

Promoting Adolescent Vaccination

Eight Years of HPV Immunization: What Have We Learned?

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Potential Conflicts of Interest

- **Merck**
 - **Speaker**
 - **Advisory boards**
 - **Investigator-initiated research projects**
- **GlaxoSmithKline**
 - **Advisory board**

Topics for our discussion

- 1. Immunization rates: Where are we now?**
- 2. Why is it important that we talk about adolescent immunization?**
- 3. How best to immunize adolescents?**
- 4. How best to talk about HPV immunization with our colleagues and in the community?**

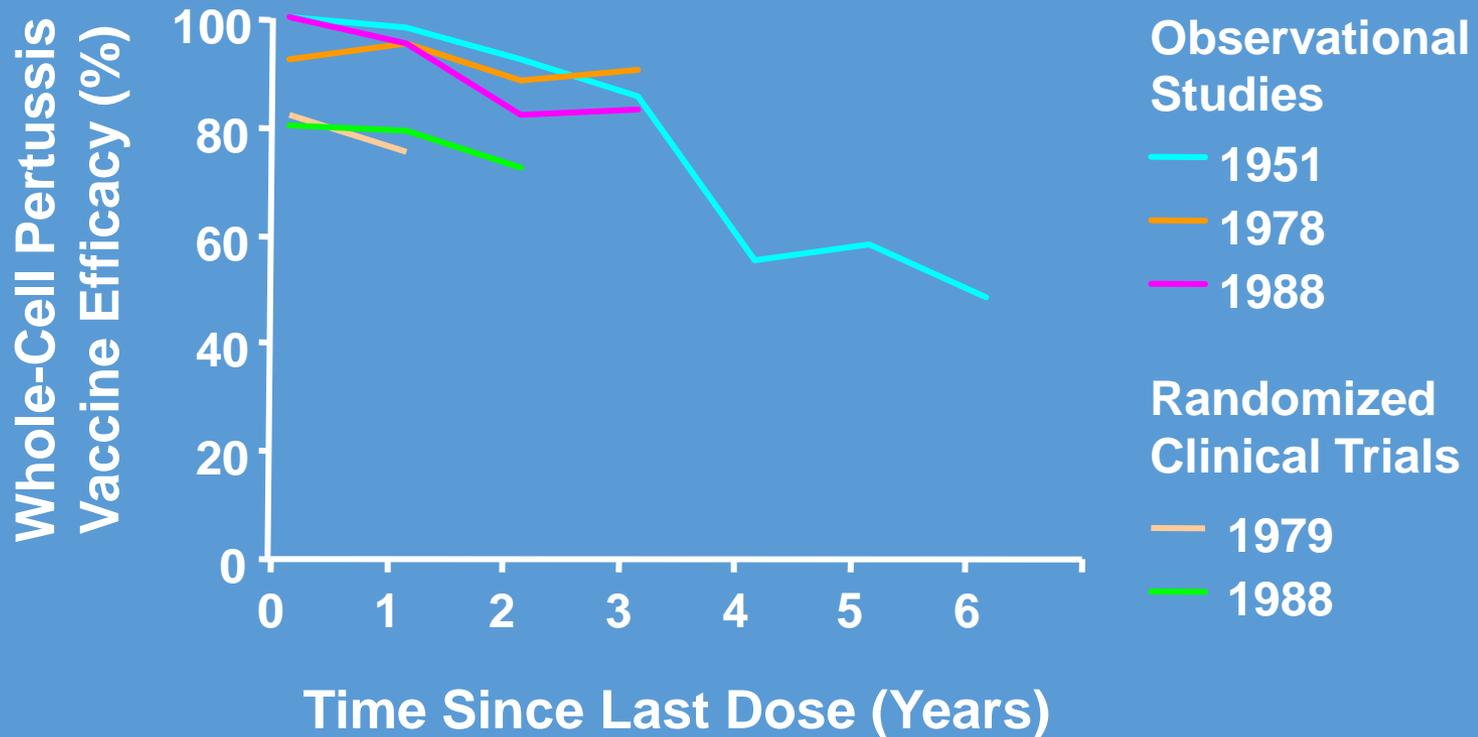




**Why do we need an
adult pertussis vaccine?**

Weren't we all immunized as kids?

Vaccine-induced Immunity to Pertussis Wanes Rapidly



So why do we need a pertussis vaccine for adults?

