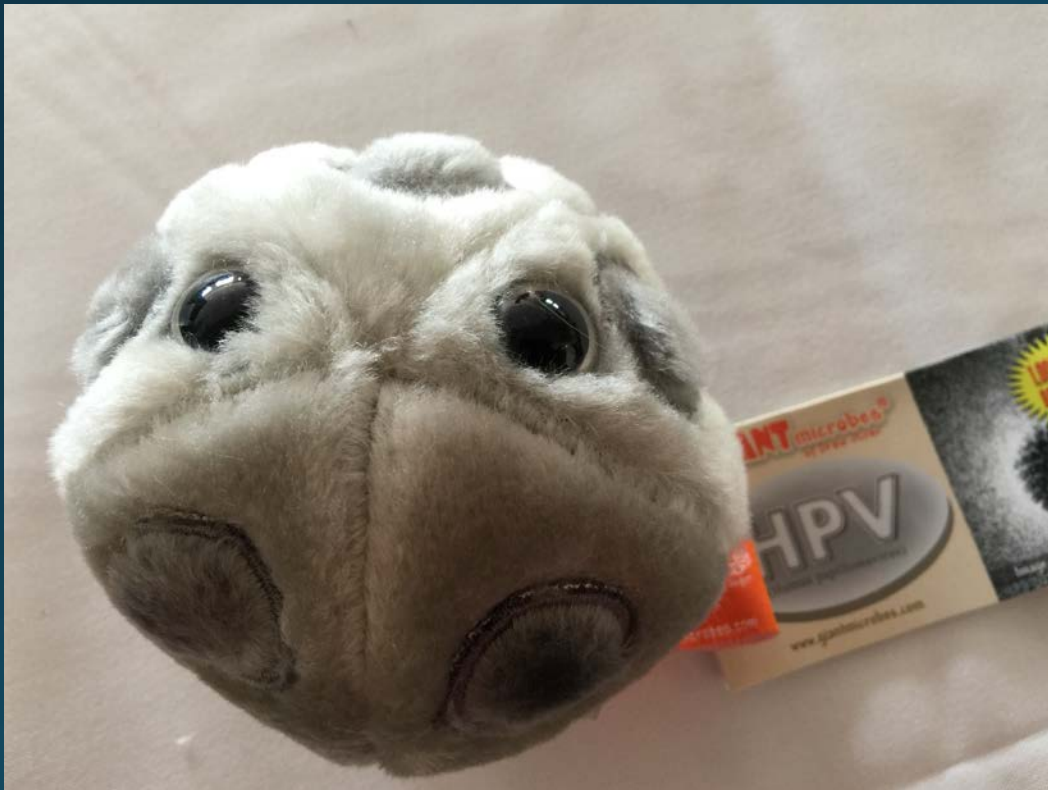


A Pediatrician's Perspective: HPV Disease & Vaccine Update

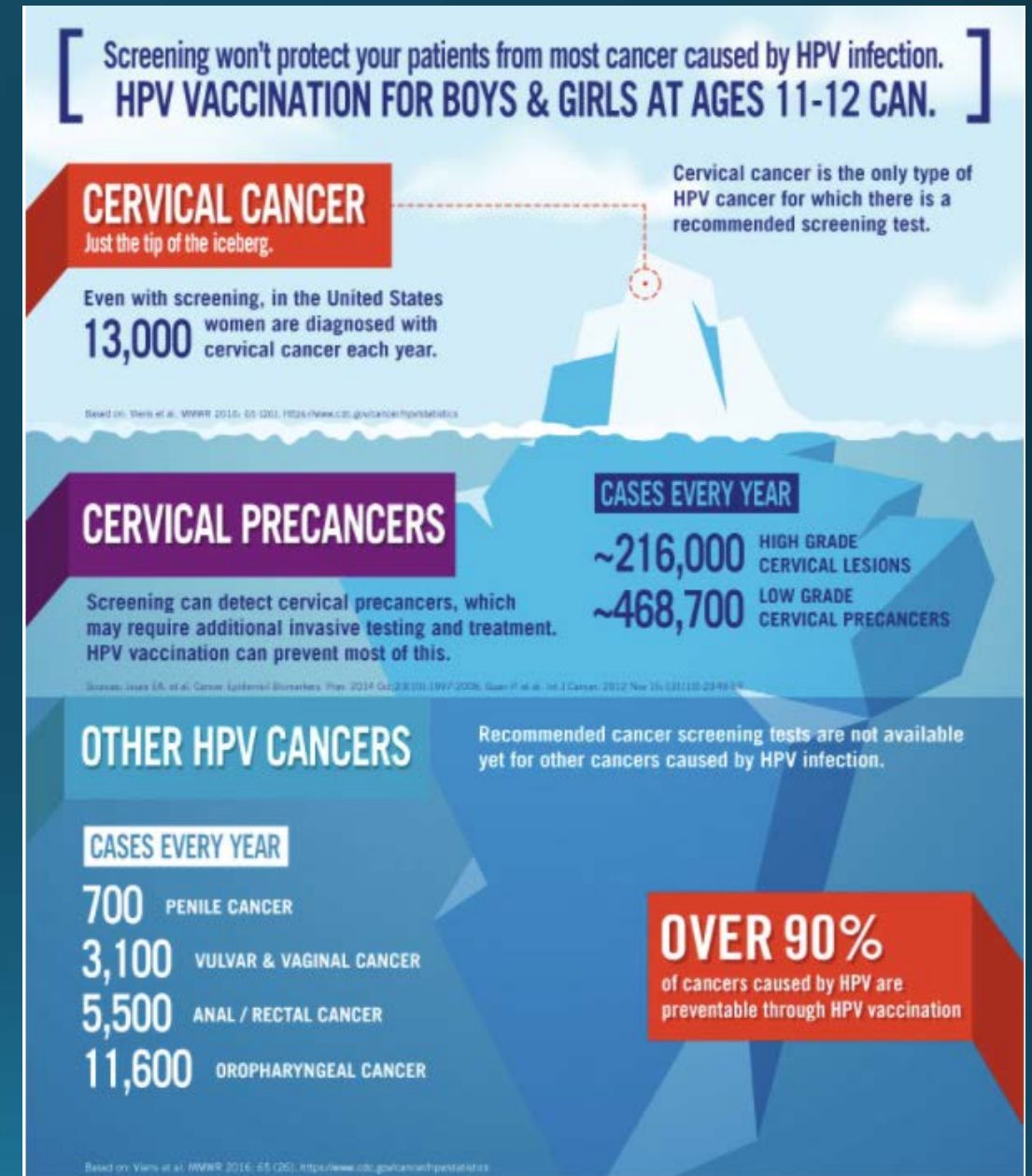


Sharon G. Humiston, MD, MPH, FAAP
Professor of Pediatrics
Children's Mercy Hospital
Kansas City, MO

Topic #1

HPV disease causes
loss of lives and
plenty of misery.

HPV vaccine prevents this.



