HP2020 Immunization Update
NVAC Meeting, Sept 11, 2012

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National Center for Immunization and Respiratory Diseases

Centers for Disease Control and Prevention

Outline

- Trends in vaccine-preventable diseases
- Update on immunization coverage
- Key areas for attention
- Possible changes to HP2020 monitoring
- Discussion

Comparison of 20th Century Annual Morbidity and Current Morbidity: Vaccine-Preventable Diseases

Disease	20th Century Annual Morbidity†	2011 Reported Cases ††	Percent Decrease
Smallpox	29,005	0	100%
Diphtheria	21,053	0	100%
Measles	530,217	222	> 99%
Mumps	162,344	404	> 99%
Pertussis	200,752	18,719	91%
Polio (paralytic)	16,316	0	100%
Rubella	47,745	4	> 99%
Congenital Rubella Syndrome	152	0	100%
Tetanus	580	36	94%
Haemophilus influenzae	20,000	14*	> 99%

†Source: JAMA. 2007;298(18):2155-2163

††Source: CDC. MMWR August 17, 2012;61(32);624-637. (final 2011 data)

* *Haemophilus influenzae* type b (Hib) < 5 years of age. An additional 14 cases of Hib are estimated to have occurred among the 226 reports of Hi (< 5 years of age) with unknown serotype.

Reported NNDSS pertussis cases: 1922-2012*

*2011 data are provisional; 2012 data are provisional through week 30..

SOURCE: CDC, National Notifiable Diseases Surveillance System and Supplemental Pertussis Surveillance System and 1922-1949, passive reports to the Public Health Service

Comparison of Pre-Vaccine Era Estimated Annual Morbidity with Current Estimate: Vaccine-Preventable Diseases

Disease	Pre-Vaccine Era Annual Estimate	2010 Estimate	Percent Decrease
Hepatitis A	117,333 †	*7,138*	*94%*
Hepatitis B (acute)	66,232 †	*9,428*	*86%*
Pneumococcus (invasive)			
all ages	63,067 †	39,500 #	37%
< 5 years of age	16,069 †	4,400##	73%
Rotavirus (hospitalizations, < 3 years of age)	62,500 ††	2,500###	96%
Varicella	4,085,120 †	*281,873*	*93%*

† Source: JAMA. 2007;298(18):2155-2163

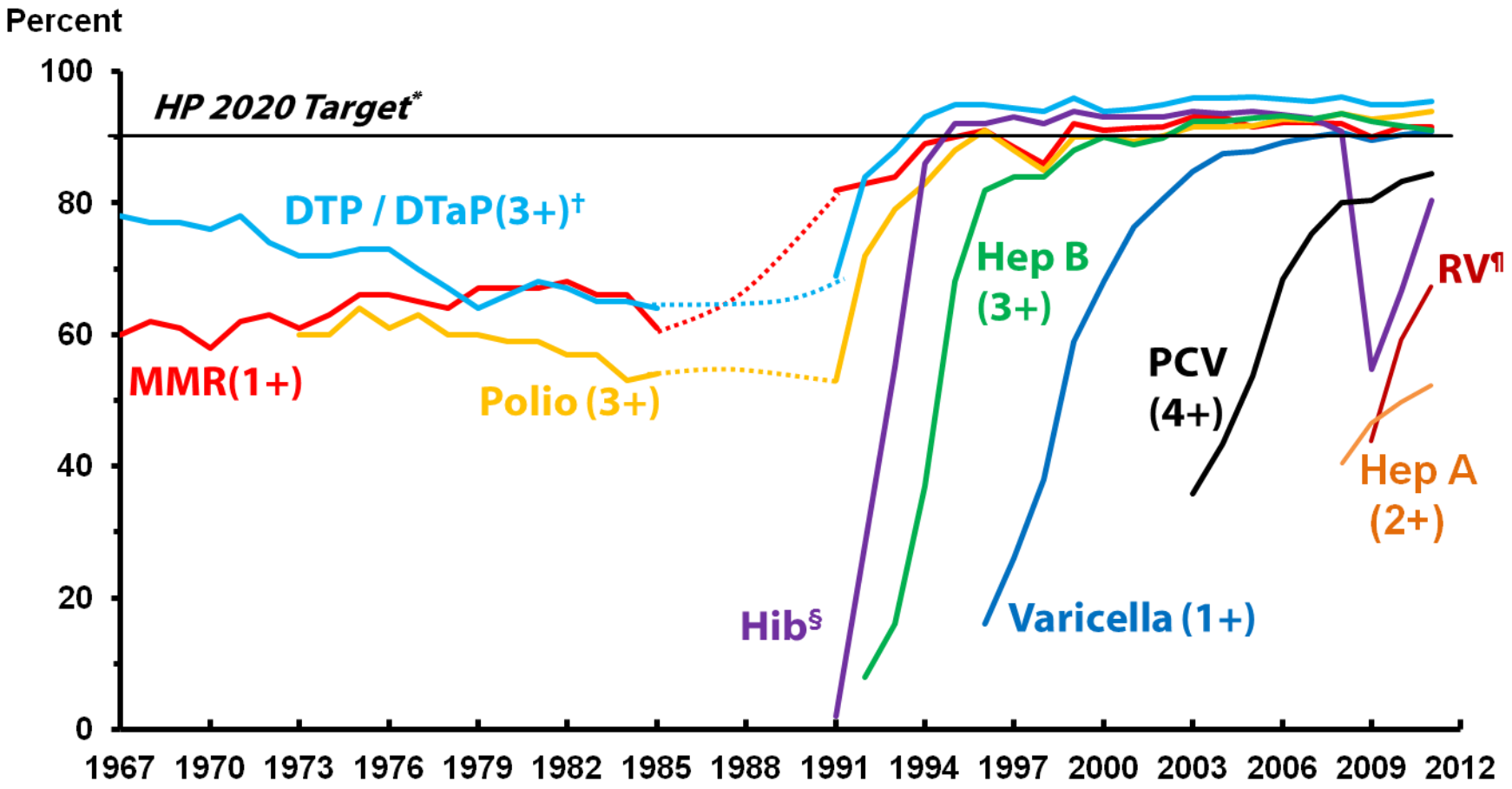
†† Source: CDC. MMWR. February 6, 2009 / 58(RR02);1-25

Source: CDC. Active Bacterial Core surveillance Provisional Report; S. pneumoniae 2010. http://www.cdc.gov/abcs/reports-findings/survreports/spneu09.htmll

Source: 2010 (provisional) Active Bacterial Core surveillance

Source: New Vaccine Surveillance Network (unpublished)

Increasing Vaccine-Specific Coverage Rates Among Preschool-Aged Children: 1967 - 2011



** Target is 80% for Rotavirus and 60% for Hepatitis A*

† DTP/DTaP (3+) is not a Healthy People 2020 objective. DTaP (4) is used to assess Healthy People 2020 objectives.

