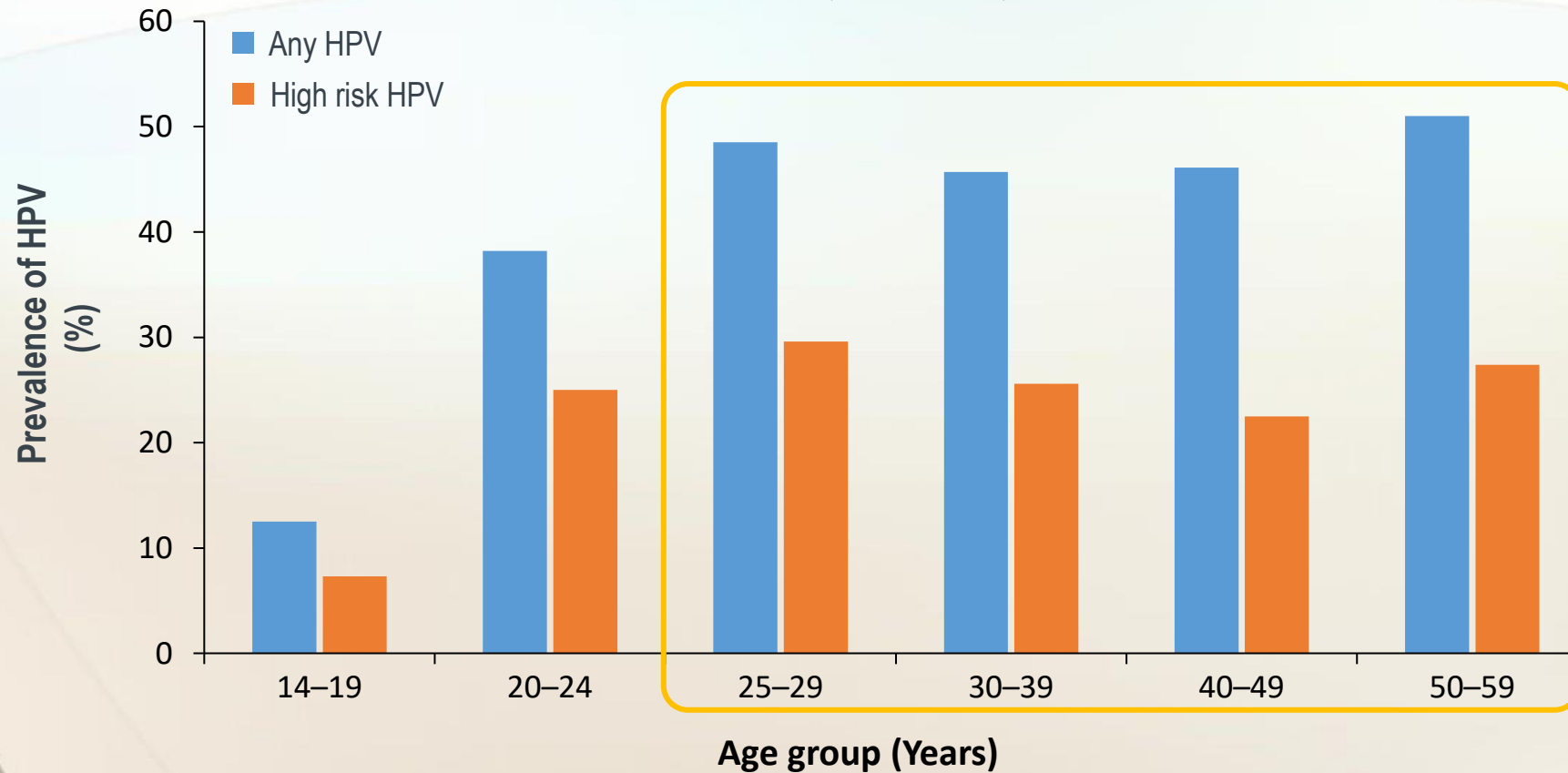
PREVENTING WARTS!

- It is important to emphasize vaccination for males!
- **Does having HPV prevents future HPV?**
- Immunogenicity to HPV infection differs in males vs females.
- Males are 4-10 times less likely to seroconvert.
- When males seroconvert the antibodies may not be protective against future HPV.
- As a result males acquire HPV infections at a steady rate:



Prevalence of Genital HPV in Males Does Not Decrease With Age¹

Prevalence of Genital HPV Infection Among Males 14–59 Years of Age, United States, NHANES, 2013–2014



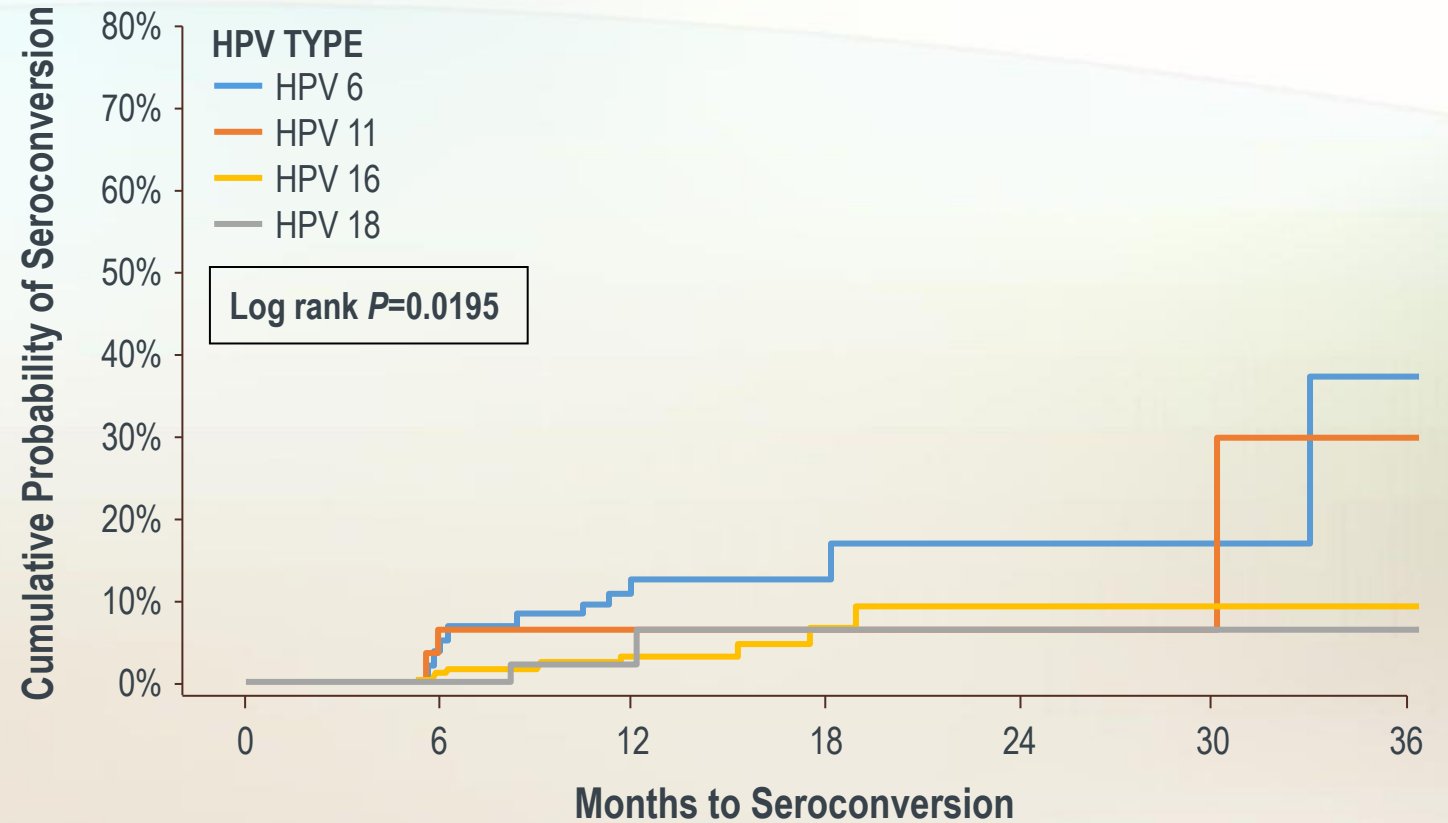
Males Have a Low Rate of Seroconversion Following HPV Infection, Regardless of Anatomic Site of Infection