<https://www.cdc.gov/hpv/hcp/more-than-screening/infographic.html>

HPV Types Differ in Their Disease Associations

~40 Types

**Mucosal
sites of infection**

**Cutaneous
sites of infection**

~ 80 Types

**Common
Hand and Foot
Warts**

HPV Types Differ in Their Disease Associations

~40 Types

**Mucosal
sites of infection**

**Cutaneous
sites of infection**

~ 80 Types

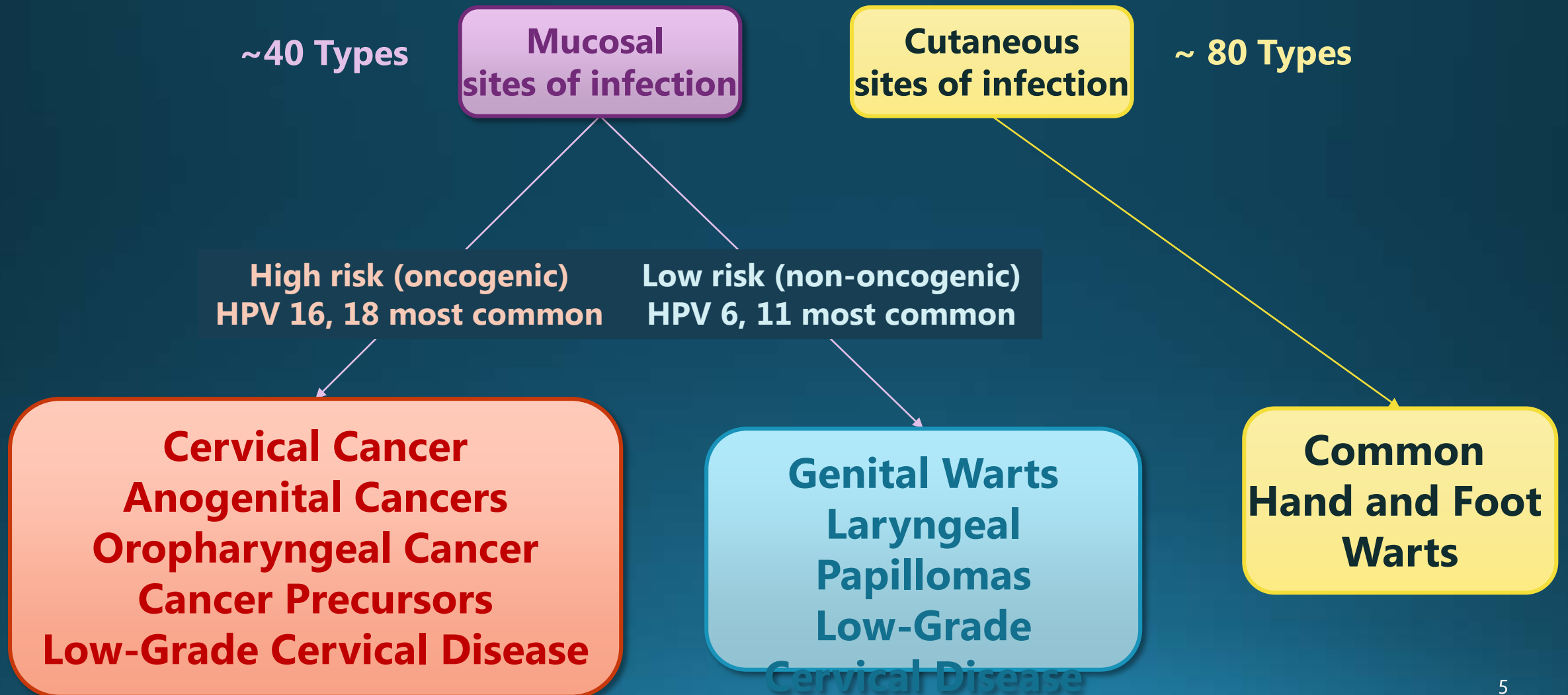
**Low risk (non-oncogenic)
HPV 6, 11 most common**

**Genital Warts
Laryngeal
Papillomas
Low-Grade**

Cervical Disease

**Common
Hand and Foot
Warts**

HPV Types Differ in Their Disease Associations



Do women still actually get cervical cancer & does anyone die of it?

Isn't early detection enough?

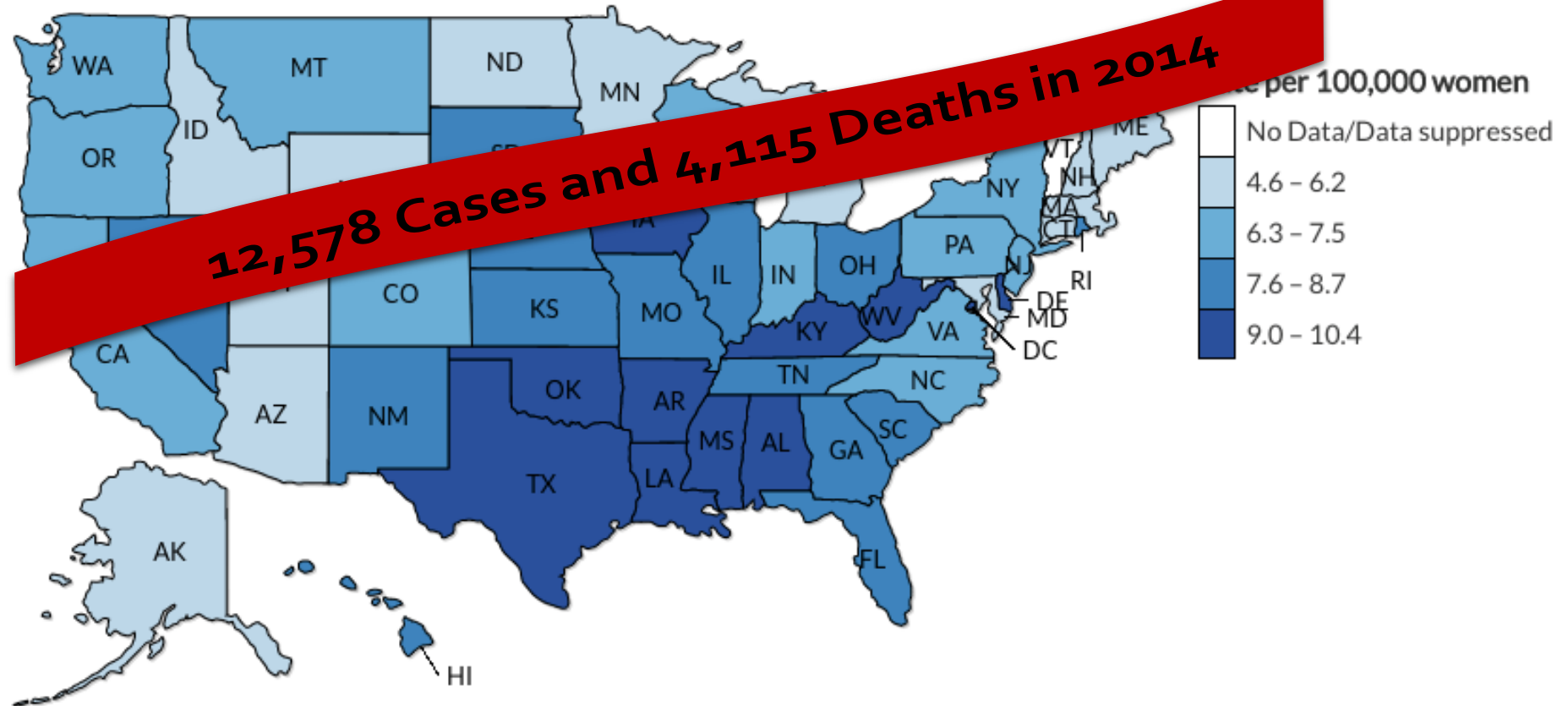
(Do we really need to prevent infection?)



HPV-Associated Cervical Cancer Incidence Rates, 2014

Rates of New Cancer Cases in the United States

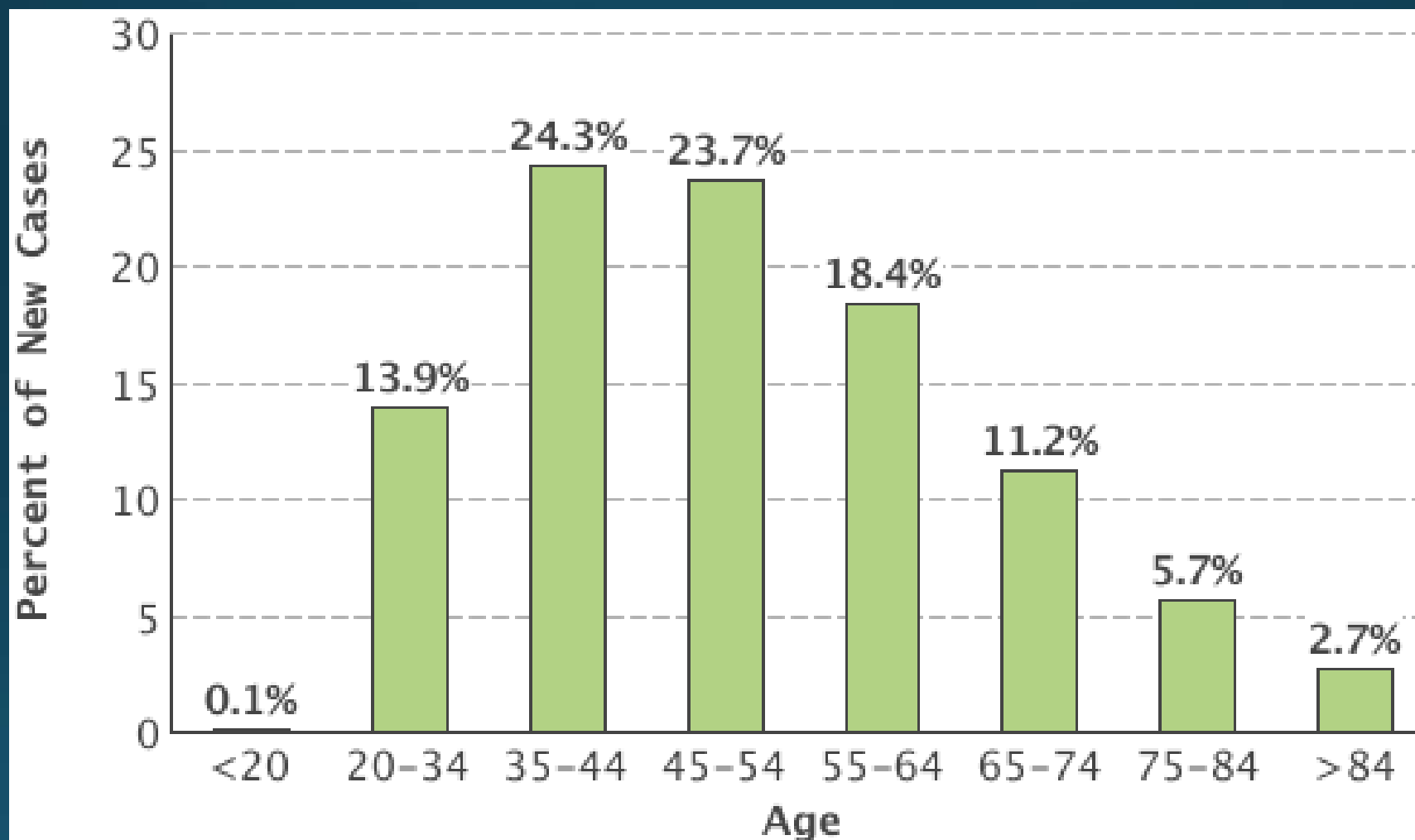
Cervix, All Ages, All Races/Ethnicities, Female