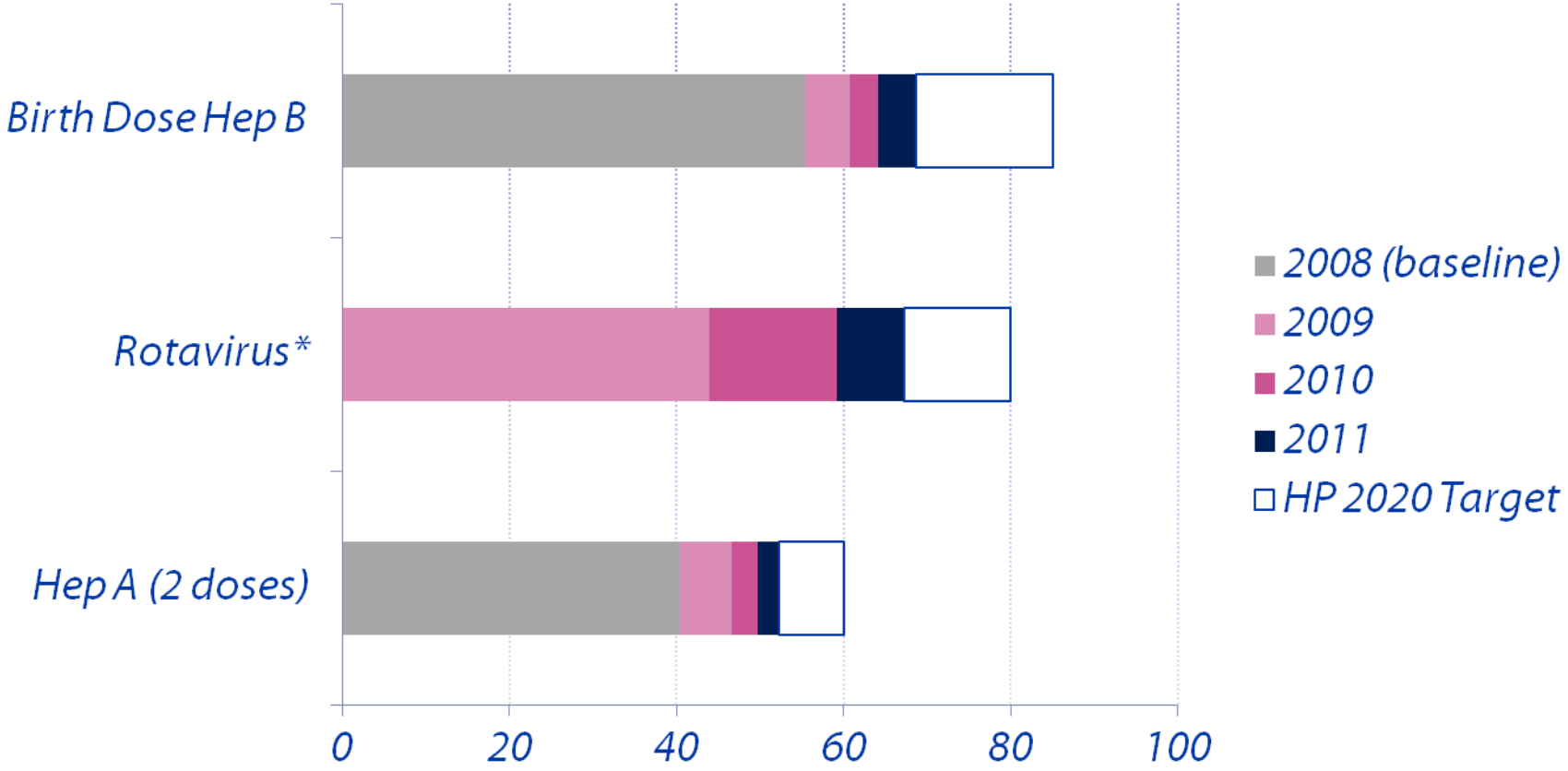
§ Reflects 3+ doses through 2008, and Full Series (3 or 4 doses depending on type of vaccine received) 2009 and later

¶ 2 or 3 doses, depending on the type of rotavirus vaccine received

Note: Children in the USIS and NHIS were 24-35 months of age. Children in the NIS were 19-35 months of age.

Source: USIS (1967-1985), NHIS (1991-1993) CDC, NCHS and NCIRD, and NIS (1994-2011), CDC, NIP, NCHS and NCIRD; No data from 1986-1990 due to cancellation of USIS because of budget reductions.