- In the HPV Infection in Men (HIM) study, seroconversion was lowest for high-risk HPV types (unfortunately).
- Only **7.7%** of men developed detectable serum HPV antibodies within 36 months following HPV DNA detection of an genital, anal, or oral infection with HPV 6,11,16, or 18.

Percent Seroconversion by Genital HPV Type

	n	%	Median Time (Days)
HPV 6	12	<u>12.5</u>	223
HPV 11	3	<u>9.1</u>	182
HPV 16	8	<u>4.1</u>	317
HPV 18	2	<u>2.6</u>	311

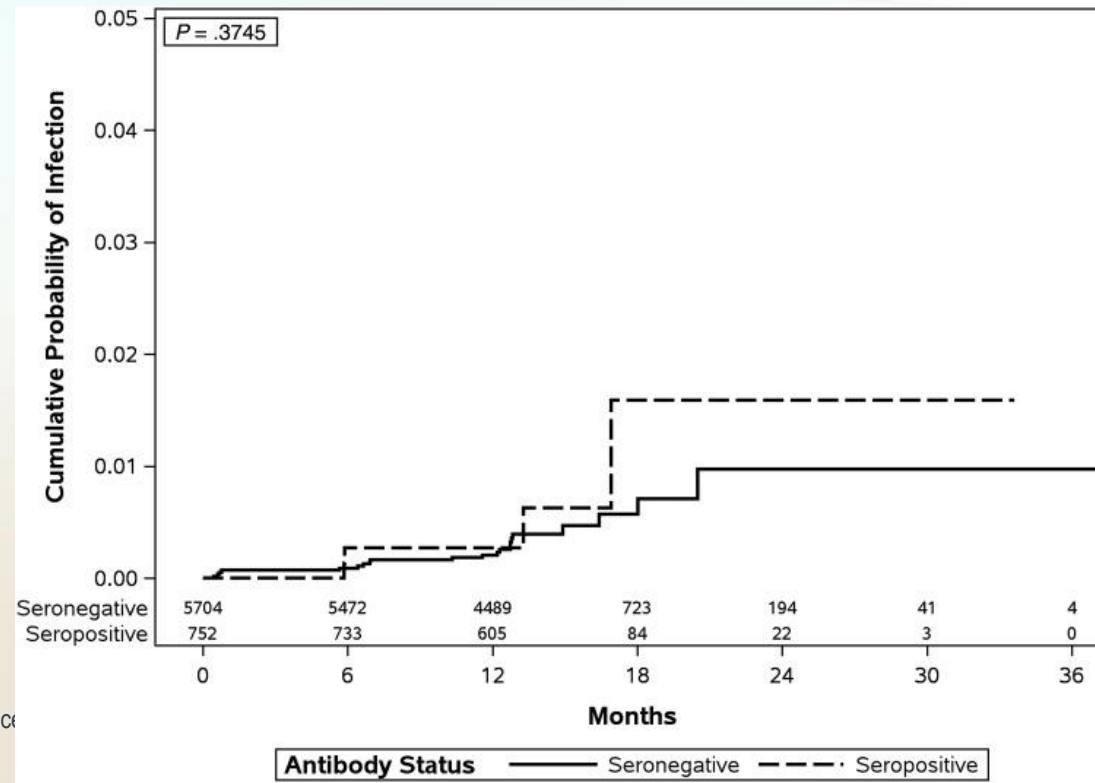
Genital Seroconversion by HPV Type



Natural HPV L1 Antibodies Do Not Reduce the Risk for Subsequent Oral HPV Infection in Healthy Males

Association Between Baseline HPV Serum Antibody Level and Risk of Incident Type-Specific Oral HPV Infection Among HIM Participants^a

- Males with circulating serum antibodies to HPV 6, 11, 16 or 18, which are believed to provide partial protection against infection, were **not** at lower risk of acquiring oral HPV infection with the same HPV type.



^aProspective study nested within HIM study evaluating whether natural HPV serum antibodies reduce

^bAdjusted for lifetime number of sexual partners (female and male).

^cDefined as positive >0.2, >0.3, >0.2, >0.2 OD units for HPV 6, 11, 16, or 18, respectively.

HIM=HPV Infection in Men. HR=Hazard Ratio.