Source: <https://nccd.cdc.gov/USCSDDataViz/rdPage.aspx>

Cervical Cancer During Child-bearing Years

38% of cervical cancers occur in women between the ages of 20 & 44 years.



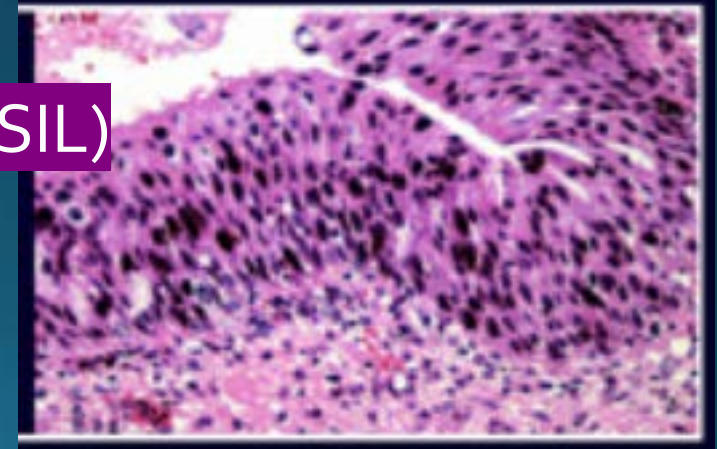
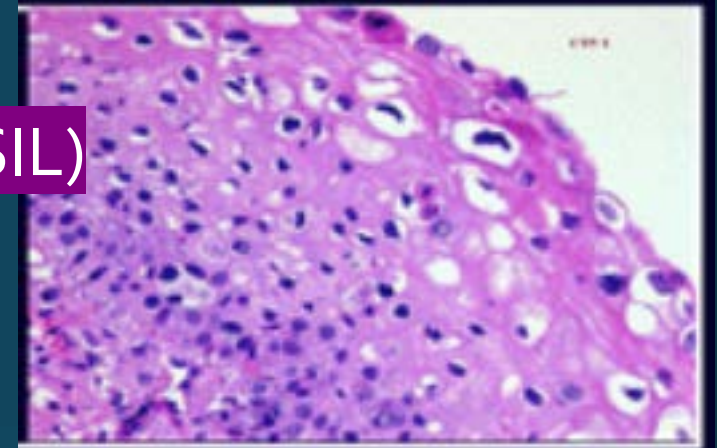
Cervical Dysplasia

- **Mild dysplasia (CIN₁)**

- aka Low-grade Squamous Intraepithelial Lesion (LSIL)
- Usually goes away without treatment
- 1.4 million/ year in U.S.
- Conservative follow-up

- **Moderate/severe dysplasia (CIN_{2/3})**

- aka High-grade Squamous Intraepithelial Lesion (HSIL)
- High risk for progression to cancer
- 330,000/ year in U.S.
- LEEP offers high cure rate



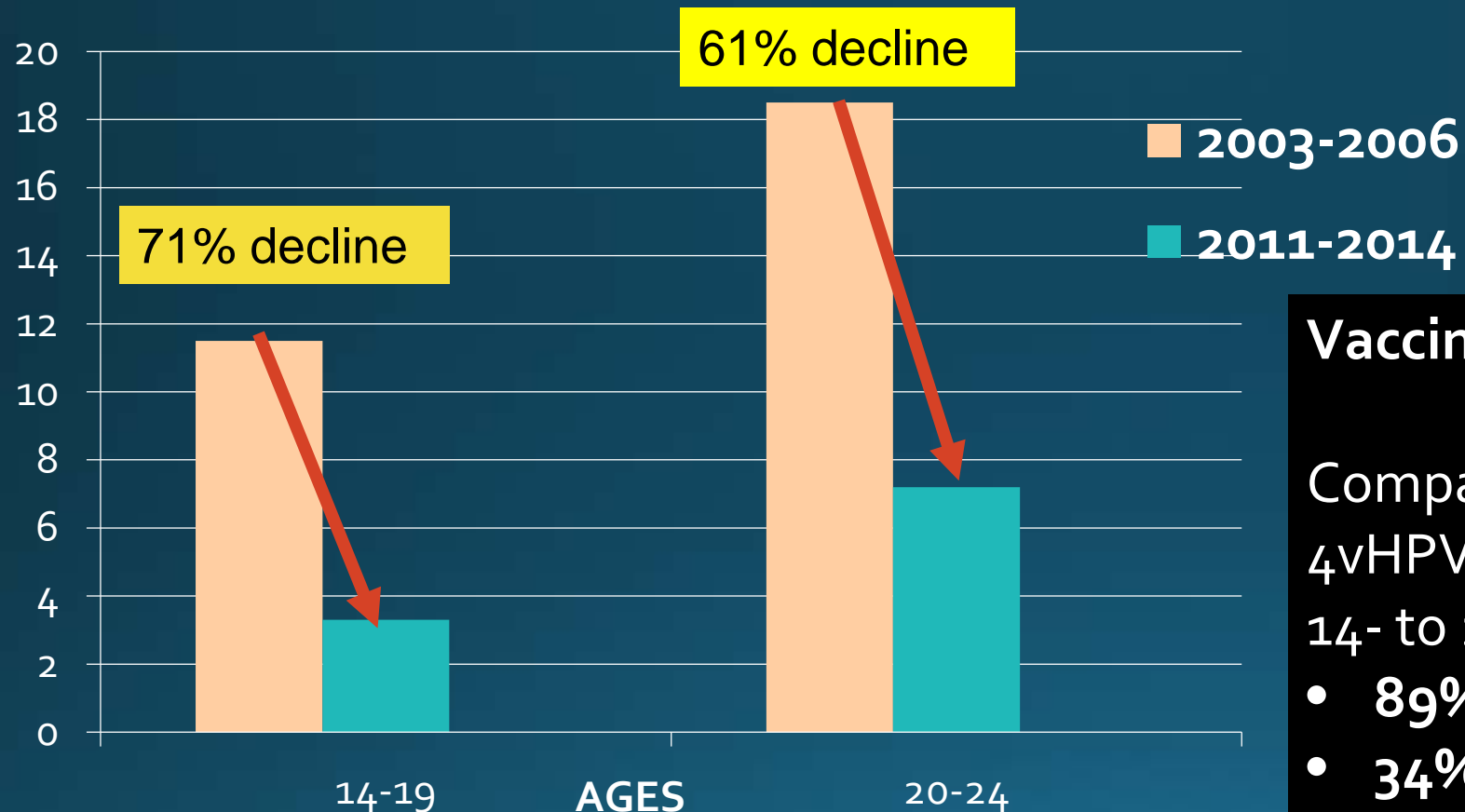
Even pre-cancerous lesions have implications for a woman & her offspring because treatment is associated with:



- Perinatal mortality
- Preterm delivery
- Low birth weight
- Long term developmental outcomes
- Neonatal intensive care costs

Bjorge, Obstet Gynecol, 2016; Sadler, JAMA, 2004, Insinga, Pharmacoeconomics, 2005,