- Protect infants**
- Protect the elderly**
- Target the reservoir for infection**



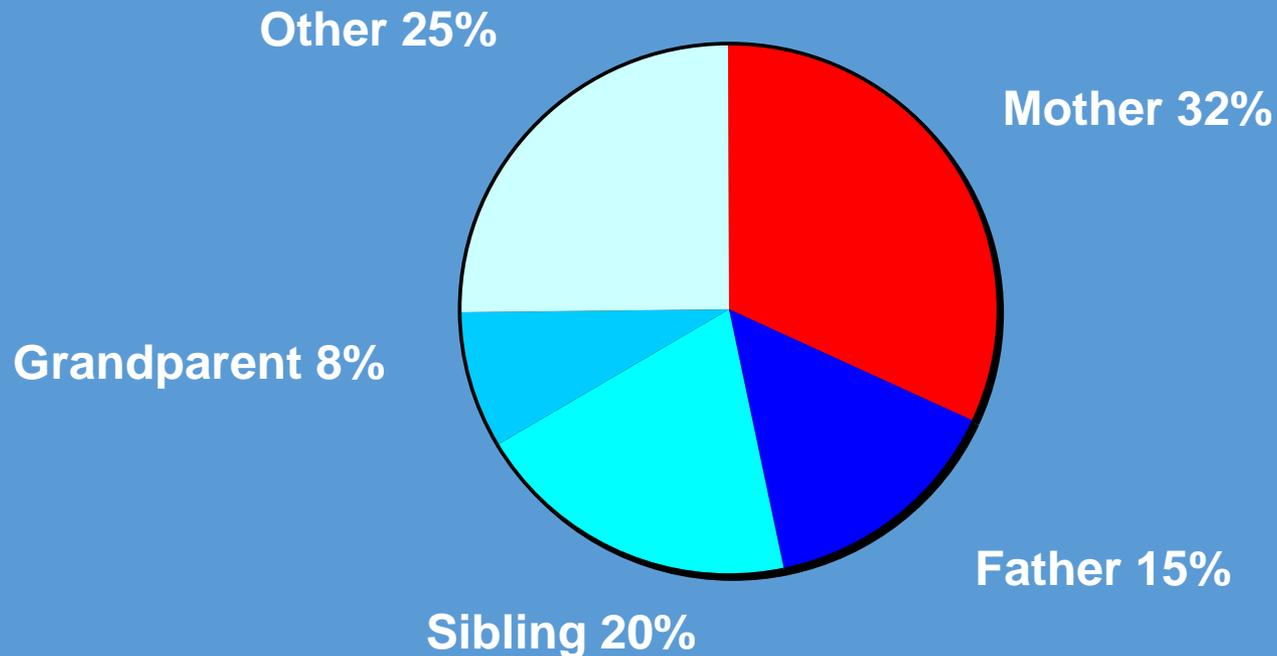
**Why is the
pertussis cough
so bad?**

2 month-old with pertussis



Who gives babies pertussis?

- 774 infant cases from 4 states
- 264 cases had a source identified



ACIP Recommendations

- **The preferred age for Tdap vaccination is 11-12 years**
- **Adolescents aged 11-18 years should receive a single dose of Tdap instead of tetanus and diphtheria toxoids vaccine (Td) for booster immunization**



flu,

hangover,

or

meningitis?

College freshmen and dormitory residents face a higher incidence of meningococcal disease

TABLE 1. Number of cases and rates of meningococcal disease — United States, September 1998–August 1999*

	No. of cases	Population	Rate*
All persons aged 18–23 years	304	22,070,535 [†]	1.4
Nonstudents aged 18–23 years	211	14,579,322 ^{†§}	1.4
All college and university students	96	14,897,268 [§]	0.6
Undergraduates	93	12,771,228 [§]	0.7
Freshmen [¶]	44	2,285,001 [§]	1.9
Dormitory residents	48	2,085,618 ^{§**}	2.3
Freshmen [§] living in dormitories	30	591,587 ^{§**}	5.1

Source: Bruce MG, Rosenstein NE, Capparelle JM, Shutt KA, Perkins BA, Collins M. Risk factors for meningococcal disease in college students. *JAMA* 2001;286:688–93.

* Per 100,000 population.

† 1998 census data.

§ **Source:** National Center for Education Statistics, U.S. Department of Education, 1996–1997.

¶ Students enrolled for the first time in any postsecondary educational institution.