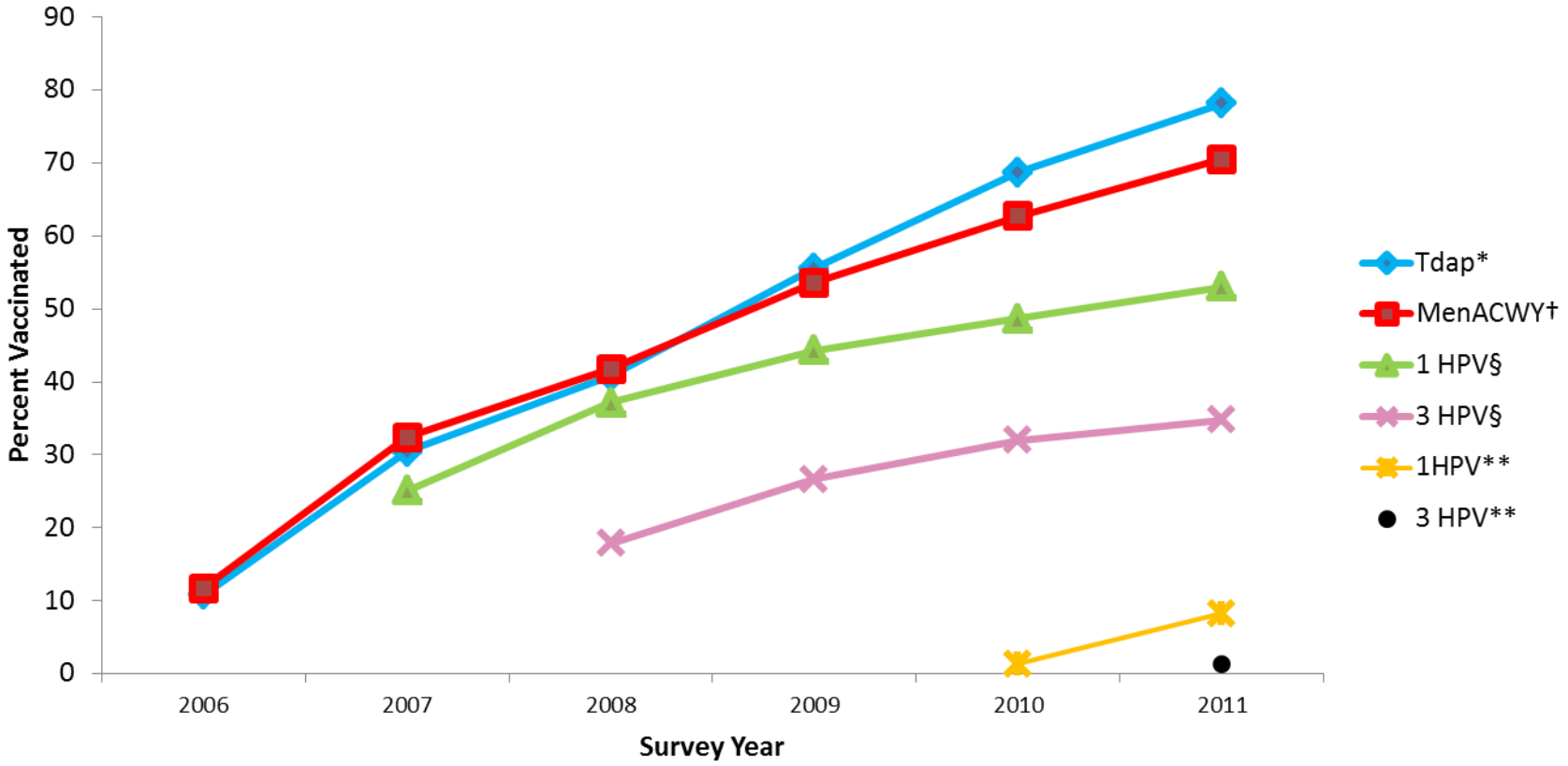
Est. Vaccination Coverage, Children 19-35 Months, New Healthy People 2020 Objectives



** 2 or 3 doses, depending on the type of rotavirus vaccine received*

Source: CDC, NIS

Tdap, MenACWY, and HPV vaccination estimates among adolescents, 13-17 years, NIS-Teen, United States, 2006-2011



* Tetanus toxoid, diphtheria toxoid, acellular pertussis vaccine since age 10
† Meningococcal conjugate vaccine
§ Among Females
**Among Males
MMWR Aug 31, 2012.