Within 8 years of U.S. vaccine introduction 4vHPV-type prevalence has decreased significantly



From self-collected cervico-vaginal specimens

Vaccine effectiveness: 83%

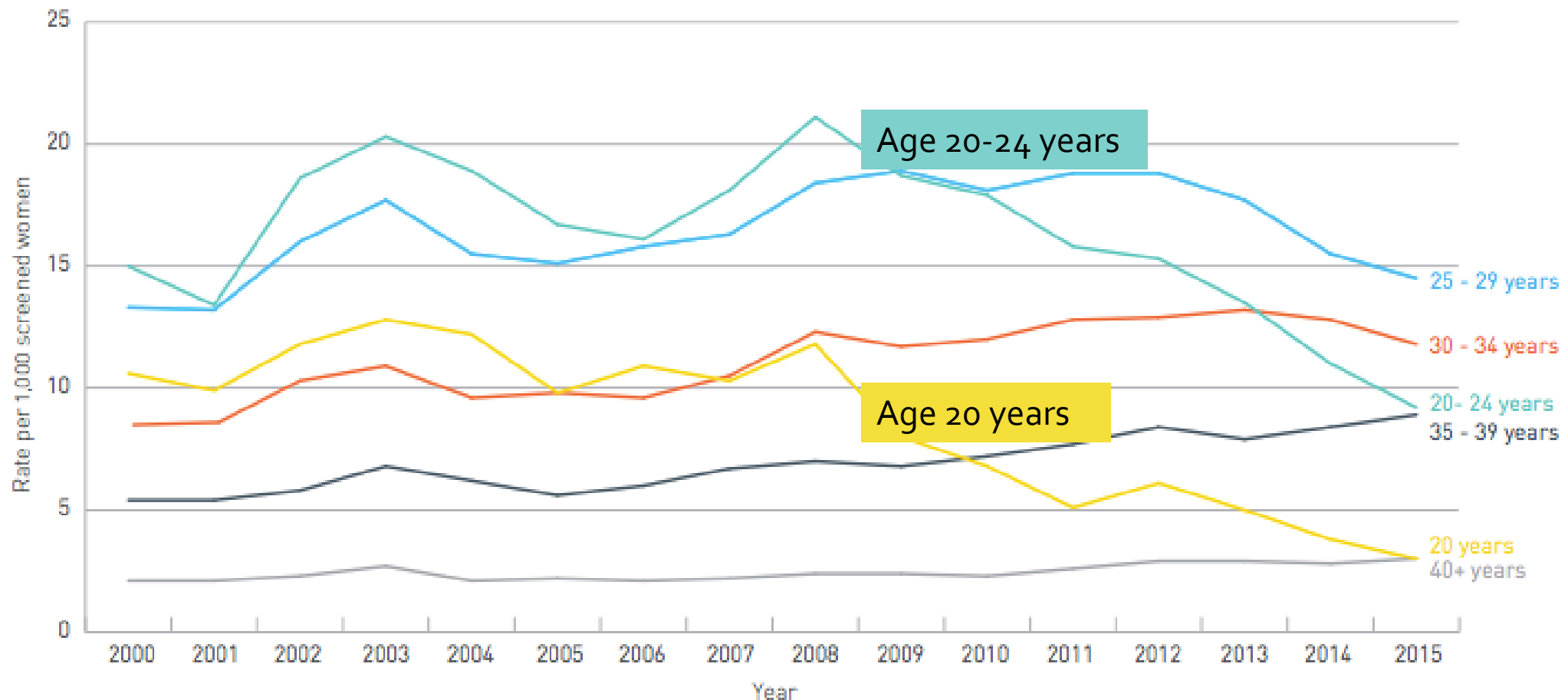
Comparing 2003-2006 to 2011-2014
4vHPV prevalence in sexually active
14- to 24-year-olds decreased:

- **89% among those vaccinated**
- **34% among those unvaccinated**
which suggests herd protection

Oliver , et al. [J Infect Dis.](#) 2017 Sep 1;216(5):594-603. doi: 10.1093/infdis/jix244.

<https://www.ncbi.nlm.nih.gov/pubmed/28931217>

Decrease in the incidence of high-grade cervical dysplasia (Australia)



Trends in high-grade cervical abnormalities by age, 2000-2015, Australia

http://www.vccr.org/site/VCCR/filesystem/documents/dataandresearch/StatisticalReports/17030_VCS_StatsReport15_ART.3.pdf
http://www.vccr.org/site/VCCR/filesystem/documents/dataandresearch/StatisticalReports/17030_VCS_StatsReport15_ART.3.pdf

Early evidence: Decrease in invasive HPV-associated cancers

Data from the Finnish Cancer Registry, Helsinki, Finland

	Vaccinated	Women	Unvaccinated	Women
MALIGNANCIES	<u>n</u>	<u>Rate</u>	<u>n</u>	<u>Rate</u>
Cervix	0	--	8	6.4
Vulva	0	--	1	0.8
Oropharyngeal	0	--	1	0.8
Vaginal, anal	0	--	0	--
All HPV assoc CA	0	--	10	8.0
Breast	2	3.0	10	8.0
Thyroid	1	1.5	9	7.2
Melanoma	3	4.6	13	10.5
Other skin	2	3.0	3	2.4

Beyond the Statistics: What HPV Means to Women's Lives

Rebecca Perkins and Tamika Felder

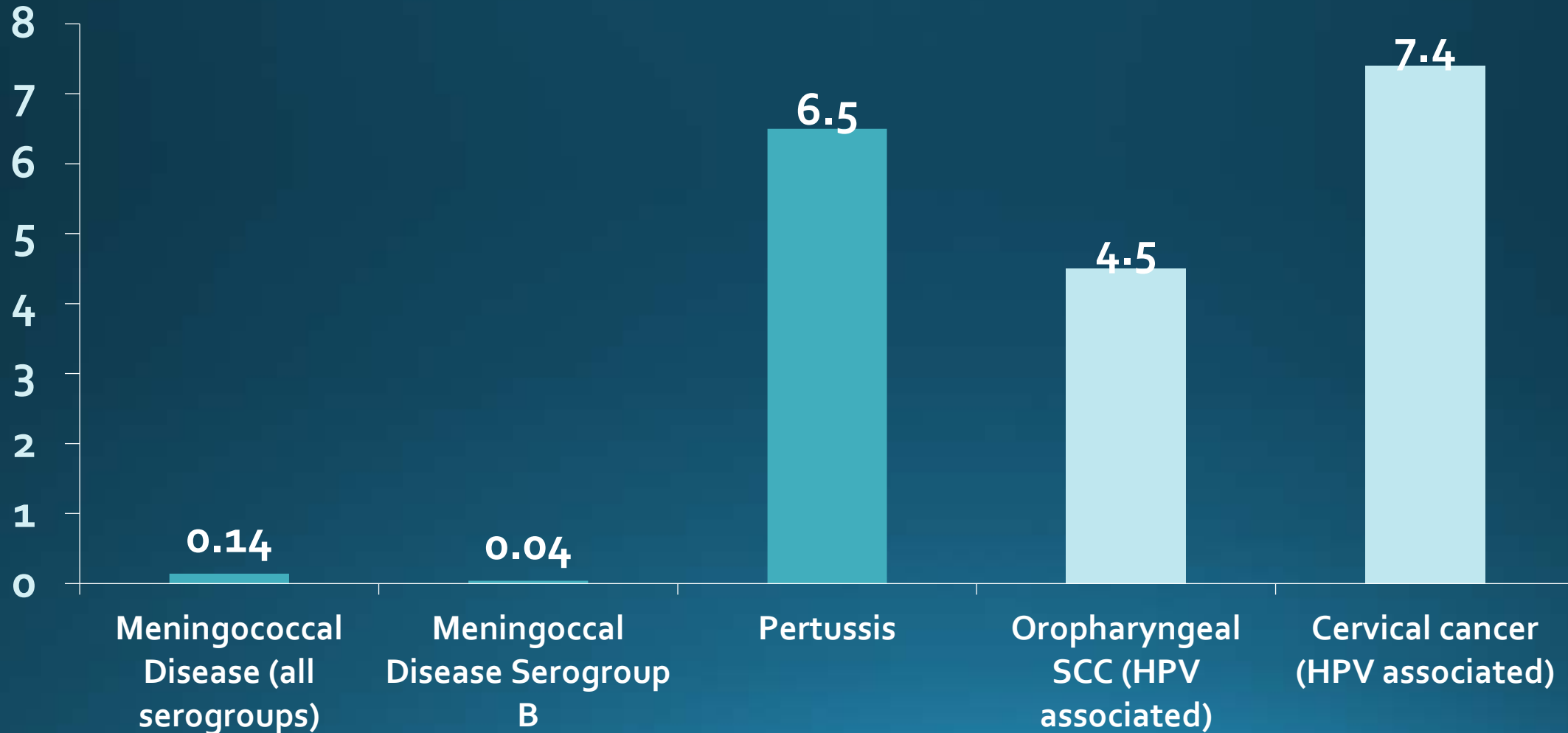


The March issue of *Academic Pediatrics* (<http://bit.ly/2sYPfFU>) offers a CDC-sponsored supplement, "Raising Human Papillomavirus Vaccination Rates."