** **Source:** National College Health Risk Behavior Survey (NCHRBS) — United States, 1995.

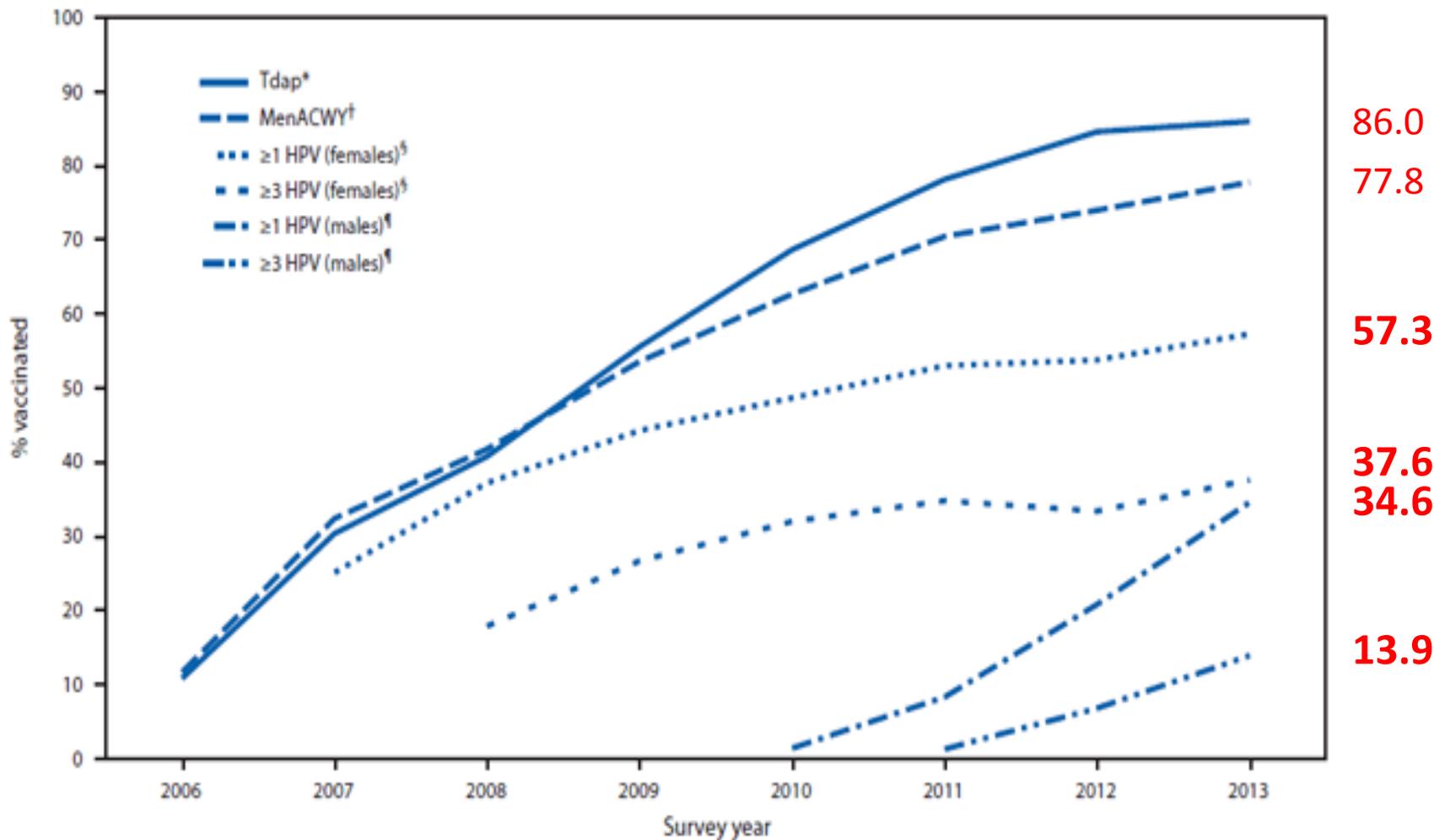
Who should receive MCV4?