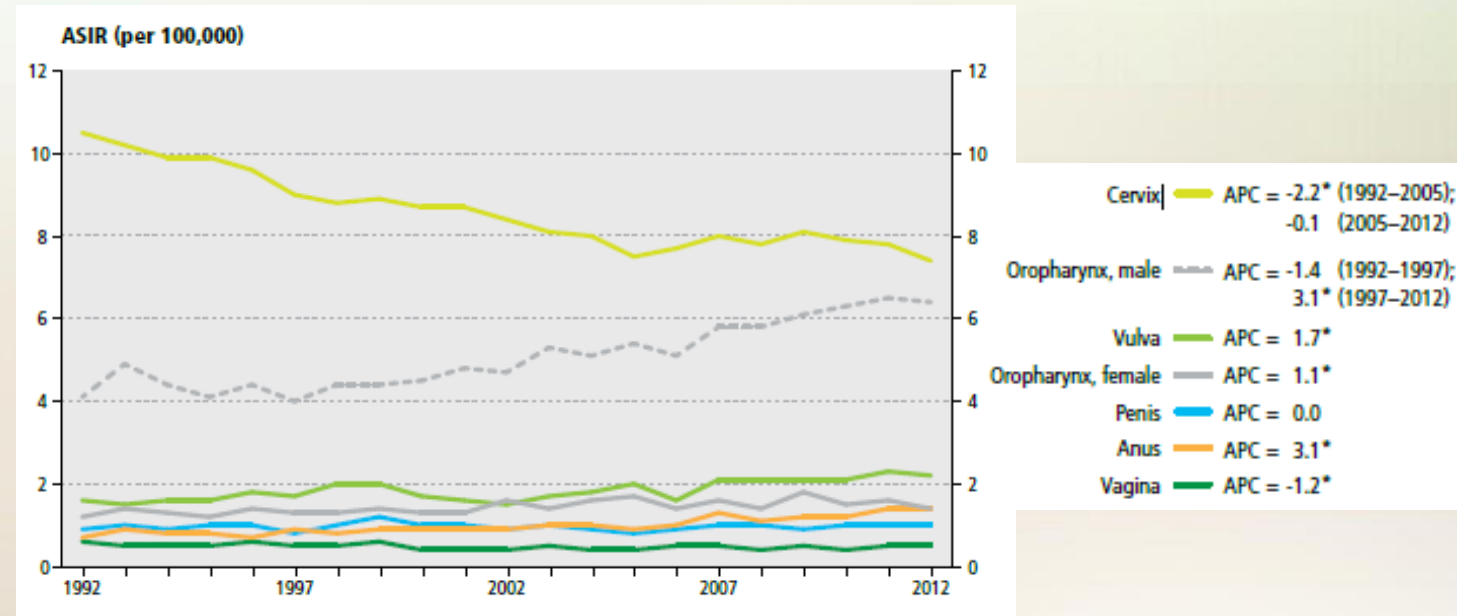
1. Pierce Campbell CM et al. *J Infect Dis.* 2016;214:45–48.

PREVENTING CANCER

- Oropharyngeal SCC (mostly affecting men) has now surpassed cervical cancer as the most common HPV-associated cancer.
- Certain individuals are at higher risk: low SEC, MSM, MSM+HIV, iatrogenically immunosuppressed individuals.
- HPV 6, 11, 16, 18 has prevalence of 95% in MSM+HIV, 30% in MSM vs. 8% in heterosexual males. 52 % of MSM+HIV have AIN (a 37-fold higher risk of anal cancer).
- ~90% of cases are due to the 9 HPV types in the 9vHPV vaccine.

Table 2. HPV-Associated Cancer Prevalence Between 1993 and 2005 Based on Seven US Population-Based Cancer Registries.¹⁴

Cancer tissue site	% positive for HPV	% Positive for high-grade HPV types 16 and 18
Anus	91.1%	79.4%
Oropharynx	70.1%	60.2%
Penis	63.3%	47.9%
Oral	32.0%	32.2%
Laryngeal	20.9%	7.5%
Skin SCC	High	----



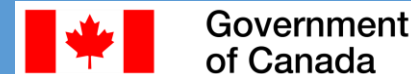


Currently many males
remain unvaccinated!

- First public Canadian HPV vaccination program for school age females took place in 2007.
- By 2010 all provinces established vaccination for school age females.
- The first public vaccination program for males took place in 2012.
- Only by 2017 all provinces established vaccination for school age males.
- ?Impact of COVID-19 on vaccination campaigns?
- In Alberta prior to implementation of public health vaccination for boys, 98.3% of individuals vaccinated were females.
- Despite gender neutral vaccination -- In 2015 PEI study showed that grade 6 girls were 1.5 times more likely than boys to receive HPV vaccine.
- Thus male vaccination began later and males are more reluctant to receive a vaccine.

RECOMMENDATIONS FOR HPV VACCINATION IN CANADA

NACI: National Advisory Committee on Immunization



- Advisory committee of experts in the fields of pediatrics, infectious disease, immunology, medical microbiology, internal medicine and public health
- Recommendations for vaccine use in Canada

Canadian Immunization Guide¹

Females: Less than 9 years of age

HPV vaccine may be considered in children less than 9 years of age who are at risk of exposure to HPV

Females: 9 to less than 27 years of age

HPV vaccine is recommended for prevention of cervical cancer and precursors. 4vHPV or 9vHPV vaccine is recommended for the prevention of vulvar, vaginal, anal cancers and their precursors, and genital warts, including *those who have had previous Pap test abnormalities, cervical cancer or genital warts*

Females: 27 years of age and older

HPV vaccine may be administered to women 27 years of age and older (**no upper age limit**) at ongoing risk of exposure to HPV.

Males: Less than 9 years of age

HPV vaccine may be considered in children less than 9 years of age who are at risk of exposure to HPV

Males: 9 to less than 27 years of age

4vHPV or 9vHPV vaccine is recommended for the prevention of anogenital warts, penile and anal cancer, perineal intraepithelial neoplasias and associated cancers.

Males: 27 years of age and older

4vHPV or 9vHPV vaccine **may be administered** to men 27 years of age and older (no upper age limit) at ongoing risk of exposure to HPV.

1. <https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/page-9-human-papillomavirus-vaccine.html>