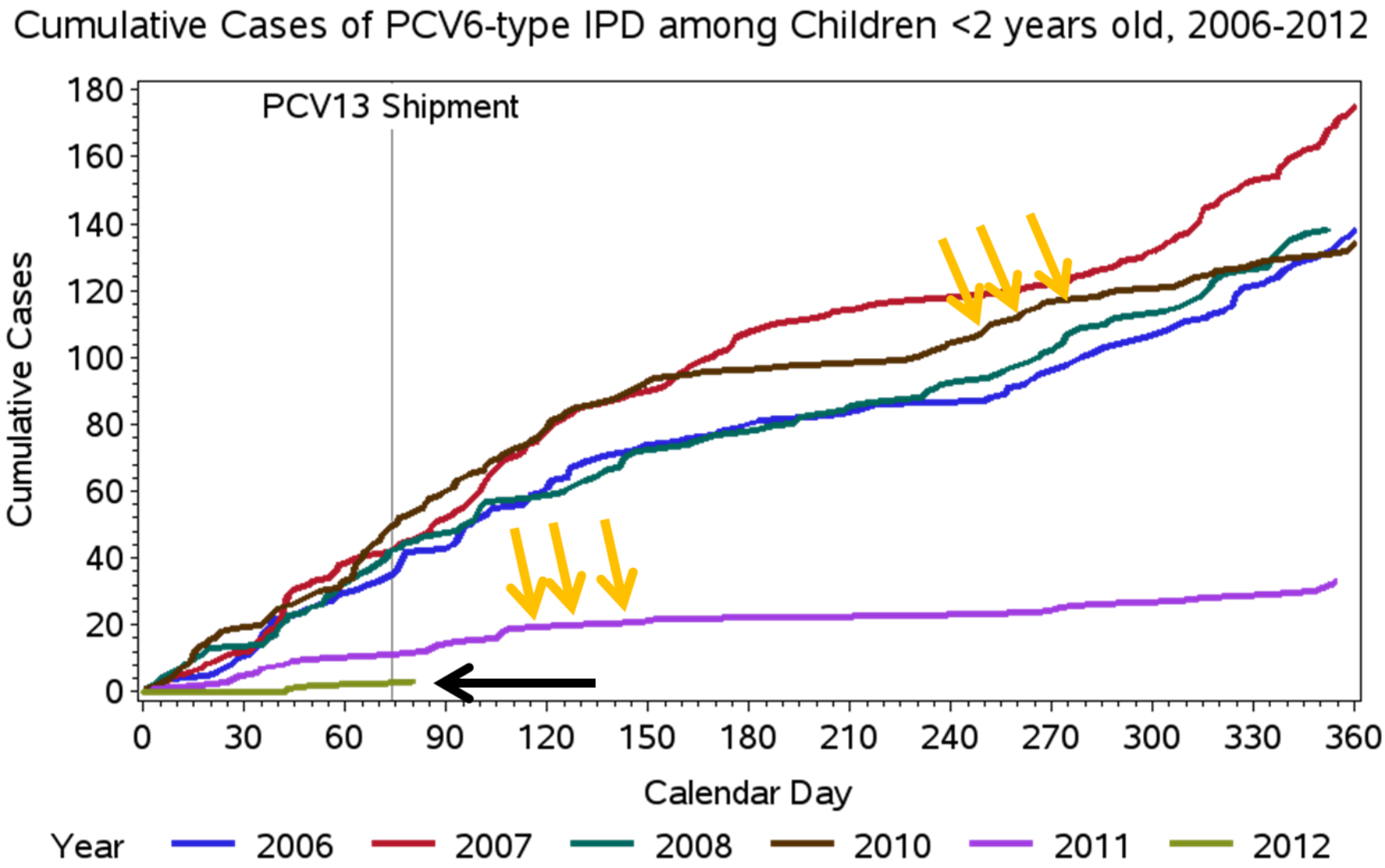
NIS-Teen Data 2006 to 2011

	2006	2007	2008	2009	2010	2011
Tdap	10.8%	30.4%	40.8%	55.6%	68.7%	78.2%
MCV4	11.7%	32.4%	41.8%	53.6%	62.7%	70.5%
1 dose HPV	--	25.1%	37.2%	44.3%	48.7%	53.0%
3 doses HPV	--	--	17.9%	26.7%	32.0%	34.8%

Tdap, MCV4, and HPV vaccination estimates among adolescents 13-17 years, United States, 2006-2011

Selected Key Areas

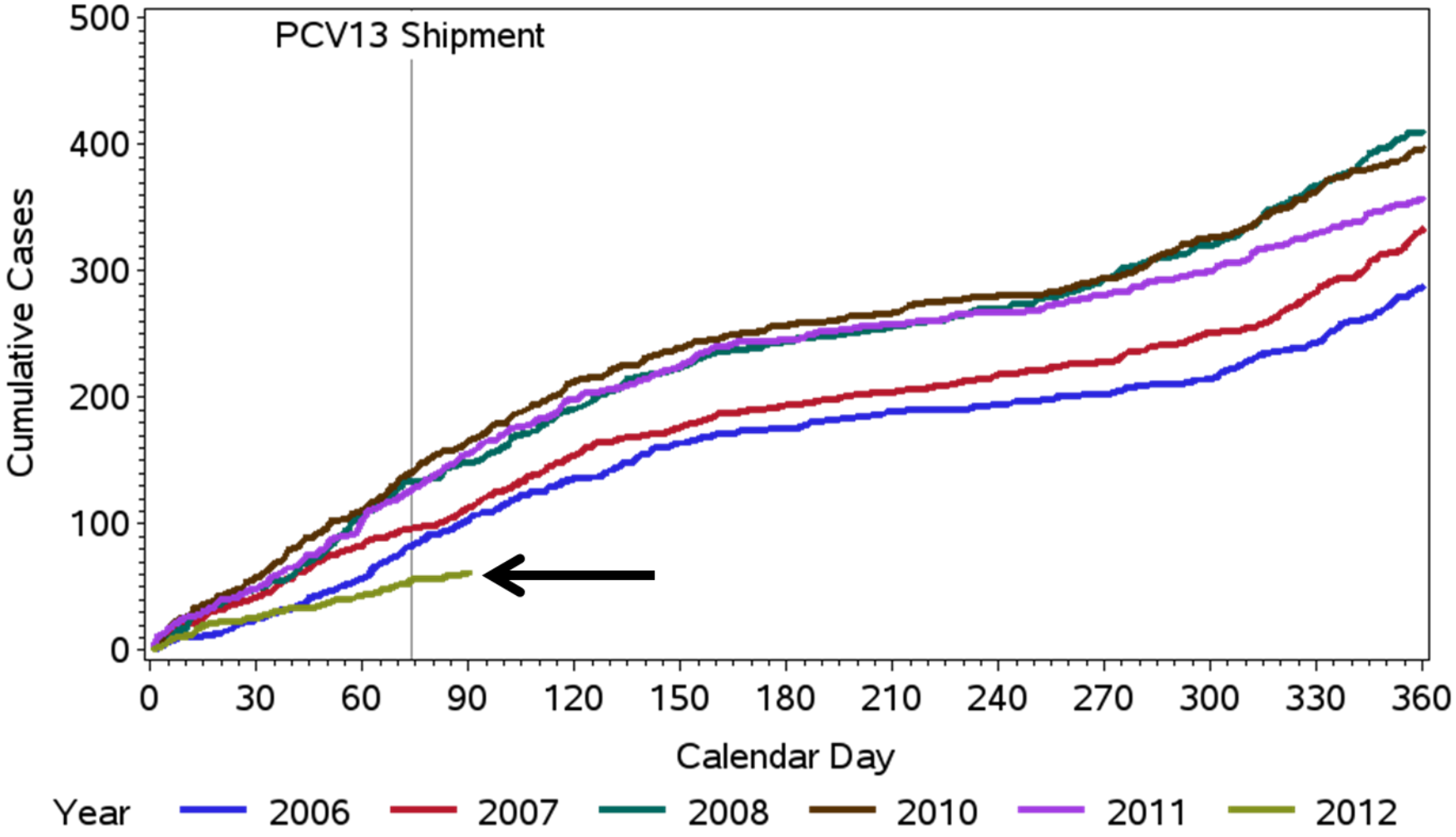
- Early effects of pediatric PCV-13 vaccination on invasive pneumococcal disease
- Kindergarten monitoring improvements
- Lagging HPV vaccination