- **Children 9 months to 10 years who are at increased risk of meningococcal disease**
- **Children 11-12 years, or at H.S. entry**
 - **A second dose is recommended at age 16**
- **Adults who will live in dormitories**
 - **College students, military recruits**

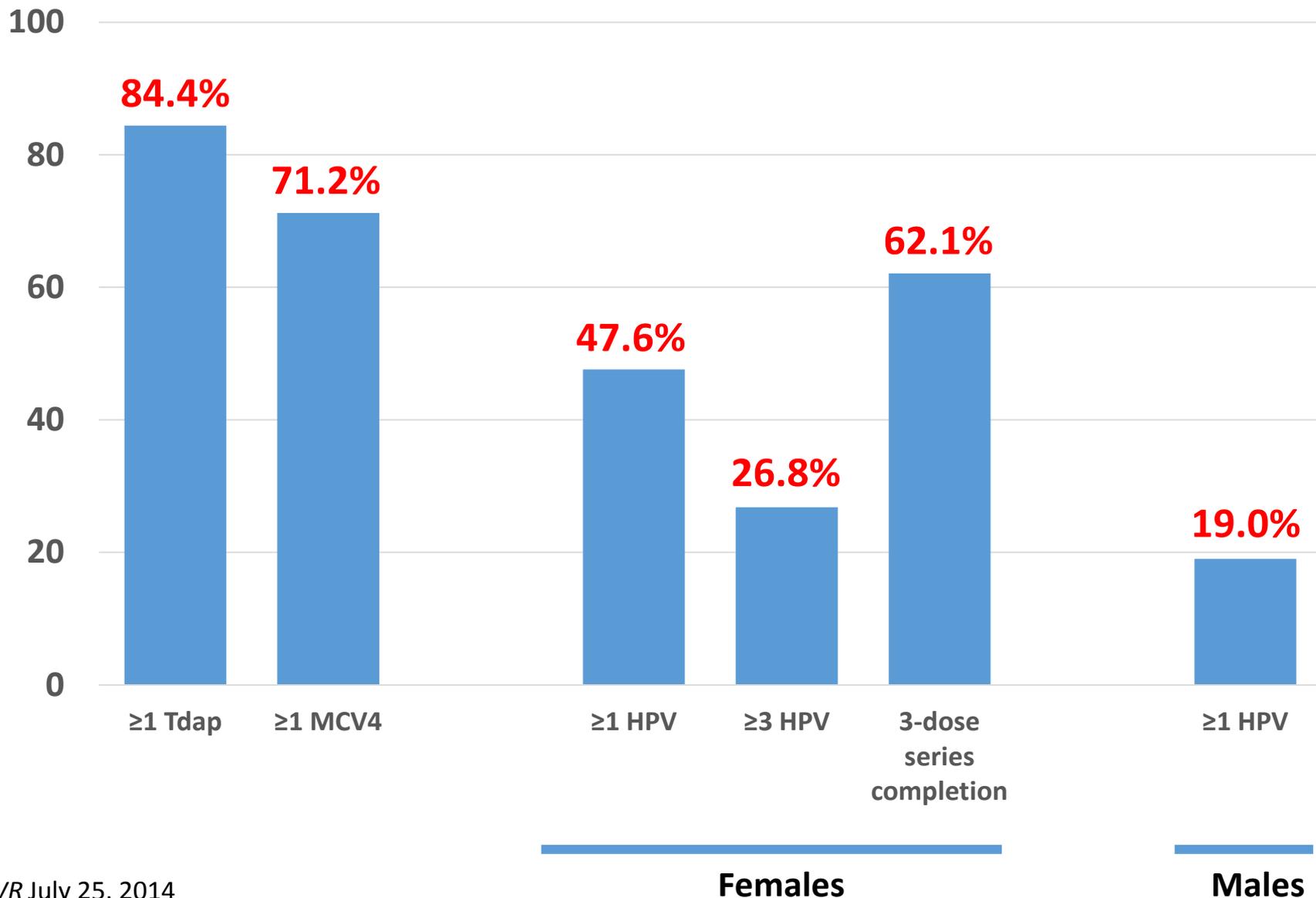
MCV4: Why a booster dose?

- After licensure, additional data indicated that many adolescents might not be protected for more than 5 years.**
- As a consequence, persons immunized at age 11 or 12 years might have decreased protective immunity by ages 16 through 21 years, when their risk for disease is greatest.**
- Therefore, a booster dose of MCV4 is recommended at age 16 years.**