Vaccine works in young and middle aged men

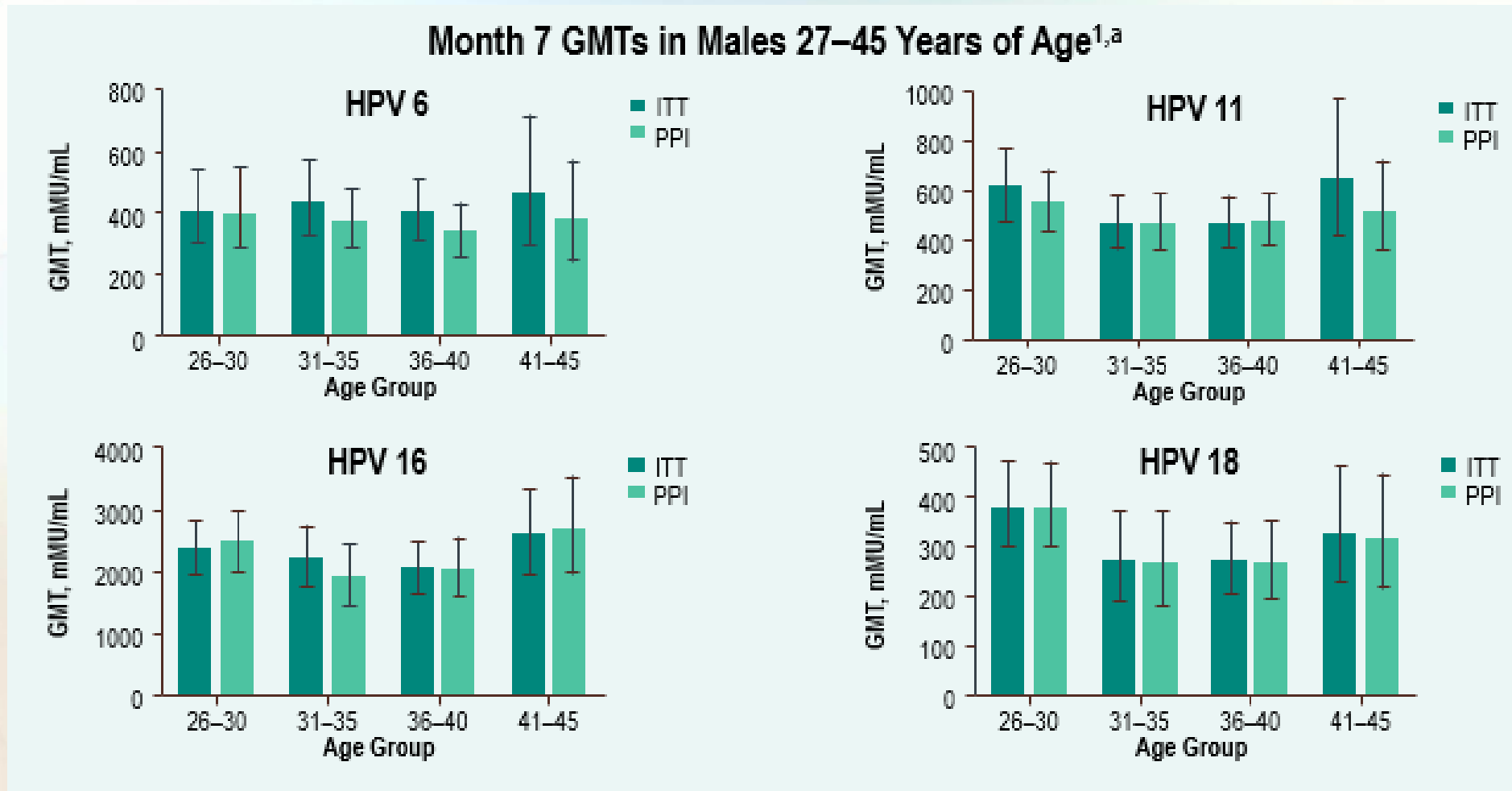
Effectiveness in men 27- 45 years of age is inferred from efficacy data in women 24 through 45 years of age as well as immunogenicity data from the Mid Adult Men study

- **Mid Adult Men Trial**

- - A Phase 2 trial was conducted to evaluate the immunogenicity and safety of the 4-valent HPV vaccine administered to mid-adult men
- - 150 males 27-45 years of age, vaccinated with the vaccine at **Day 1, Months 2, and 6**
- - Anti-HPV 6, 11, 16, and 18 titer levels were determined by competitive Luminex immunoassay (cLIA)



Month 7 Anti-HPV GMTs Do Not Vary by Age Group in Adult Men Who Received 4HPV vaccine



^aITT population included all male participants, regardless of HPV DNA and antibody status at enrollment in the MAM study; the PPI population included all male participants who were seronegative and HPV DNA negative for HPV Types 6, 11, 16, and 18 at enrollment in the MAM study. GMT=geometric mean titer; ITT=intent-to-treat; MAM=mid-adult men; PPI=per-protocol immunogenicity.

Giuliano AR et al. *Vaccine*. 2015

Demonstrated Safety Profile of 4vHPV Vaccine in Adult Men 27 to 45 Years of Age

- The majority of AEs were mild or moderate in intensity.
- No serious AEs (grade 4 or 5) were reported.

AEs Reported by Grade^a in >1 Males 27–45 Years of Age Who Received 4vHPV Vaccine

Adverse Event, n	Grade 1	Grade 2	Grade ≥3	Total
Injection-site conditions	37	13	0	50
Headache	10	4	0	14
Nasal congestion	8	1	1 ^b	10
Dizziness	5	2	0	7
Sore throat/cough	5	0	0	5
Nausea	2	2	0	4
Fatigue	4	0	0	4
Diarrhea	1	2	0	3
Flu-like symptoms	2	1	0	3
Fever	2	0	0	2
Rash	2	0	0	2

^aAdverse event grade as the following: 1–mild, 2–moderate, 3–severe, 4–life-threatening, 5–death.

^bGrade 3 event.

AE=adverse event.

REAL-WORLD EVIDENCE WITH HPV VACCINATION: CERVICAL CANCER



THE NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

HPV Vaccination and the Risk of Invasive Cervical Cancer

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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.

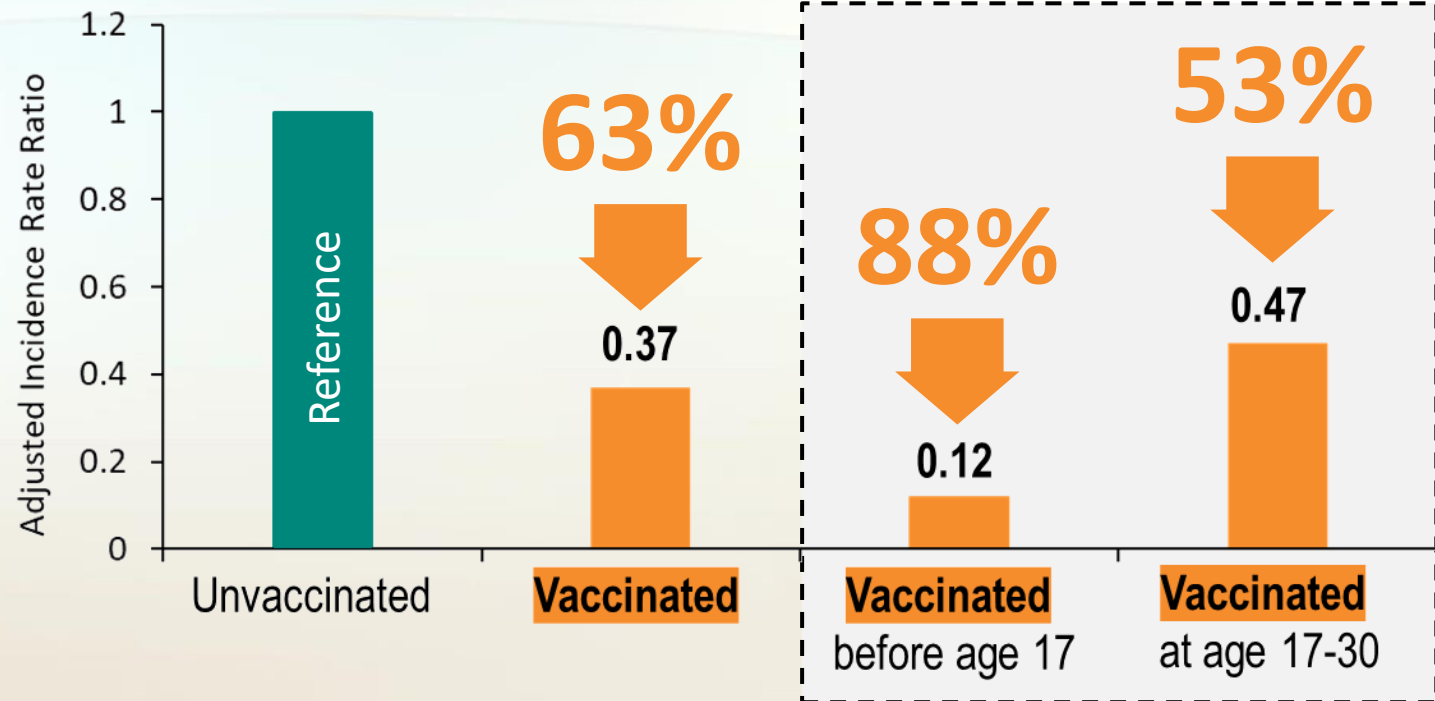
RESULTS
During the study period, we evaluated girls and women for cervical cancer until their 31st birthday. Cervical cancer was diagnosed in 19 women who had received the quadrivalent HPV vaccine and in 538 women who had not received the vaccine. The cumulative incidence of cervical cancer was 47 cases 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.)

