

**Promoting
Adolescent Vaccination:
*Getting the Messaging Right***

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Potential Conflicts of Interest

- Merck
 - Paid speaker
 - Advisory boards
 - Investigator-initiated research projects

Topics for our discussion

1. Why is it important that we talk about adolescent immunization?
2. How best to immunize adolescents?
3. How should we talk about immunization to our patients, their parents, our colleagues, policy makers, and the public?





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







Vaccines for Teens: US

•2000

- Td

•2015

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

Vaccines for teens: US 2015

- 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



Why do we need an adult pertussis vaccine?
Weren't we all immunized as kids?

Vaccine-induced Immunity to Pertussis Wanes Rapidly



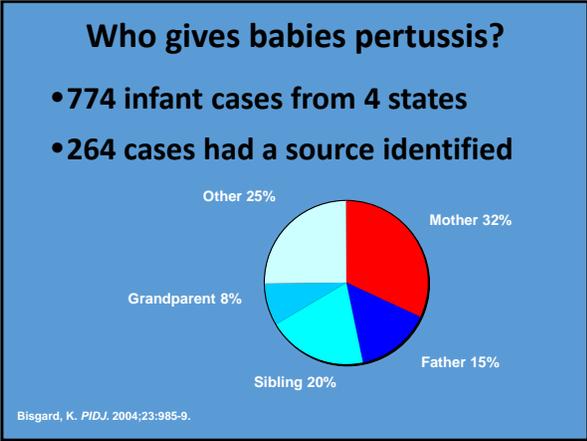
Strebel P. *Infect Med.* 1996;13:S33-S41.

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?



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





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 ^b
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	591,687 ^{**}	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.

MMWR 54: RR-7 (2005)

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.



Among adolescents, who is at risk for severe H1N1 influenza?

- The usual suspects
 - Children with asthma, immunosuppression, cystic fibrosis, renal failure, pregnancy...
- *But also...*
- Children with neuromuscular disorders
- Children with neurocognitive disorders
- Children with seizure disorders
- Obese children

Jain et al., NEJM 361: 1935-1944 (2009)
Kwong et al., Clin Infect Dis 53(5): 413-421 (2011)

For the average family with healthy children, influenza is an economic disease.

- Missed work
- Missed pay
- Missed school
- Catch-up homework
- Missed practices and games
- Missed concerts and recitals
- Missed vacations
- Clinic visits

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



**Three reasons to immunize at ages
9 - 12 years**

1. 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. Vaccines are Purely Preventive

This is especially important for HPV vaccines.

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

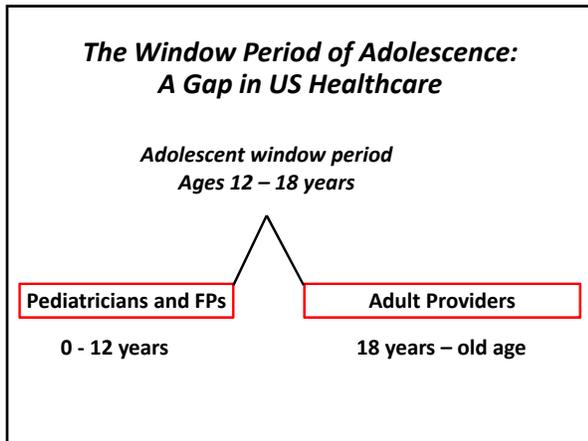
2. Adolescents need other vaccines

Tdap
Meningococcal vaccine
Influenza vaccine

Three reasons to immunize at ages
9 - 12 years

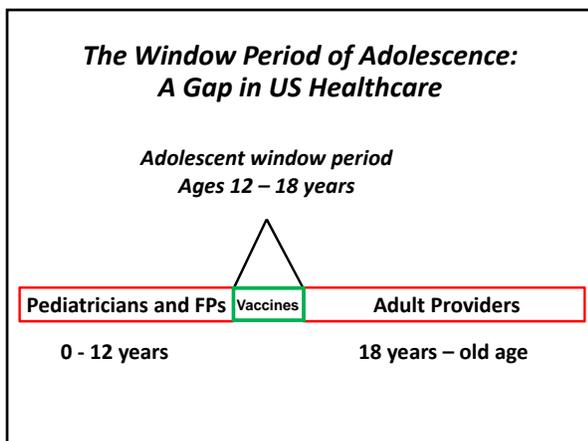
The most important reason

3. Young adolescents are still in our care



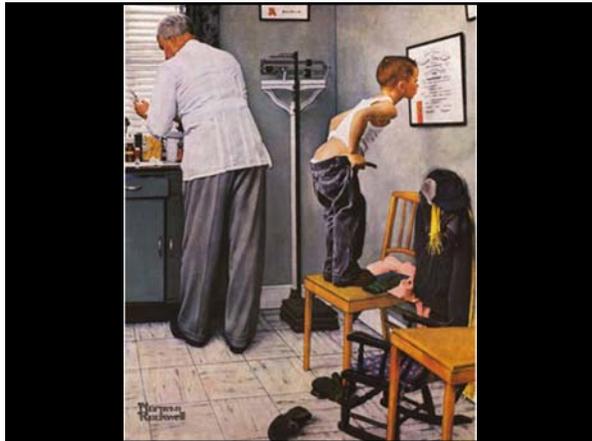
Immunization
is a well established tool that
keeps infants and young children
in our care.

Can we use immunization in the
same way for adolescents?



Is the private office the best place to immunize adolescents?

Why have some countries done better than others?



Why is immunizing in private physicians offices difficult?