[http://www.academicpedsjnl.net/article/S1876-2859\(17\)30169-9/fulltext](http://www.academicpedsjnl.net/article/S1876-2859(17)30169-9/fulltext)

Incidence of Diseases covered in Adolescent Vaccine Series

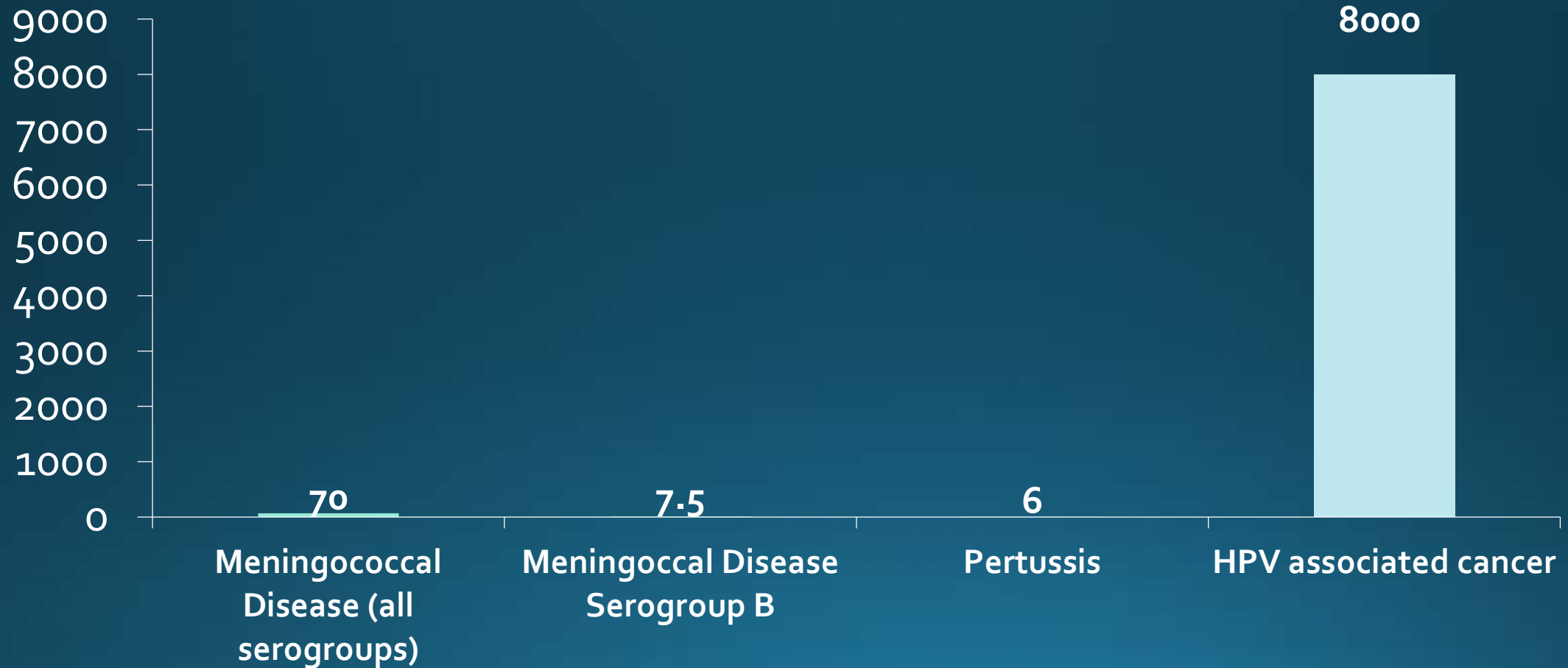
Annual Incidence (per 100,000)