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Incidence of Cervical Cancer



Among Swedish girls and women 10 to 30 years old, 4vHPV vaccination was associated with a substantially reduced risk of invasive cervical cancer at the population level.

PROPHYLACTIC HPV VACCINATION AFTER CONIZATION (CERVIX)

Systematic Review & Meta-Analysis



10 Studies included



21,059 Patients involved



3,939 Patients vaccinated

3 Prospective Studies

3 Retrospective Studies

3 Post-hoc sub analysis Studies

1 Prospective population-based cohort study

Independent from HPV Types

59%

Risk Reduction for the Recurrent CIN2+ After HPV Vaccination

RR=0.41; 95% CI [0.27; 0.64]

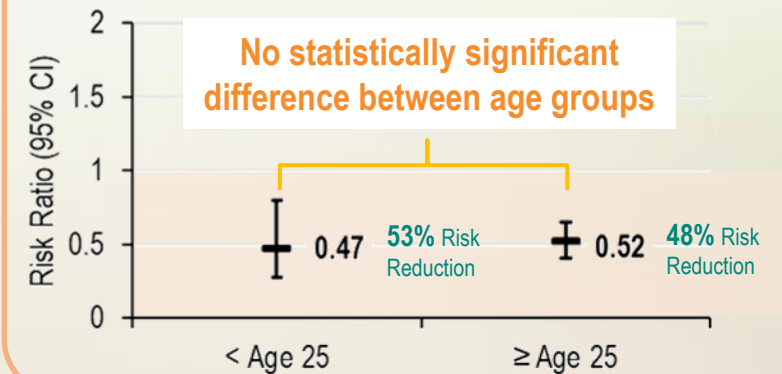
HPV 16/18-related

63%

Risk Reduction for the Recurrent CIN2+ After HPV Vaccination

RR=0.37; 95% CI [0.17; 0.80]

Risk Ratio for the Recurrent CIN2+ After HPV Vaccination in Different Age Group



Number Needed to Vaccinate (NNV)

Number of people needed to vaccinate in order to prevent one case of recurrent CIN2+

45.5

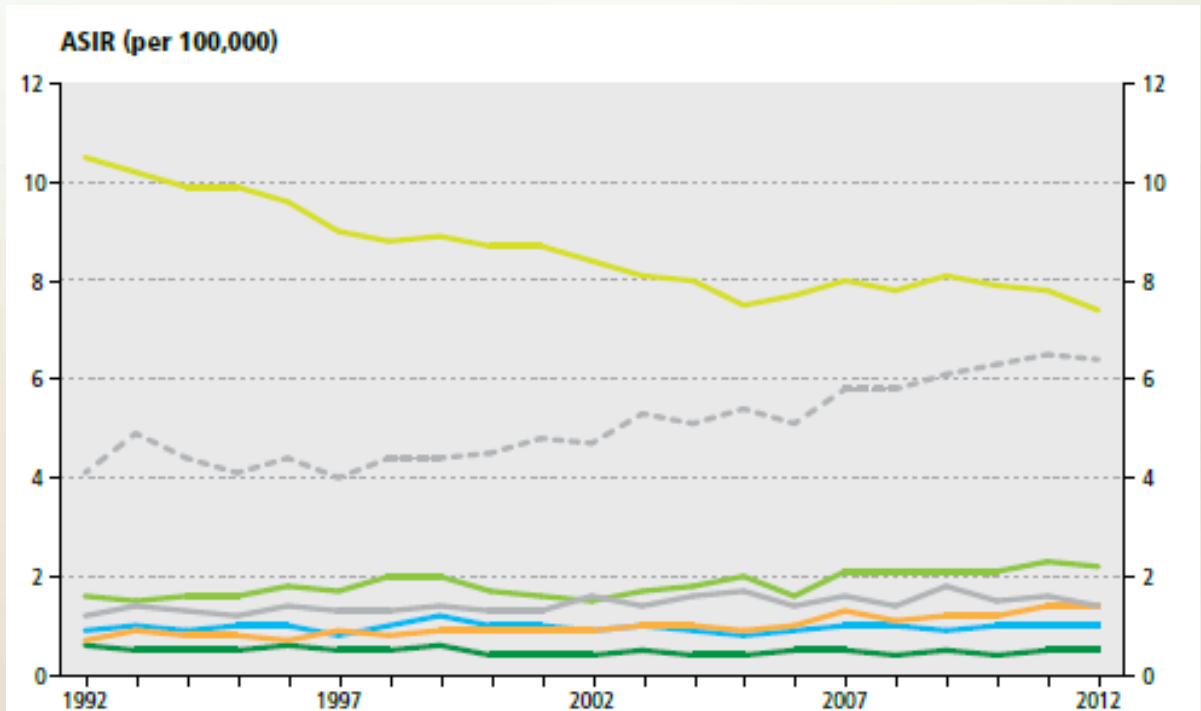
Meta-analysis showed **a significant risk reduction** of developing recurrent cervical intraepithelial neoplasia after surgical excision and HPV vaccination compared to surgical excision only.

Conclusions

- Incidence of penile and oral cancers remains stable, but incidence of oropharyngeal and anal cancers is increasing.
- Men (<46) remain significantly at risk and are under vaccinated for HPV.
- Vaccination for HPV may prove important for preventing certain skin SCC cancers (~700,000 cases in the United States alone).
- Nonavalent vaccine is effective in inducing seroconversion and based on the evidence in women is likely also effective in men in reducing HPV warts and malignancies.