CDC Unpublished, Active Bacterial Core surveillance

Note: Excludes 2009 pandemic year

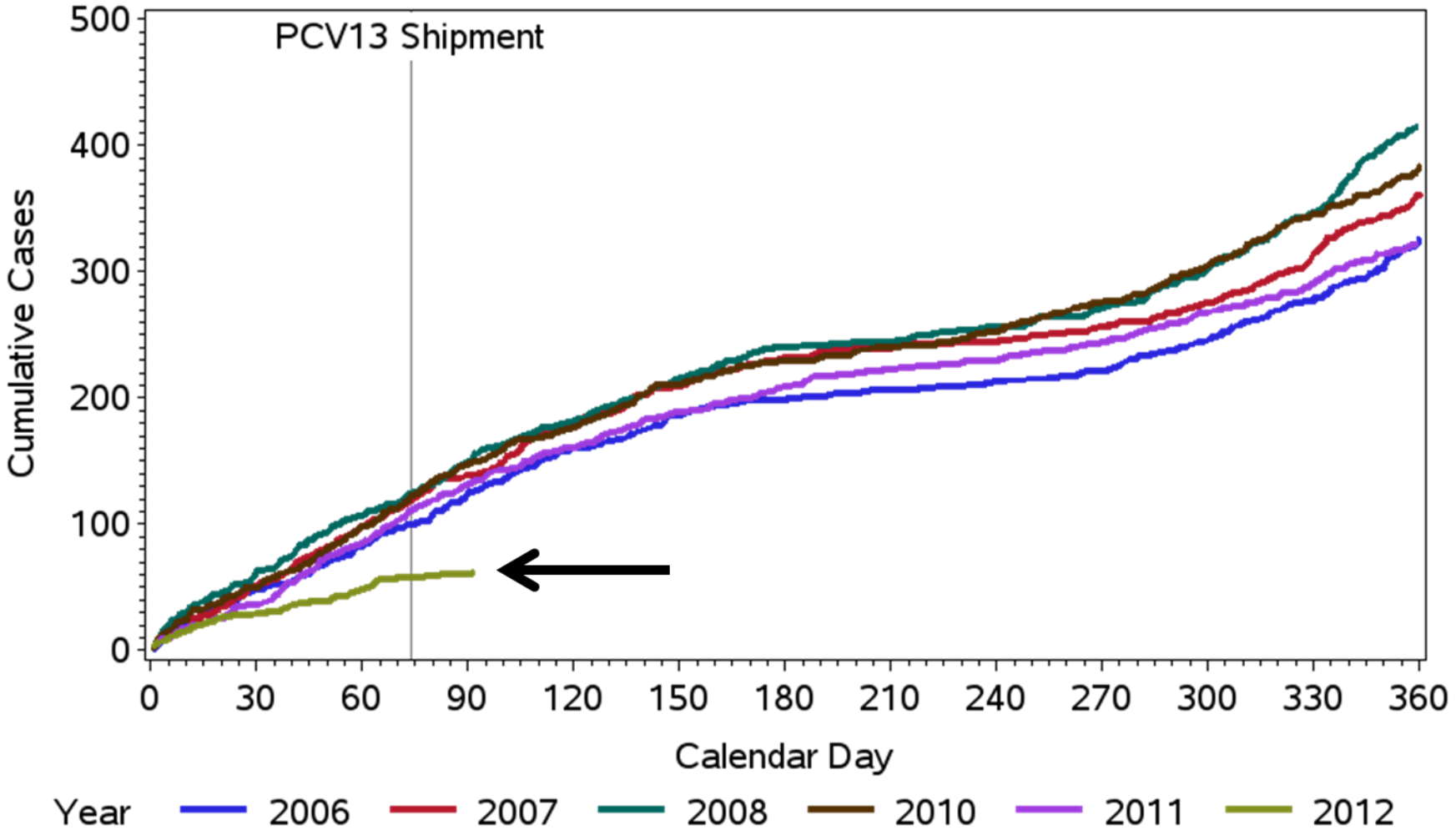
Cumulative Cases of PCV6-type IPD among Adults 50-64 years-old, 2006-2012