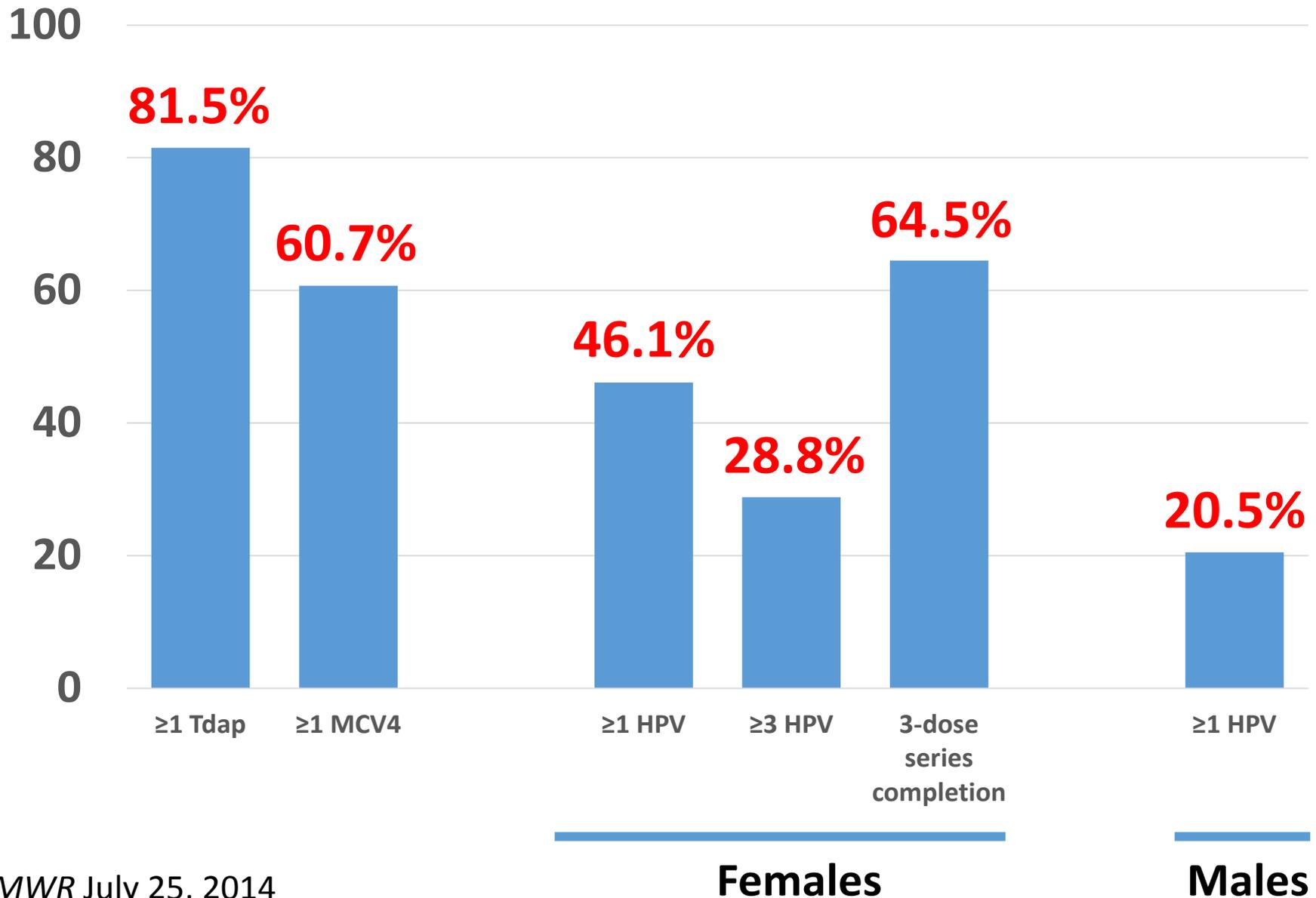
Estimated vaccination coverage with selected vaccines and doses among adolescents aged 13–17 years, National Immunization Survey-Teen, United States, 2006–2013



Estimated Vaccination Coverage Among Adolescents Aged 13-17 Years, Kentucky, National Immunization Survey-Teen, 2013



Estimated Vaccination Coverage Among Adolescents Aged 13-17 Years, Missouri, National Immunization Survey-Teen, 2013



**Why is it important that
we discuss immunization of
teens and young adults?**







Vaccines for Teens: US

- **2000**

- **Td**

- **2014**

- **Tdap**
- **MCV4 (2 doses)**
- **HPV (3 doses)**

Vaccines for teens: US 2014

- Tdap 1 dose
- MCV4 2 doses
- HPV 3 doses
- Hepatitis A 2 doses
- Influenza 1 dose annually
- Hepatitis B Catch-up to 3
- MMR Catch-up to 2
- Varicella Catch-up to 2

Some vaccines that we wish we had

- HIV
- HSV
- GC
- RSV
- *Chlamydia*
- Group B *Strep.*
- Group A *Strep.*
- *Staph. aureus*
- Tuberculosis
- HCV
- Malaria
- Prostate cancer
- Breast cancer
- Stupidity