HPV-Associated Cancer Prevalence Between 1993 and 2005 Based on Seven US Population-Based Cancer Registries.¹⁴

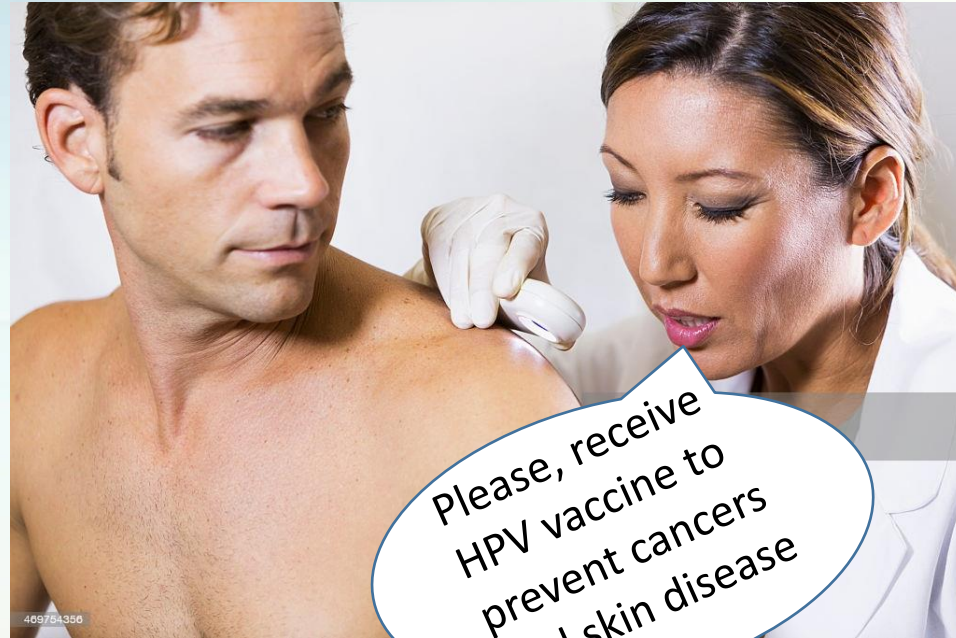
Cancer tissue site	% positive for HPV	% Positive for high-grade HPV types 16 and 18
Anus	91.1%	79.4%
Oropharynx	70.1%	60.2%
Penis	63.3%	47.9%
Oral	32.0%	32.2%
Laryngeal	20.9%	7.5%



Take home message!



Please avoid the sun and use sunscreen!



Please, receive HPV vaccine to prevent cancers and skin disease

- Please, get HPV vaccination – this is an occupational risk for dermatologists!
- Please promote HPV vaccination in the same way we promote sun awareness!



*Thank
you*



Medical societies initiatives and campaign (GOC, SOGC, FMWC)

Presenter



Laurie Smith MPH, RN(C), BN

Research Program Manager,

BC Cancer/ Women's Health Research Institute

Presenter



Dr. Aisha Lofters MD, PhD

Chair in Implementation Science

Women's College Hospital

Equity in Access to Cervical Cancer Prevention Measures

Dr. Aisha Lofters MD PhD
Laurie Smith RN(C) BN MPH

CIDC Webinar 14 December 2022

WOMEN'S HEALTH
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Global Control of
HPV Related Diseases
and Cancer

BC
CAN
CER

Provincial Health Services

THE
PETER GILGAN
CENTRE
FOR WOMEN'S
CANCERS



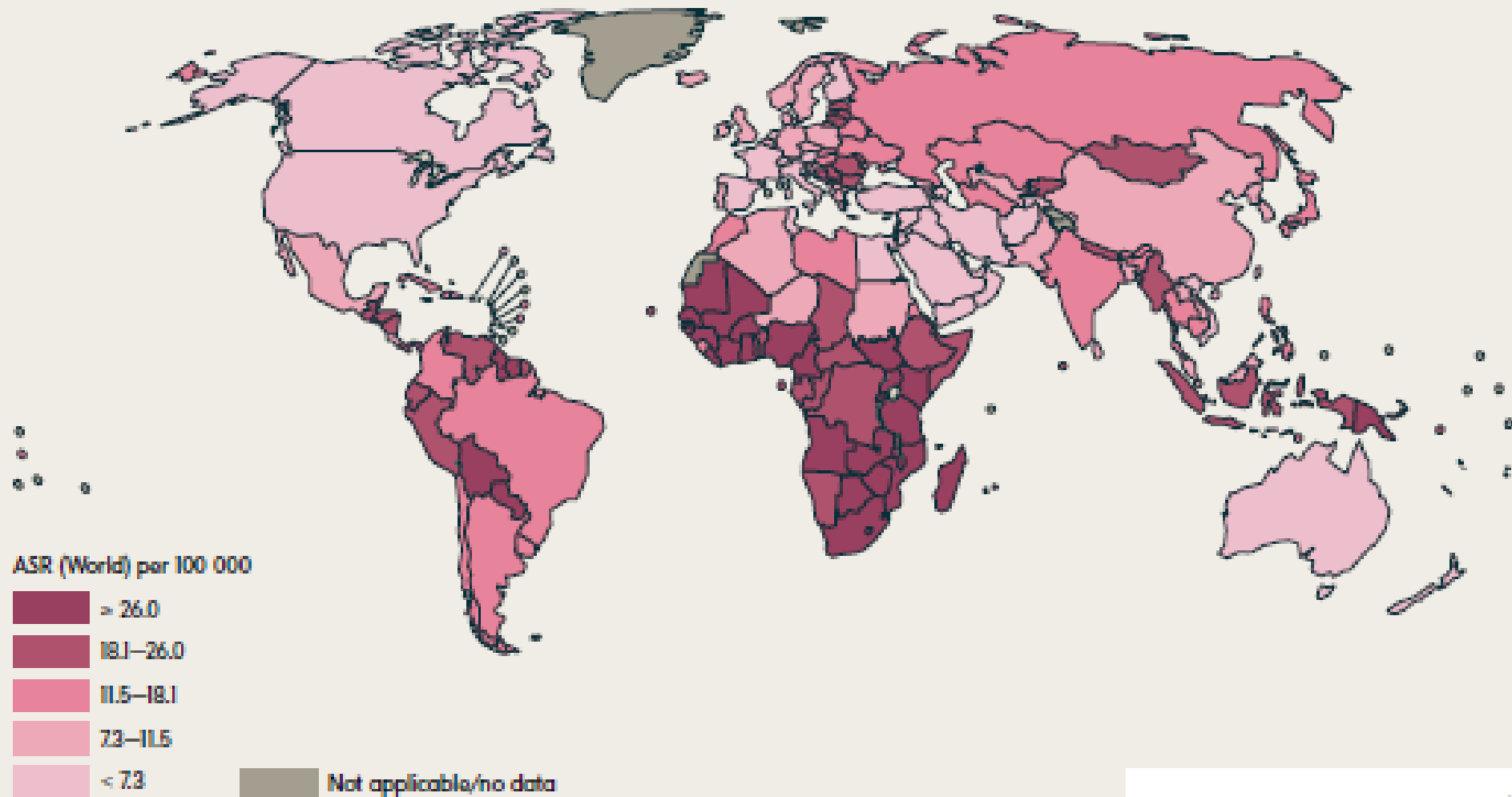
Conflict Declaration

- ▶ LS sits on advisory board for BD Canada to assist them with bringing the most effective cervical cancer prevention technologies to the people of Canada
- ▶ AL has no conflicts to disclose

Cervical Cancer

- ▶ **Cervical cancer is almost ENTIRELY preventable, through HPV vaccination (primary prevention) and cervical screening (secondary prevention)**
- ▶ Yet, this disease remains a global burden, and is a disease of **inequity**
- ▶ Cervical cancer is the 4th most common female cancer
- ▶ In 2018, there were an estimated 570,000 cases globally, with over 300,000 deaths, 90% of which were in LMIC

Fig. I. Estimated age-standardized cervical cancer incidence, 2018



Source: Global Cancer Observatory (9).