CDC Unpublished, Active Bacterial Core surveillance

Note: Excludes 2009 pandemic year

Cumulative Cases of PCV6-type IPD among Adults >64 years old, 2006-2012



CDC Unpublished, Active Bacterial Core surveillance

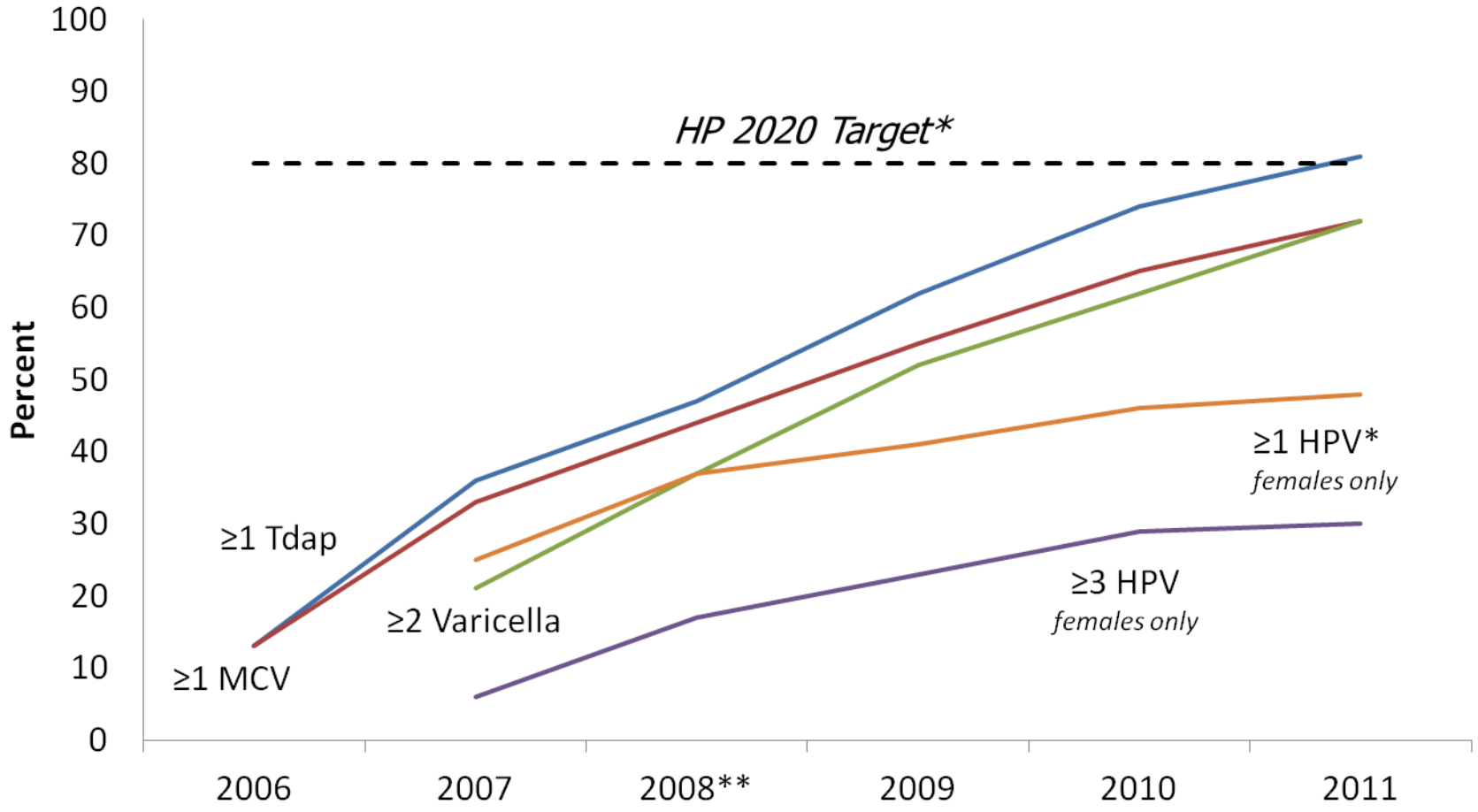
Note: Excludes 2009 pandemic year

Monitoring vaccination coverage at kindergarten entry

- **# states collecting kindergarten vax data according to CDC minimum standards:**
  - 2009 (Baseline) 13
  - 2011-12 School year 20

Vaccination Coverage Among Children in Kindergarten — United States, 2011–12 School Year. MMWR August 24, 2012 / 61(33);647-652

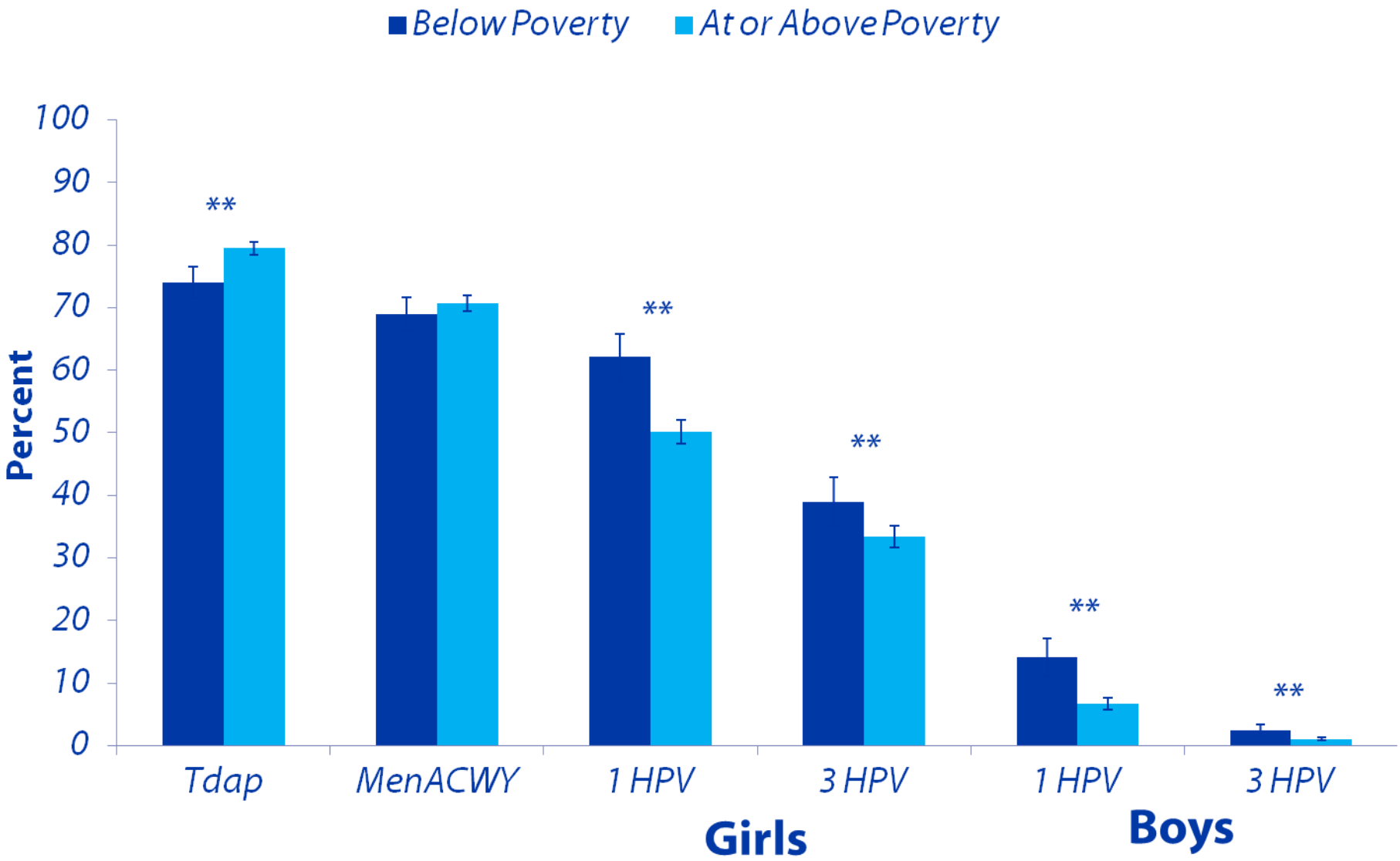
Estimated Vaccination Coverage, Adolescents 13-15 years, 2006-2011
NIS-Teen



* Target is 90% for 2 doses of varicella; ≥1 HPV is not an HP 2020 objective.