Vaccines we wish we had that would likely go into teenagers

- HIV
- HSV
- GC
- RSV
- *Chlamydia*
- Group B *Strep.*
- Group A *Strep.*
- *Staph. aureus*
- Tuberculosis
- HCV
- Malaria
- Prostate cancer
- Breast cancer
- Stupidity



US Advisory Committee on Immunization Practices Recommendations

- **Immunization of all males and females at ages 11 – 12 years**
 - **May begin as young as age 9 years**
- **Catch-up immunization of all females ages 13 – 26 years**
- **Catch-up immunization of all males ages 13 – 21**
 - **Catch-up immunization of males 21 – 26 years in high-risk populations**



Are you crazy?
My 9-year-old daughter isn't
sexually active!

Good!

She shouldn't be!

Why is it best to immunize adolescents at age 9 - 12 years?



Three reasons to immunize at ages 9 - 12 years

- 1. HPV vaccines are purely preventive**
- 2. Adolescents need other vaccines**
- 3. Young adolescents are still in our care**

Three reasons to immunize at ages 9 - 12 years

1. HPV Vaccines are Purely Preventive

If we are to be good stewards
of an expensive resource,
we will immunize well before
exposure to HPVs occurs



Three reasons to immunize at ages 9 - 12 years

1. HPV Vaccines are Purely Preventive

Early immunization gives
per-protocol efficacy.

Late immunization gives
intention-to-treat efficacy.

Three reasons to immunize at ages 9 - 12 years

2. Adolescents need other vaccines

Tdap

Meningococcal vaccine

Influenza vaccine

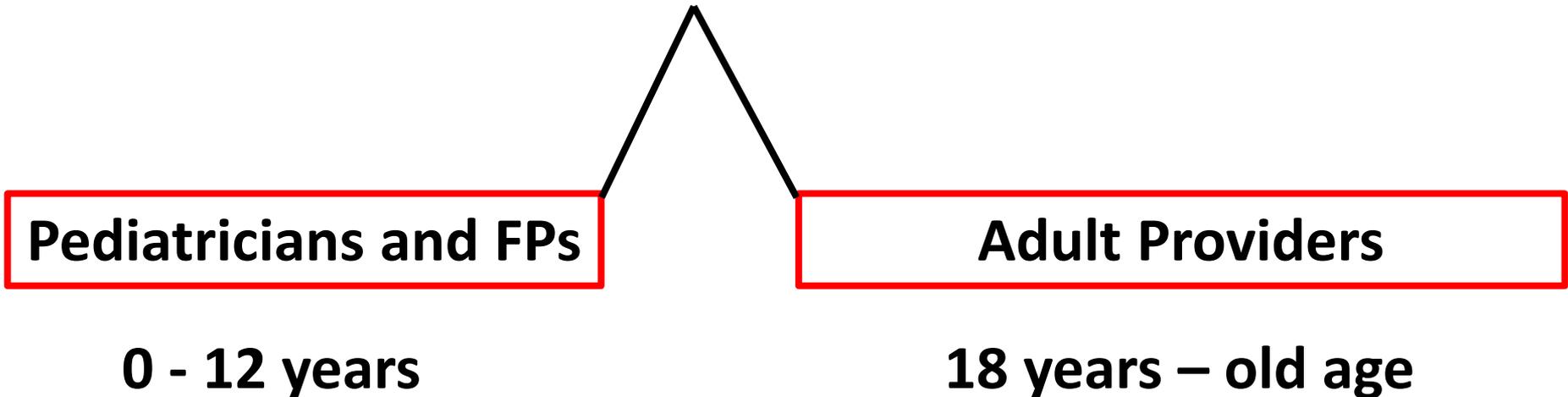
Three reasons to immunize at ages 9 - 12 years