WHO Global Strategy to Accelerate the Elimination of Cervical Cancer

- ▶ In May 2018, the WHO announced a global call for action to eliminate cervical cancer, and in August 2020, the WHO formally adopted the *Global Strategy for Cervical Cancer Elimination*.
- ▶ "Through cost-effective, evidence-based interventions, including human papillomavirus vaccination of girls, screening and treatment of precancerous lesions, and improving access to diagnosis and treatment of invasive cancers, we can eliminate cervical cancer as a public health problem and make it a disease of the past."

Dr Tedros Adhanom Ghebreyesus, Director-General, World Health Organization

The WHO Global Strategy:

This global strategy to eliminate cervical cancer proposes:

- a vision of a world where cervical cancer is eliminated as a public health problem;
- a threshold of 4 per 100 000 women-years for elimination as a public health problem;
- the following 90-70-90 targets that must be met by 2030 for countries to be on the path towards cervical cancer elimination:

90%

of girls fully vaccinated
with HPV vaccine by
age 15 years.

70%

of women are screened
with a high-performance
test by 35 years of age and
again by 45 years of age.

90%

of women identified with cervical
disease receive treatment
(90% of women with precancer
treated, and 90% of women
with invasive cancer
managed).

Cervical cancer incidence in Canada

- ▶ An estimated 1450 women in Canada will be diagnosed with cervical cancer and nearly 400 will die this year (CCS 2022)
- ▶ The age-standardized incidence rate estimated at: 7.1 per 100,000 (Brenner et al CMAJ 2020)
- ▶ In the vaccine era, “cervical cancer screening will remain an important determinant of cervical cancer inequalities between sociodemographic groups” (Malagon T *et al*, 2014)

Canada's Action Plan for Elimination of Cervical Cancer

- ▶ The CPAC Action Plan engages partners across Canada to work together to eliminate cervical cancer by 2040



PRIORITY 1
Improve HPV
immunization rates

By 2025
90% 17yr
olds fully
vaccinated



PRIORITY 2
Implement HPV
primary screening

By 2030
90%
screened
with HPV



PRIORITY 3
Improve follow-up of
abnormal screening results

By 2030
90% with abn
result have
tx path

An issue of Health Equity

- ▶ *Equity is the absence of avoidable or **remediable** differences among groups of people, whether those groups are defined socially, economically, demographically, or geographically ([WHO, 2017](#))*
- ▶ Health equity is achieved when everyone, regardless of sex, gender, income, race or any other socio-demographic characteristic has equal opportunity to access services and achieve their best health
- ▶ Inequity = Systematic, unequal access to high-quality healthcare based on social conditions

An Issue of Health Equity

- Most who develop cervical cancer in Canada (and everywhere) are “under/never-screened”
- There are MANY reasons why different groups are under-screened
- Addressing inequities is **CRITICAL** to achieving the goal of elimination of cervical cancer
- Programs today, more than ever before, are attempting to design and deliver approaches with a health equity lens



Where are inequities in cervical cancer prevention in Canada?

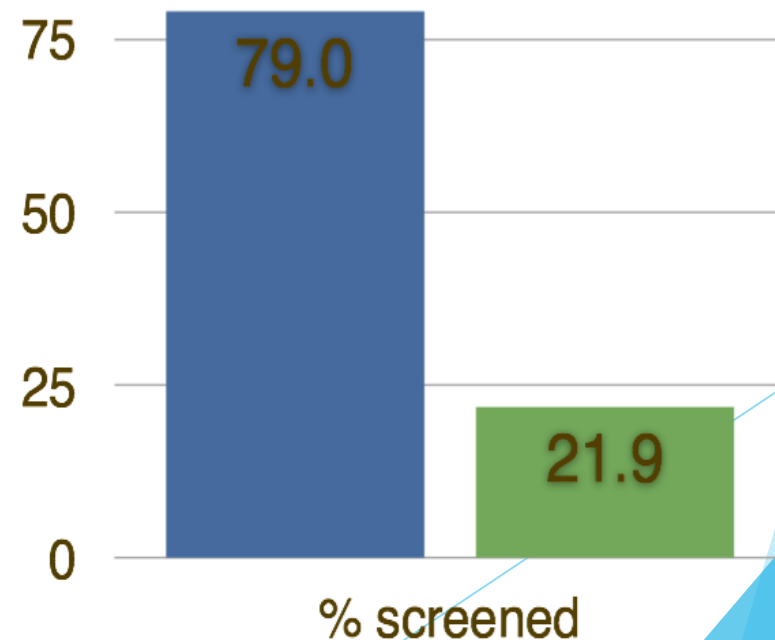
There are MANY vulnerable and minority populations where inequities in HPV related disease prevention exist:

- ▶ Ethnicity
- ▶ Indigenous populations
- ▶ Rural/Remote
- ▶ Gender diverse
- ▶ Lower socio-economic
- ▶ Immigrants/Refugees
- ▶ Those with a history of trauma



Mind The Gap

- Of Canadian-born women <50 years living in the highest-income neighbourhoods and in a primary care enrolment model: **79.0% up to date on cervical screening**
- Of South Asian immigrant women 50+ years living in the lowest-income neighbourhoods and not in a primary care enrolment model: **21.9% up to date on cervical screening**



Barriers to Cervical Cancer Prevention

- ▶ Individual-level: history of trauma, cultural concerns, sexual stigma, lack of knowledge re: cervical screening
- ▶ Test-level: intimacy and invasiveness of the speculum exam, discomfort
- ▶ Provider- and practice-level: access to appointments, understanding of cervical screening, safe spaces, patient-provider relationship
- ▶ System-level: competing system priorities, access to healthcare services, limited approaches for delivery of screening

How do we address inequities?







- ▶ Innovative, targeted, culturally safe approaches are required to meet the goals for elimination of cervical cancer
- ▶ Programs should design a “Health equity” plan (with a vision, targets, detailed strategies & evaluation plan)
- ▶ “One size fits all” strategies won’t work. Multipronged!
- ▶ Strategies must be **ACCEPTABLE** to the target population, and designed collaboratively with target groups
- ▶ Invest in equity!