Data Sources: CDC, 2016; CDC 2015; Viens 2016

Deaths from Diseases covered in Adolescent Vaccine Series

Estimated Annual Deaths

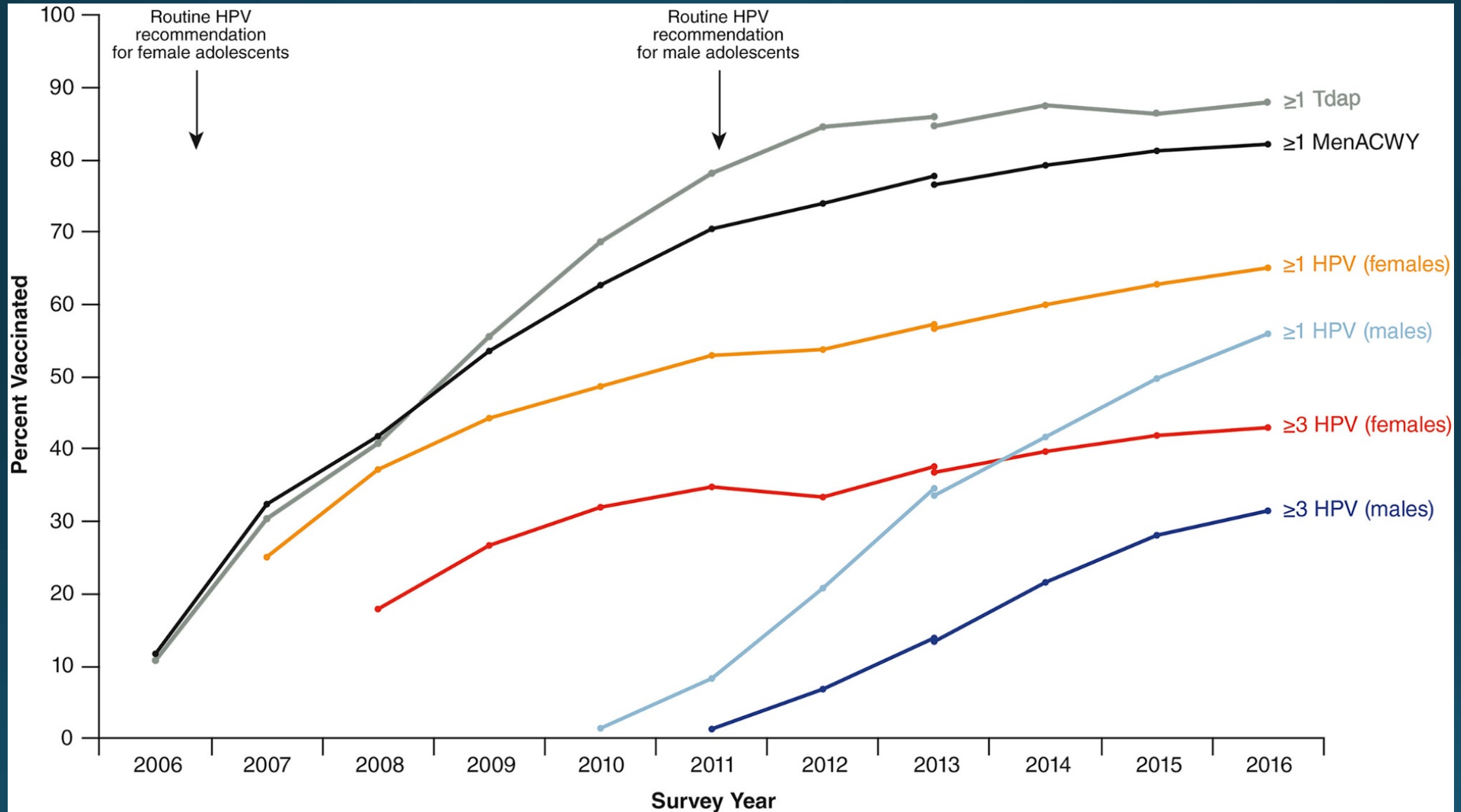


Data Sources: CDC, 2016; CDC 2015; American Cancer Society

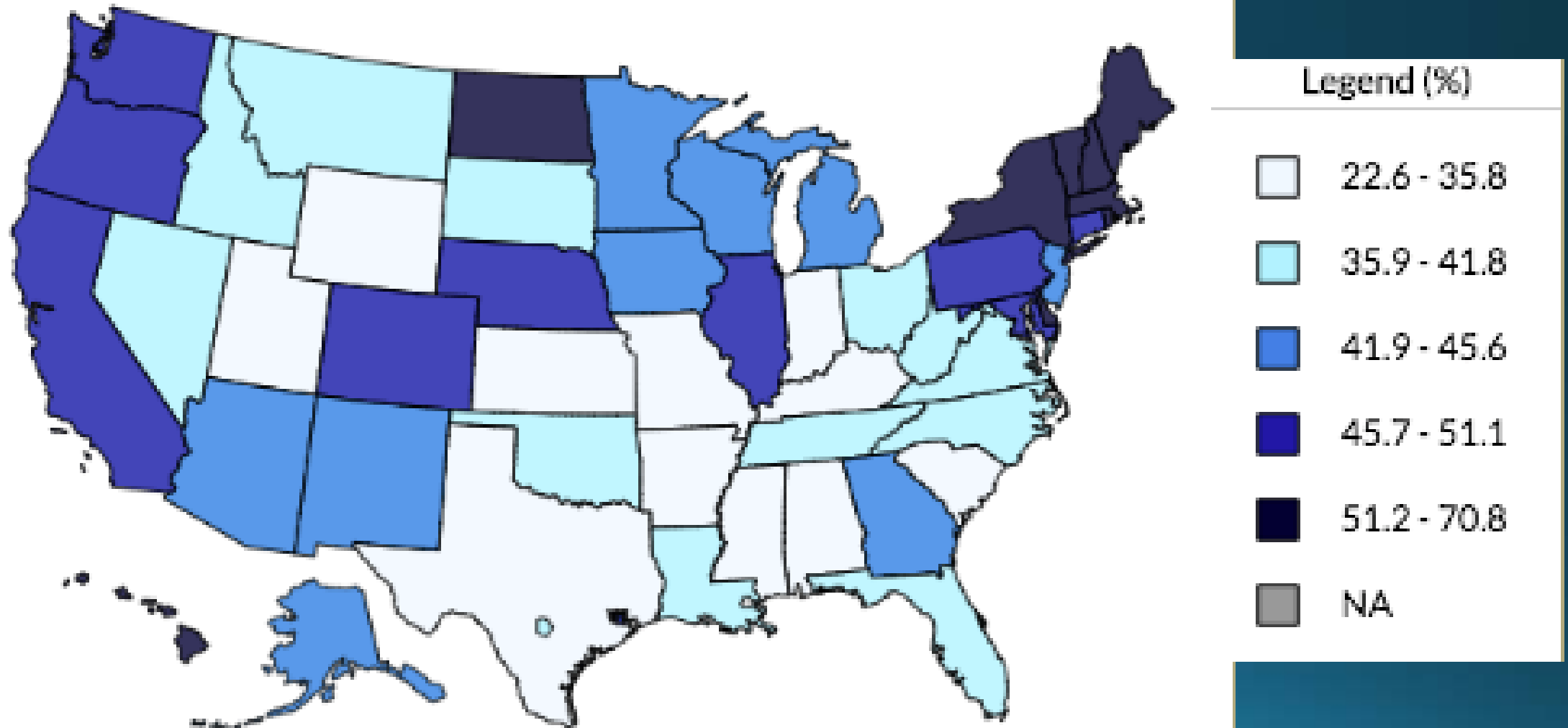
Topic #2

**A lot of our youth are missing out
on prevention**

Vaccination Coverage, Teens Ages 13-17 years, U.S.

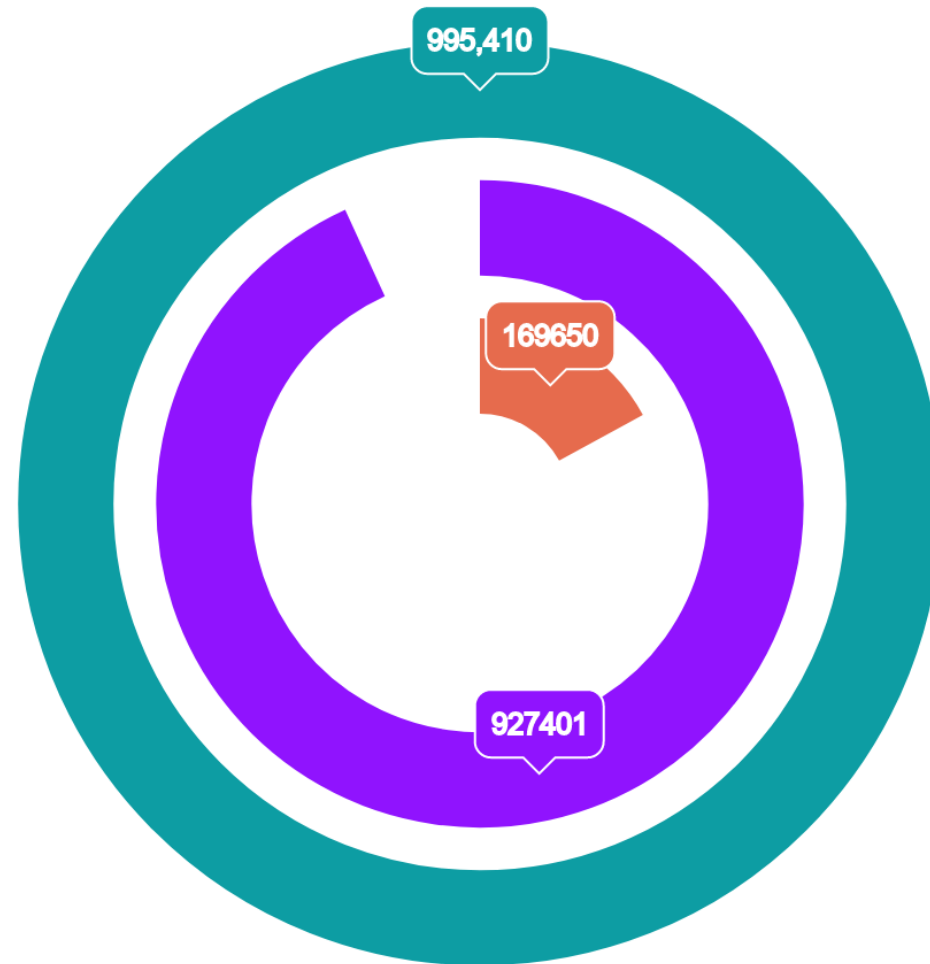


Up-to-date HPV Vaccination Rates, 2016



Low
immunization
rates = missed
opportunities
to prevent OPC

■ Total ■ Preventable (100% Vaccinated) ■ Prevented (17% Vaccinated)



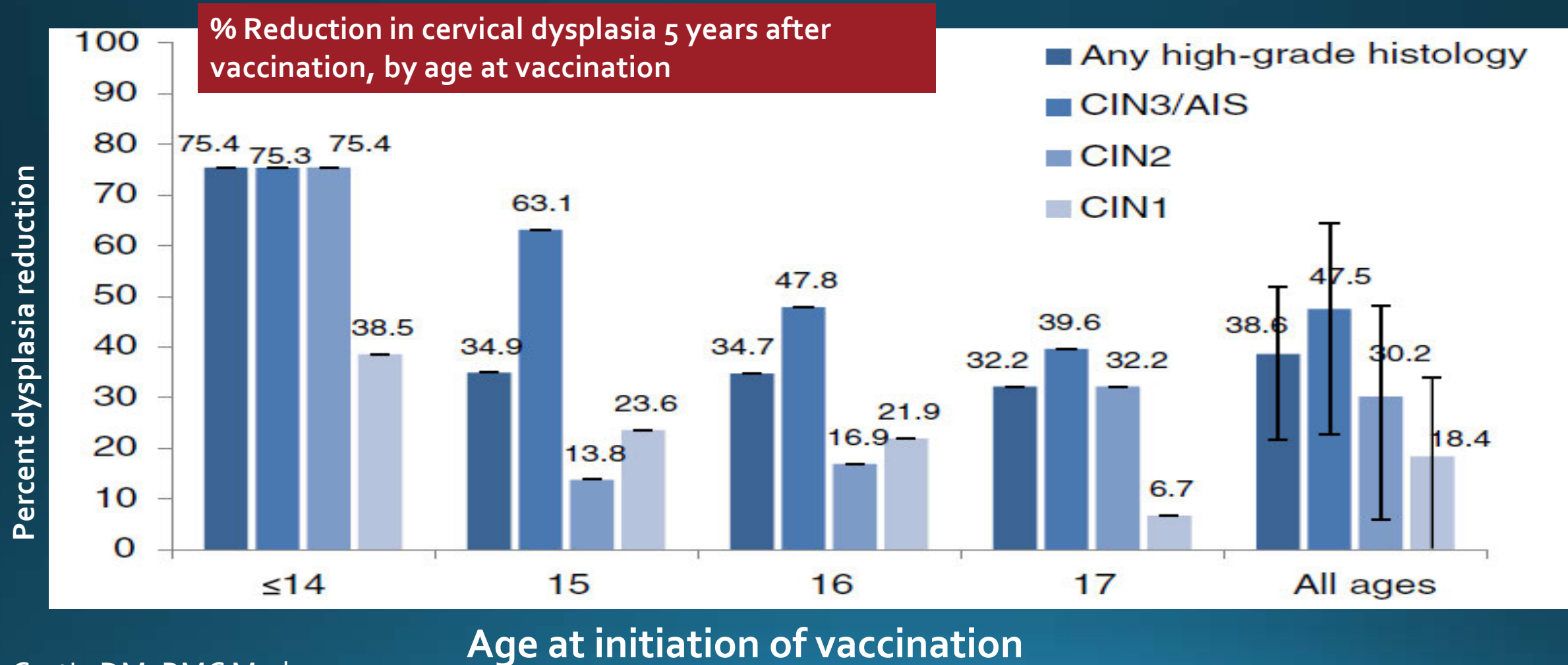
Because of low HPV vaccine uptake, all the preventable cases were not prevented