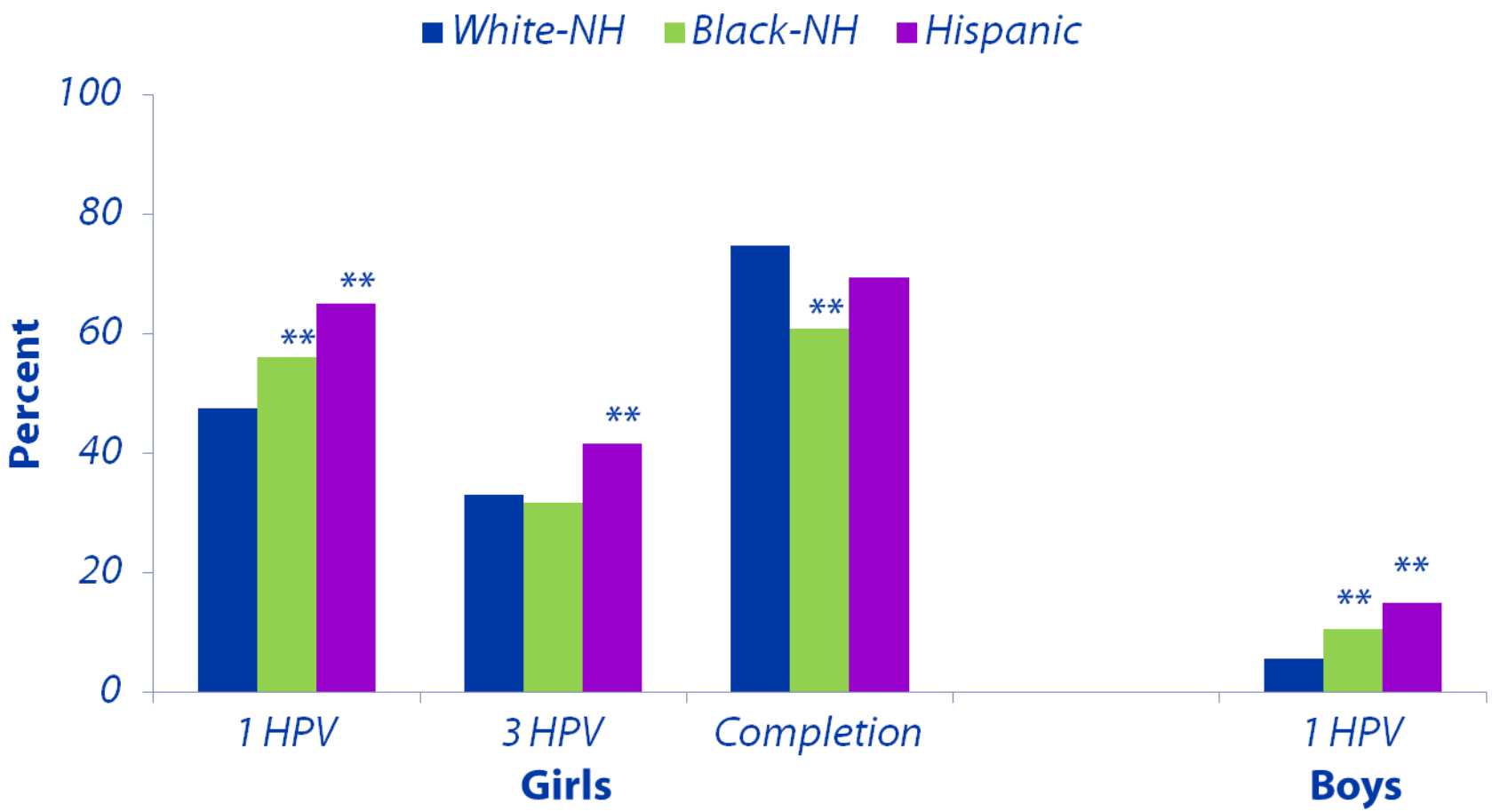
** Baseline for HP 2020.

Vaccination Estimates among Adolescents by Poverty Status, NIS-Teen, United States, 2011



** statistically different ($p<0.05$)

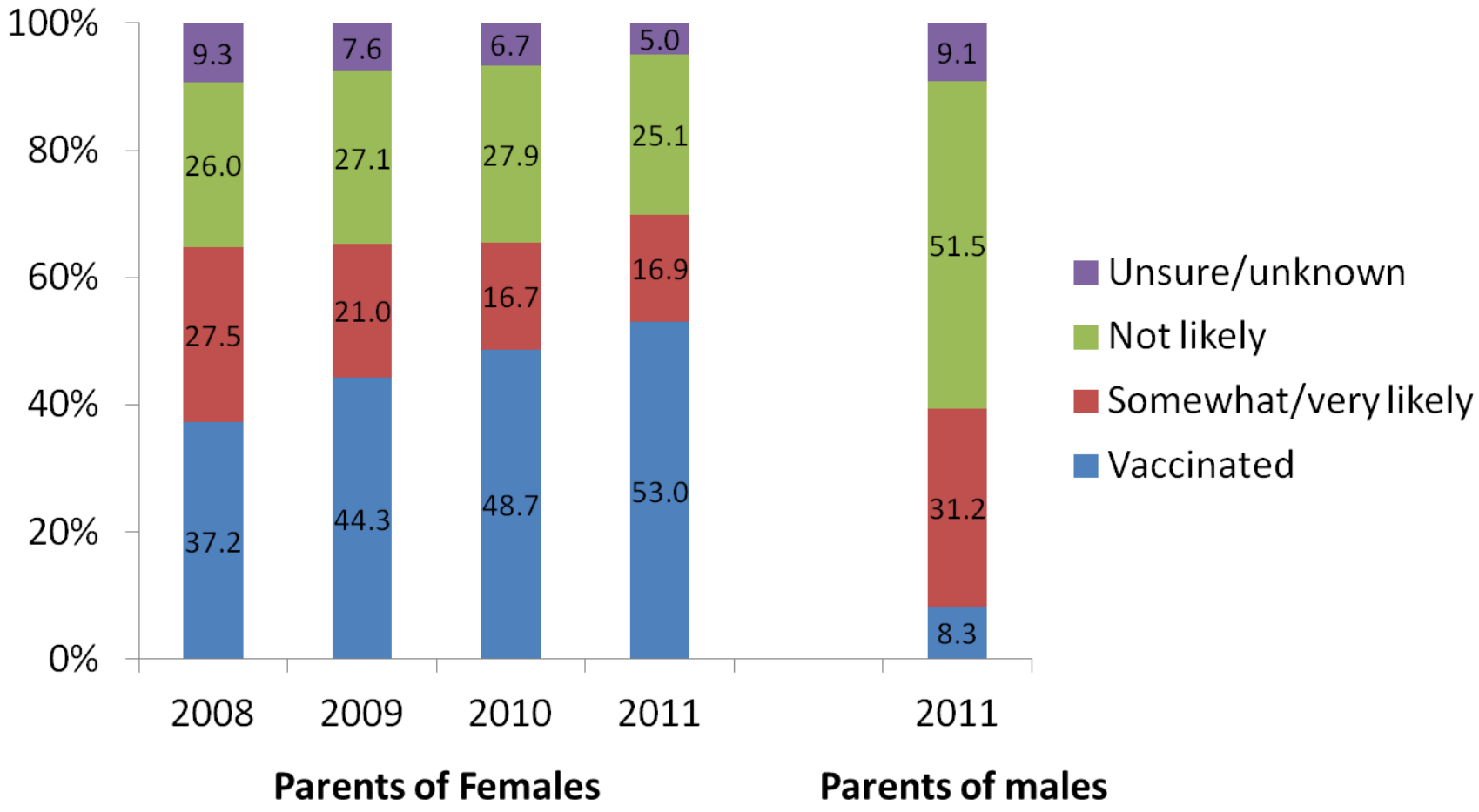
HPV Vaccination Estimates among Adolescent by Race/Ethnicity , NIS-Teen, United States, 2011