The most important reason

3. Young adolescents are still in our care

The Window Period of Adolescence: A Gap in US Healthcare

***Adolescent window period
Ages 12 – 18 years***



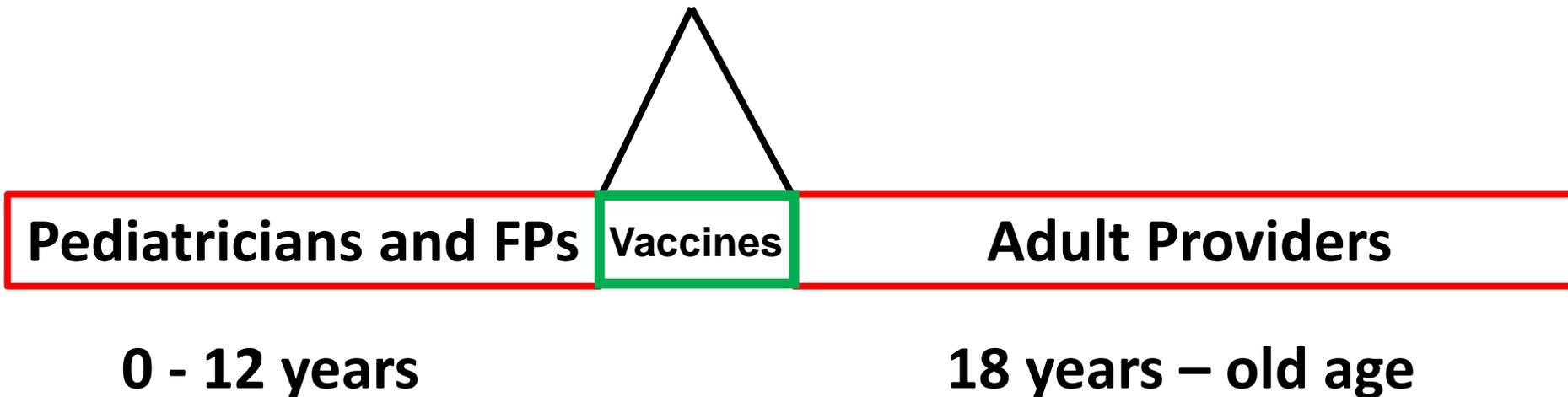
Immunization

is a well established tool that keeps infants and young children in our care.

Can we use immunization in the same way for adolescents?

The Window Period of Adolescence: A Gap in US Healthcare

*Adolescent window period
Ages 12 – 18 years*



Is the private office the best place to immunize adolescents?

Why have some countries done better than others?



Why not private doctors' offices?

- Many adolescents don't go to the doctor**
 - When they do go, it is for acute care**
- Many adolescents are poor**
- Many adolescents lack medical homes**
- Many offices don't immunize adolescents effectively**
- Costs for office-based immunization are high**

**If we're not going to immunize
adolescents in doctors' offices,
where should we immunize them?**

Willie Sutton





**Sometimes, we are unclear about
our immunization priorities.**

**At other times,
we have the wrong priorities,
particularly when we let parents
negotiate a delay in HPV
immunization.**

Vaccines competing for our attention
In a world of limited resources,
which adolescent vaccine is most important?



**Tetanus/diphtheria/
acellular pertussis?**

**Meningococcal
vaccine?**

HPV?

US, 2009...

- Invasive meningococcal disease affected about 850 Americans
 - **Approximately 110 died**
- Nearly 17,000 cases of pertussis were reported in the U.S.
 - Many more cases go undiagnosed and unreported.
 - **Approximately 25 pertussis-related deaths occur each year in the US (>90% are infants)**

Active Bacterial Core Surveillance (ABCs) 1997-2009. Available at:
<http://www.cdc.gov/abcs/reports-findings/survreports/mening09.html>,

Accessed 5/21/2011.

US, 2010:

- **12,200 cases of cervical cancer**
 - **4210 deaths**
- **4200 HPV-associated vaginal and vulvar carcinomas**
 - **1000 deaths**
- **5260 anal cancers**
 - **720 deaths**
- **Approximately 12,000 cases of HPV-associated head and neck cancers**
 - **Approximately 2500 deaths**

HPV vaccination could prevent more than 5000 cancer deaths each year in the US

"Giving the HPV vaccine to young women could be potentially harmful because they may see it as a license to engage in premarital sex."

***Bridget Maher,
The Family Research Council***

Human Papillomavirus Vaccine and Sexual Behavior Among Adolescent and Young Women

**Liddon *et al.*,
American Journal of Preventive Medicine
42 (1), 44-52 (2012)**

Human Papillomavirus Vaccine and Sexual Behavior Among Adolescent and Young Women

Liddon *et al.*,

American Journal of Preventive Medicine 42 (1), 44-52 (2012)

• Results

- HPV vaccination was not associated with being sexually active or number of sex partners at either age.
- Among sexually active adolescents aged 15–19 years, those who received HPV vaccine were more likely to always wear a condom.