Topic 3: Frequently asked questions

Why not wait to vaccinate?

Higher effectiveness with vaccination at younger ages



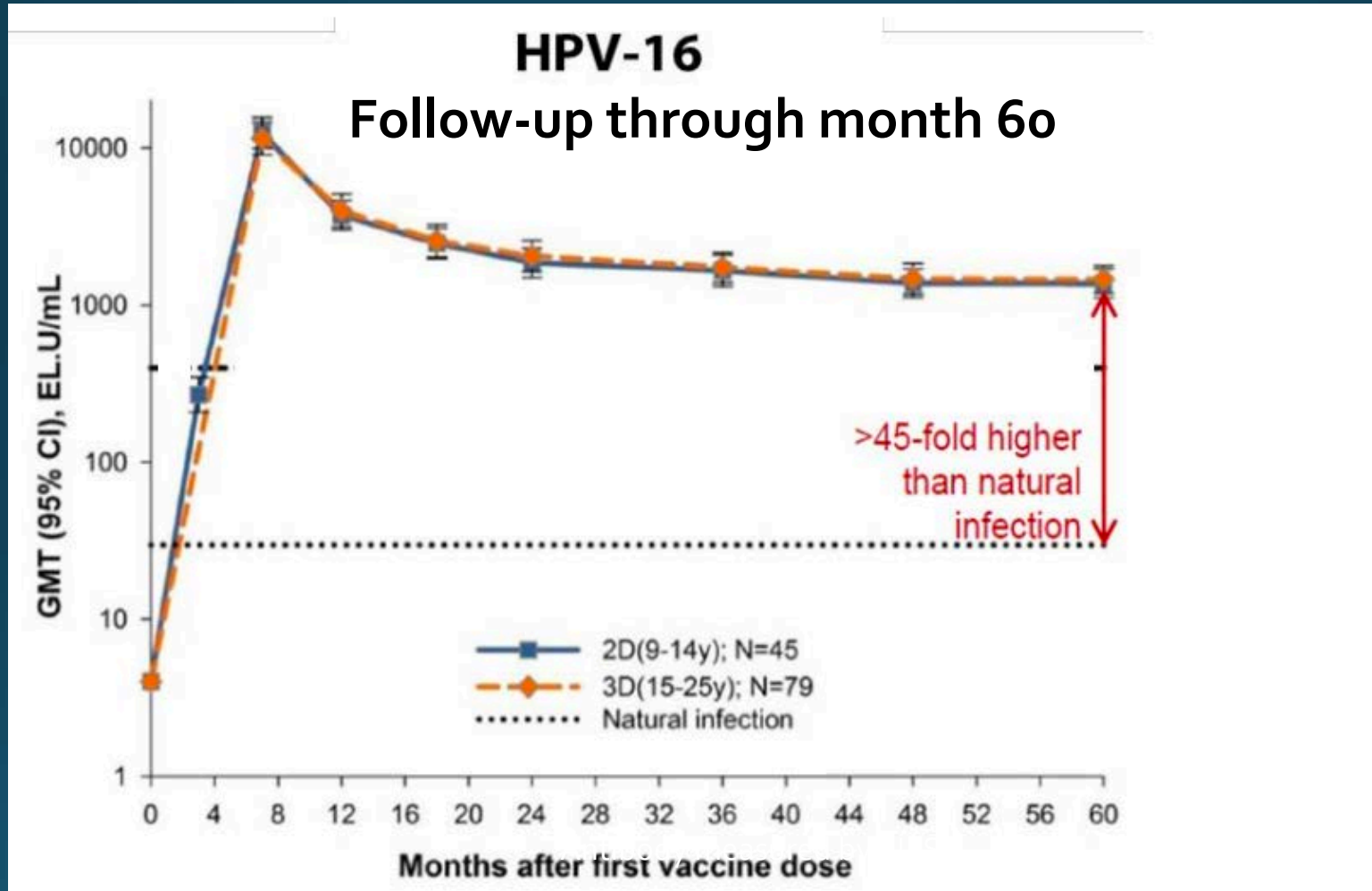
Why not wait until he's leaving for college? When should the bike helmet go on?



- A. Before they get on their bike
- B. When they are riding their bike in the street
- C. When they see the car heading directly at them
- D. After the car hits them

Will immunity last?

Yes



Source: Romanowski, Hum Vaccine 2016

Why vaccinate males?

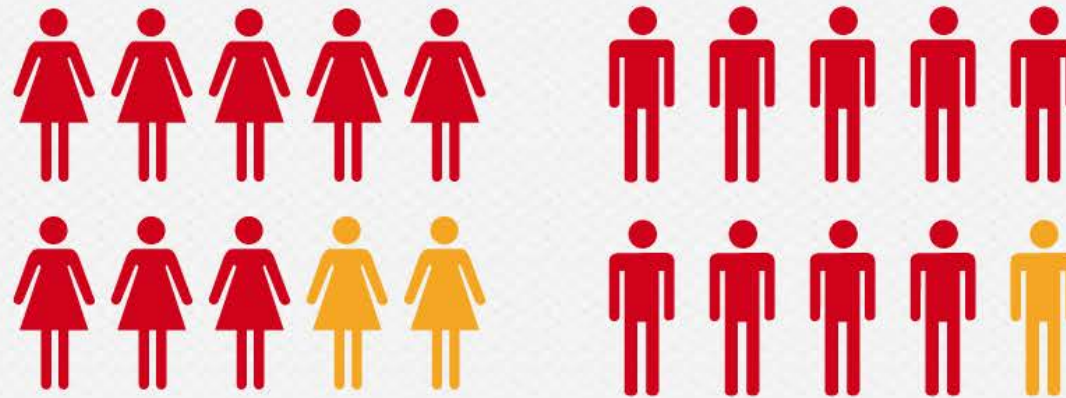


- Non-oncogenic problems including infertility
- Prevent HPV infection of females
- Male only: Penile cancer
- Both sexes:
 - Anal cancer
 - Oropharyngeal cancer

Should only “high risk” kids get vaccinated?

8-out-of-10 women

9-out-of-10 men



HPV infection is common!

In the U.S. >9-out-of-10 men and >8-out-of-10 women will be infected with at least one type of genital HPV at some time in their lives.