Facilitators of Cervical Cancer Prevention

- ▶ Increase knowledge and awareness
- ▶ Design culturally safe approaches
- ▶ Flexibility in program design and approaches
- ▶ Involve target demographics in design of implementation approaches. EMPOWER individuals
- ▶ Where possible, integrate services
- ▶ Innovative approaches (ex: Self-collection for cervix screening)

HPV-based Self-collection

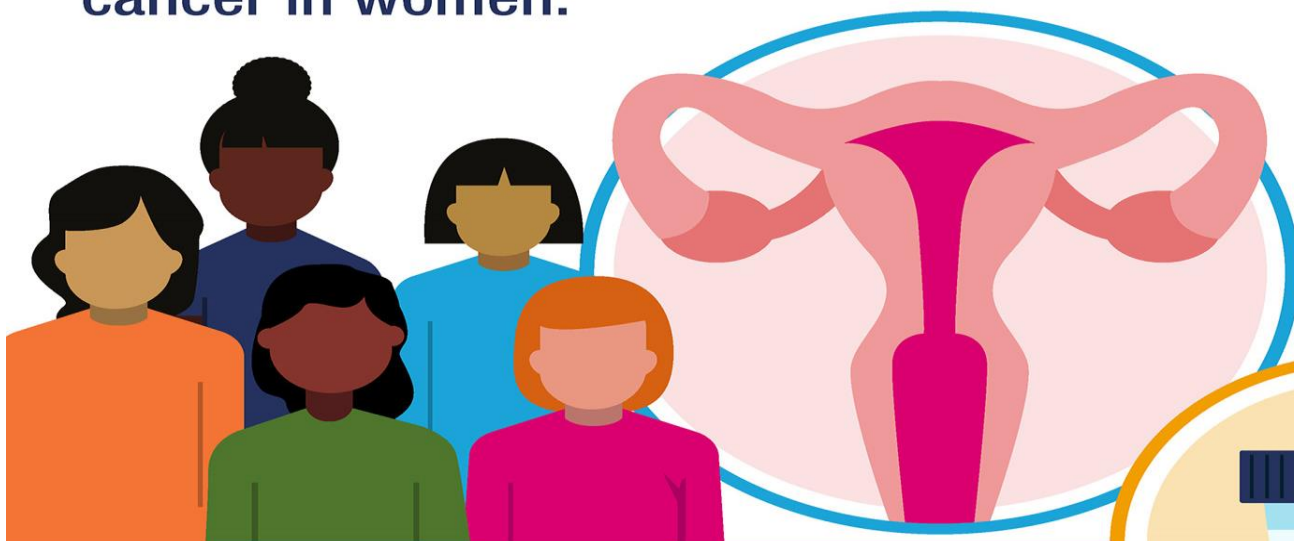
An approach to screening that addresses MANY of the barriers

Traditional Cervix Screening (VIA/Pap Smear)	vs	Self-Collection for HPV-Based Cervix Screening
<ul style="list-style-type: none"><li data-bbox="295 739 805 839"> Clinic visit required with healthcare provider<li data-bbox="295 891 932 991"> Speculum exam and sample of cells from cervix required<li data-bbox="295 1042 672 1139"> Lower accuracy		<ul style="list-style-type: none"><li data-bbox="1029 739 1727 839"> Sample can be collected anywhere<li data-bbox="1029 891 1773 991"> Person easily collects vaginal sample themselves<li data-bbox="1029 1042 1544 1139"> Accurate, safe, painless

HPV SELF-SAMPLING IMPROVES SCREENING FOR CERVICAL CANCER

Cervical cancer is the 4th most frequent cancer in women.

This can contribute to **ELIMINATING CERVICAL CANCER** as a public health problem by **2030.**



HPV self-sampling is:

- ✓ Easy
- ✓ Convenient
- ✓ Private
- ✓ Painless
- ✓ Cheap



#SelfCare

human
reproduction
programme **hrp**
research for impact

 ⁵⁴ World Health
Organization

Conclusions

- ✓ Start with the patient and community voice to understand barriers
- ✓ INVEST in design of programs with a health equity lens
- ✓ Recognize the role and expertise of community in co-designing solutions (collaboration/partnership)
- ✓ Multi-faceted, multi-level targeted approaches



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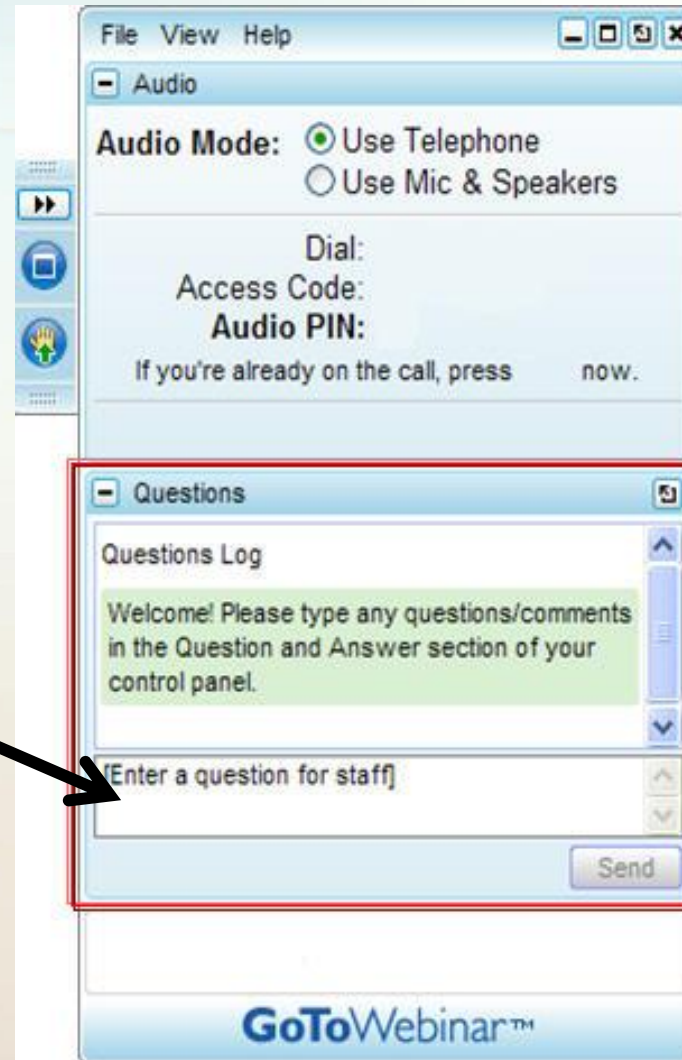
Laurie Smith

laurie.smith@bccancer.bc.ca

Question & Answer Period

On a computer, submit your text question using the Questions pane

NOTE: On a mobile device, tap on the “?” to open the questions pane



Is the elimination of cervical cancer possible in Canada without real equity in access to HPV-related prevention services?

- **Evaluation:** <https://forms.gle/TPkhYDaWjqQAI8n48>
- **Slide Set, Video recording, HPV documents at:**
hpvglobalaction.org & www.CIDCgroup.org

Thank you for participating!

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The opinions expressed in this webinar are those of the presenter and do not necessarily reflect the views of CIDC, HPV Global Action or their partners