**WE HAVE MET
THE ENEMY
AND HE IS US.**



A challenge to HPV immunization

- **Immunizers' risk-based mindset**
 - **Makes us think “not my patients”**
 - **Makes us give the wrong information to parents**

Comment from a colleague:

**“I’ll give the vaccine
to my
high-risk patients.”**

Comment from a colleague:

**This is a vaccine for
“bad girls”
and for
immoral people.**







Adam and Eve

Lucas Cranach the Elder
(1472-1553)



Solome

Bernardino Luini
1485 - 1532



HPV epidemiology: U.S.

**For both men and women,
the lifetime risk of a genital
HPV infection is 70-80%.**

Thinking about HPV:

**Sexually-transmitted infection
or
normal human flora?**



What should we teach immunizers?

**For HPV,
risk-based immunization is a
failed strategy
that leaves the unimmunized
at risk of cancer.**

Victims of our own successes...

**When you carry out a large
vaccination program,
bad things
sometimes happen to people.**

**Not all things that happen are
vaccine-related.**

People continue to mistake a temporal association for a causal association

Advertising

Get to your
Healthy Weight
LAP-BAND, Gastric Bypass
or Gastric Sleeve
Dana lost
90 lbs! as low as...
\$222 a month
DR. WADE BARKER
BARIATRIC SURGERY SPECIALIST
or call
888-845-8983

★ KC-45 ★
AMERICA'S NEW TANKER

HPV vaccine's suspected side effects cause concern

12:31 PM CDT on Friday, June 6, 2008

By **JESSICA MEYERS** / The Dallas Morning News
jmeyers@dallasnews.com

Katherine Kimzey started suffering debilitating headaches, fainting spells and arthritis-like stiffness last November.

Six weeks later, the 14-year-old Dallas resident became so dizzy she could barely walk. She was hospitalized and missed three weeks of school.

Then, she had a seizure. For weeks, she bounced back and forth between specialists and was eventually diagnosed with epilepsy.

Email

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MY YAHOO!

Yahoo! Buzz

BOOKMARK

Video



Katherine Kimzey, 14, talks about symptoms she suffered after her

**“The events reported
were consistent with events expected in
healthy adolescent and adult
populations.”**

***Gardasil* Prescribing Information**

**“Causes of death among subjects were
consistent with those reported in
adolescent and adult female populations.”**

***Cervarix* Prescribing Information**

**What is the leading
cause of death
in adolescents who receive
HPV vaccination?**





**Parents make decisions,
not on the basis of facts,
but on the basis of
experience.**

**How we talk about HPV immunization
with our patients and
in the community
must differ from
how we speak with one another.**

**To best serve our patients,
we must be translators.**

**When we speak doctor-to-doctor,
we use the language of epidemiology.**

We talk about risk.

We use statistics.

Proven facts matter.

**When we talk to patients
and in the community,
we must be less scientific
and more emotional.**

We must tell compelling stories.



INTERNATIONAL MEMORIAL FOR VACCINE VICTIMS

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Honoring those whose lives have been lost or forever changed by vaccination.

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They had no voice. They had no choice.

They are the men, women, and children who have died or been injured by vaccines in nations around the world for the past 200 years. This is a virtual Memorial dedicated to those whose lives have been forever changed by vaccines they were often required by law to use.

The National Vaccine Information Center, headquartered in the United States, has created

**In the US,
about 4500 women die of
cervical cancer each year.**

**4500 women/year dying of cervical cancer =
One 747 crash every 6 weeks**





Two approaches...

- **HPV stands for human papillomavirus**
- **HPV causes genital warts and cervical cancer**
- **HPVs are transmitted sexually**
- **Many adolescents become sexually active by age 13**
- **Do you want this vaccine for your 11 year-old?**



***My child is not
(and never will be)
sexually active!***

Two approaches...

- **Has anyone that you care about had cancer?**
 - **What was it like for them?**
 - **What was it like for you?**
- **We can reduce the chances of your son or daughter having a cancer experience.**
- **Do you want to reduce your child's risk of cancer?**



**When talking with parents
about immunization,
parents want to know three things:**

1) Does it work?

2) Is it safe?

3) What is your recommendation?

Talking with Parents about Immunization

1) Does it work?

Yes!

Vaccine efficacy is high for prevention of cervical disease, genital warts, and anal malignancies.

The vaccine may also protect against some head and neck cancers.

Talking with Parents about Immunization

2) Is it safe?

Yes!

Large clinical trials and extensive post-marketing surveillance have identified sore arms, and the occasional headache and fever, as the only vaccine-associated side effects

Talking with Parents about Immunization

3) What is your recommendation?

Use Every Opportunity to Immunize



**Nothing you do for children
is ever wasted.**

Garrison Keillor