If you are a human you are “high risk”

**Do we have enough data to KNOW that
the vaccine is safe?**



HPV vaccine long-term safety data

No increased risk of:

Allergic reactions

Anaphylaxis

Guillain–Barré Syndrome

Stroke

Blood clots, venous thromboembolism

Appendicitis

Seizures (than unvaccinated or who received other vaccines)

Adverse events related to the immune & CNS

Autoimmune disorders

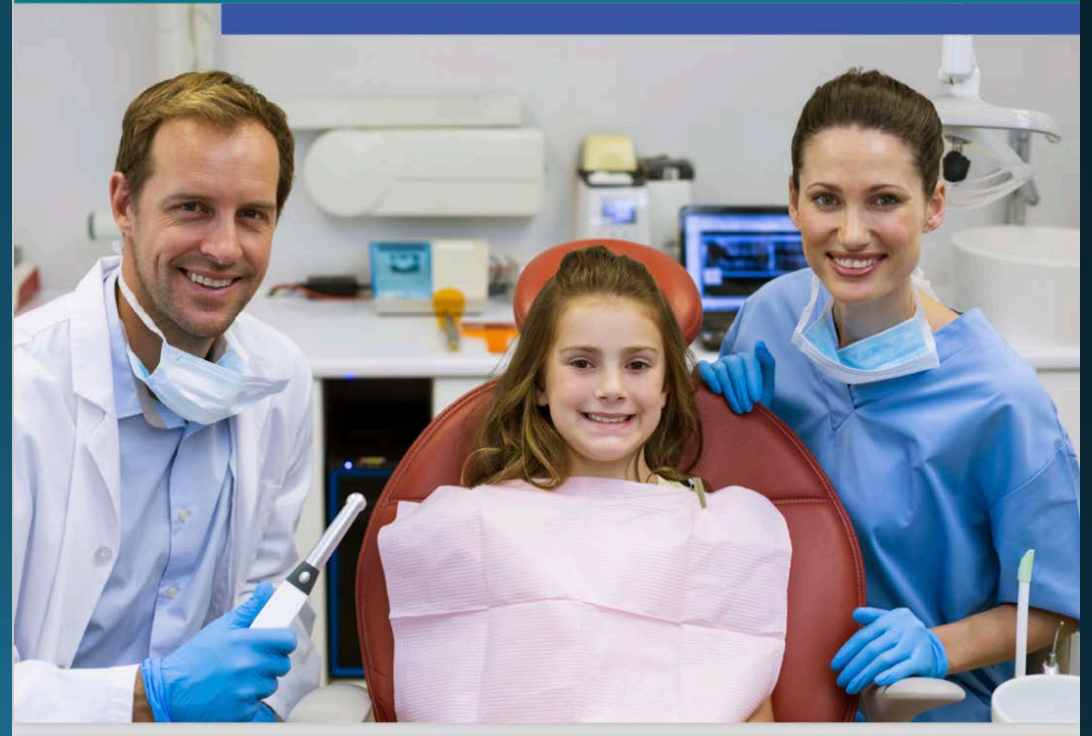
Multiple sclerosis or other demyelinating diseases

>60 conditions

Topic 4

The Ask

Cancer Prevention Through HPV Vaccination: An Action Guide for Dental Health Care Providers



Actions At-A-Glance



Visit the action associated with each item below for detailed guidance.

Know your unique role	Educate yourself & your patients about connection between HPV & OPC
Practice cancer prevention	Educate your patients & their families: Post info, ask about vaccine in hx, explain oral exam, include HPV info on website
Refer patients for vaccinations	Refer to PCP (or health dept) for vaccination at ages 11–12, follow up at next visit, use printed HPV vaccine “Rx pad” reminders
Collaborate	Consider partnering with pediatricians and family medicine providers to ensure the continuum of care
Engage your team	Arm your office staff with the right language to speak professionally and confidently about the vaccine
Create a pro-immunization environment	Patient Education Tools

Pediatricians don't want you to talk about HPV as an STI...

We want you to *de-sexualize* this by emphasizing the importance of the HPV as a cause of a cancer above the belt.

What Dental Professionals Need to Know about HPV Vaccination

Make a strong recommendation.

Ask parents if their child has completed the Human Papilloma Virus (HPV) vaccine series. Let them know that you strongly support giving the HPV vaccine to children 11-12 years of age to protect them from HPV-associated cancers.

Be ready to accurately answer parents' questions.

Usually, letting parents know that HPV causes oropharyngeal cancer (a form of throat cancer) is enough. If a parent needs more information be ready to address their questions and help them understand why you recommend the HPV vaccine. Suggest families contact their pediatrician for more information and print out Centers for Disease Control and Prevention (CDC) immunization fact sheets to help you with the conversation: www.cdc.gov/vaccines/parents/diseases/teen/hpv-indepth-color.pdf

Below are some things that parents might say and tips on how to respond.

HPV VACCINE IS IMPORTANT

My child's not at risk for HPV.

- Almost everyone will be infected at some time in their lives. Your pediatrician can help protect your child from the cancers caused by the virus by completing the HPV vaccine series before age 13.

Why is HPV vaccination recommended at ages 11 or 12?

- The immune system of a young adolescent responds better than an older adolescent.

Would you give HPV vaccine to your kids?

- Advise parents that you would do everything you could to protect your children and grandchildren from HPV cancers.

HPV VACCINE IS EFFECTIVE

How do you know if the vaccine works?

- Ongoing studies show that HPV vaccination works very well. Since becoming available in 2006, this vaccine already has decreased HPV infection, genital warts, and precancers of the cervix in young people.

Why do boys need HPV vaccine?

- In men, HPV infection can cause cancers of the throat as well as the penis and anus. By vaccinating your son as recommended, he will be better protected against the HPV types that can cause these diseases.

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For More Information: aap.org/oralhealth • aap.org/hpvtvc
email: HPV@aap.org

This fact sheet is supported by the Grant of Cooperative Agreement Number 5N01CE000502-04-01, funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the Department of Health and Human Services. The information contained in this publication should not be used as a substitute for the medical care and advice of your pediatrician. There may be variations in opinions that your pediatrician may recommend based on individual facts and circumstances. This publication has been developed by the American Academy of Pediatrics. The authors and contributors are not responsible for any kind of liability or accepted in the development of the content of this publication. Copyright © 2013 American Academy of Pediatrics. You may download or print from our website for personal reference only. To reproduce in any form for commercial purposes, please contact the American Academy of Pediatrics.



AAP Info Sheets

Oropharyngeal Cancer (OPC) and HPV Prevention in Children

5 Key Points that Dental Professionals Need to Know

- 1** OPC is also known as squamous cell carcinoma of the pharynx, including the base of the tongue and tonsils.
- 2** OPC incidence is rapidly increasing. This cancer is hard to detect before it spreads.
- 3** 9 out of 10 people will contract the Human Papillomavirus (HPV) at some point in their lives and some will develop cancer. Everyone is at risk.
- 4** HPV causes 70% of OPCs in the US. HPV type 16 (which is covered by HPV vaccine) causes 60% of all OPCs.
- 5** You are the key to cancer prevention.

By ensuring that patients 11 or 12 year get the HPV vaccine, we can give them a at a future free from HPV-associated car



The incidence of OPC has overtaken that of cervical cancer. Be sure to screen your patients for oral cavity and oropharyngeal cancers.



Everyone is at risk for OPC, but middle-aged white men are at higher risk. Unlike oral cavity cancers, smoking and drinking are not common risk factors for OPC.



Although OPC is highly treatable, the treatment and the side effects are severe.



HPV vaccine safely and effectively prevents infection by the major cancer-causing HPV types. However, there is no direct evidence that HPV vaccine prevents OPC.



Recommend the HPV vaccine to boys and girls ages 11-12. Every visit on or after the 9th birthday is an opportunity to recommend the vaccine.



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Dental professionals should recommend the HPV vaccine and refer patients to their pediatrician to get vaccinated.

For More Information: aap.org/oralhealth • aap.org/hpvtvc • email: HPV@aap.org

This fact sheet is supported by the Grant of Cooperative Agreement Number 5N01CE000502-04-01, funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the Department of Health and Human Services. The information contained in this publication should not be used as a substitute for the medical care and advice of your pediatrician. There may be variations in opinions that your pediatrician may recommend based on individual facts and circumstances. This publication has been developed by the American Academy of Pediatrics. The authors and contributors are not responsible for any kind of liability or accepted in the development of the content of this publication. Copyright © 2013 American Academy of Pediatrics. You may download or print from our website for personal reference only. To reproduce in any form for commercial purposes, please contact the American Academy of Pediatrics.

Oropharyngeal Cancer (OPC) and HPV Prevention in Children: 5 Key Points that Dental Professionals Need to Know
https://www.aap.org/en-us/Documents/AAP_OPC_HPV_5KeyPoints_final.pdf

Answering Questions About HPV Vaccine: A Guide for Dental Professionals
https://www.aap.org/en-us/Documents/AAP_OPCHPV_WhatDentalProsNeedToKnow_final.pdf

Oropharyngeal Cancer (OPC) and HPV Prevention in Children: 5 Key Points that Pediatricians Need to Know
https://www.aap.org/en-us/Documents/AAP_OPC_HPV_5KeyPoints_Pediatrician_final.pdf

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**Professor of Pediatrics
Children's Mercy Hospital
Kansas City, MO**



We'd be better off if we took the vaccination of children as seriously as we take vaccination of puppies.