- 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





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



**Tetanus/diphtheria/
acellular pertussis?**

**Meningococcal
vaccine?**

HPV?

**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.**

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.

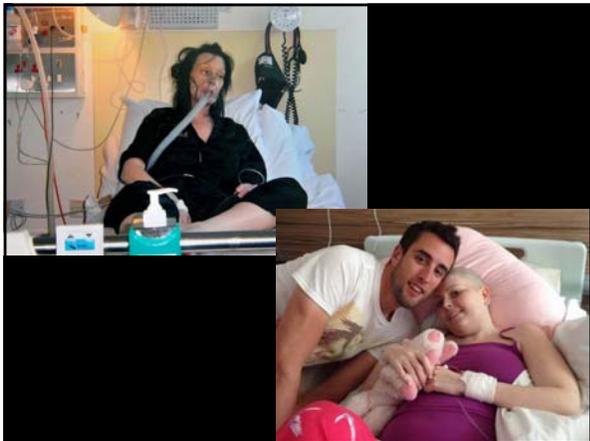
US, 2010:

- **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

American Cancer Society *Cancer Facts and Figures*, 2010. Atlanta, American Cancer Society, 2010

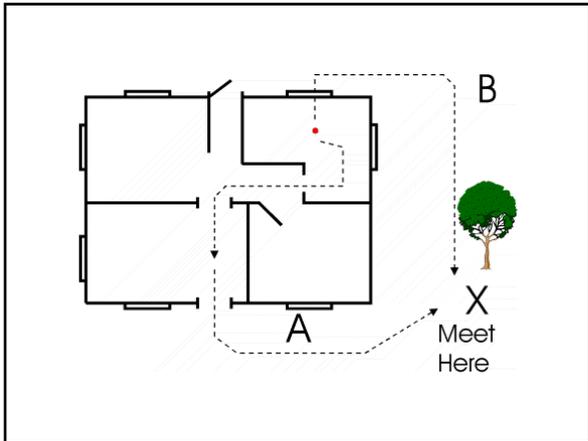












**Parents make decisions,
not on the basis of facts,
but on the basis of
experience.**

**When we speak as health professionals,
we use the language of epidemiology.**

We talk about risk.

We use statistics.

Proven facts matter.

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

**We must tell simple,
compelling stories.**



**In the United States,
because of our low HPV
immunization rate,
approximately 2500 women will
die each year of preventable HPV-
associated malignancies.**

2500 women/year dying of preventable HPV-associated cancers =
One 747 full of women crashing every 3 months





Two approaches...

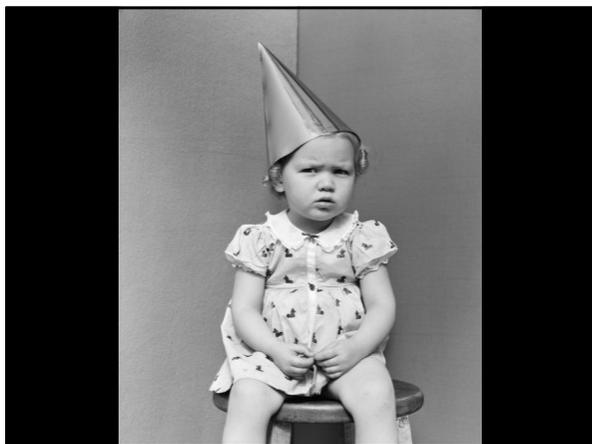
- HPV stands for human papillomavirus
- HPV causes genital warts and cervical cancer
- HPVs are transmitted sexually
- Many adolescents become sexually active by age 13
- Do you want this vaccine for your 11 year-old?



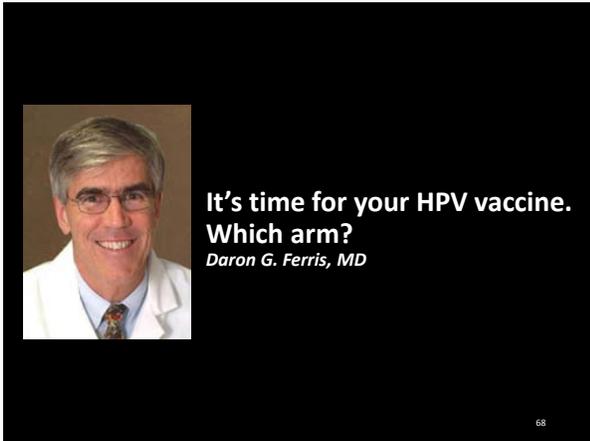
***My child is not
(and never will be)
sexually active!***

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?**



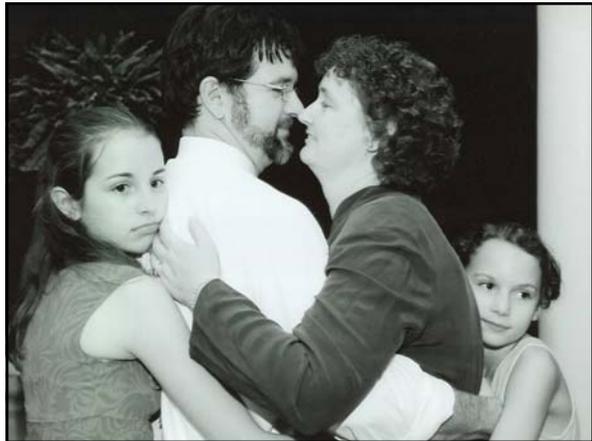
HPV Tdap meningococcal flu



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?**

Use Every Opportunity to Immunize



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

Garrison Keillor