** Statistically different (P<0.05) from White-NH.

Completion for teens w/ ≥24 wks between 1st HPV dose and NIS-Teen interview date.

HPV Vaccine Intentions (in the Next 12 Months) Among Parents of Adolescents 13-17 Years of Age

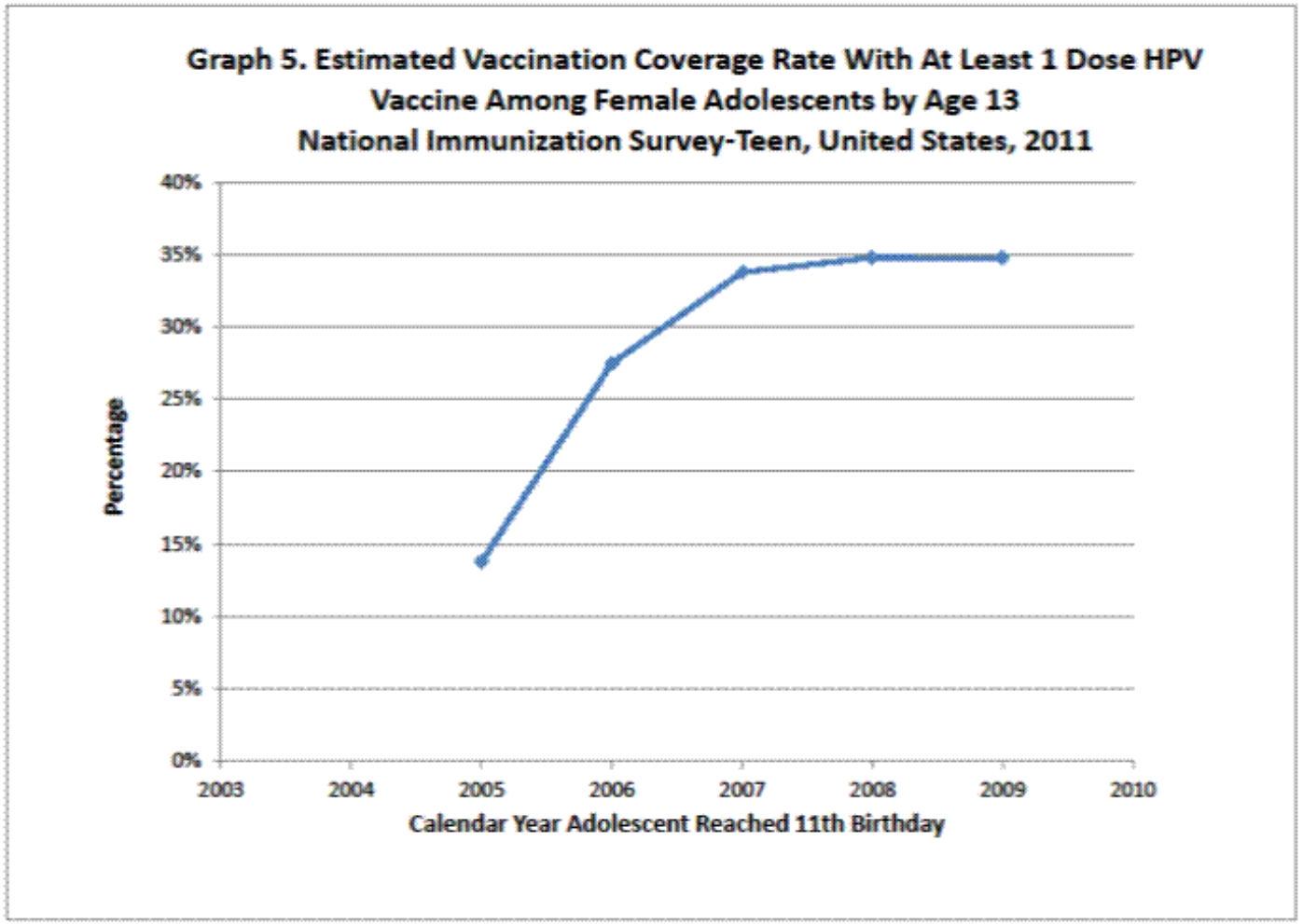


Source: NIS-Teen

Top 5 reasons* for not vaccinating teen, among parents with no intention to vaccinate in the next 12 months, NIS-Teen 2011

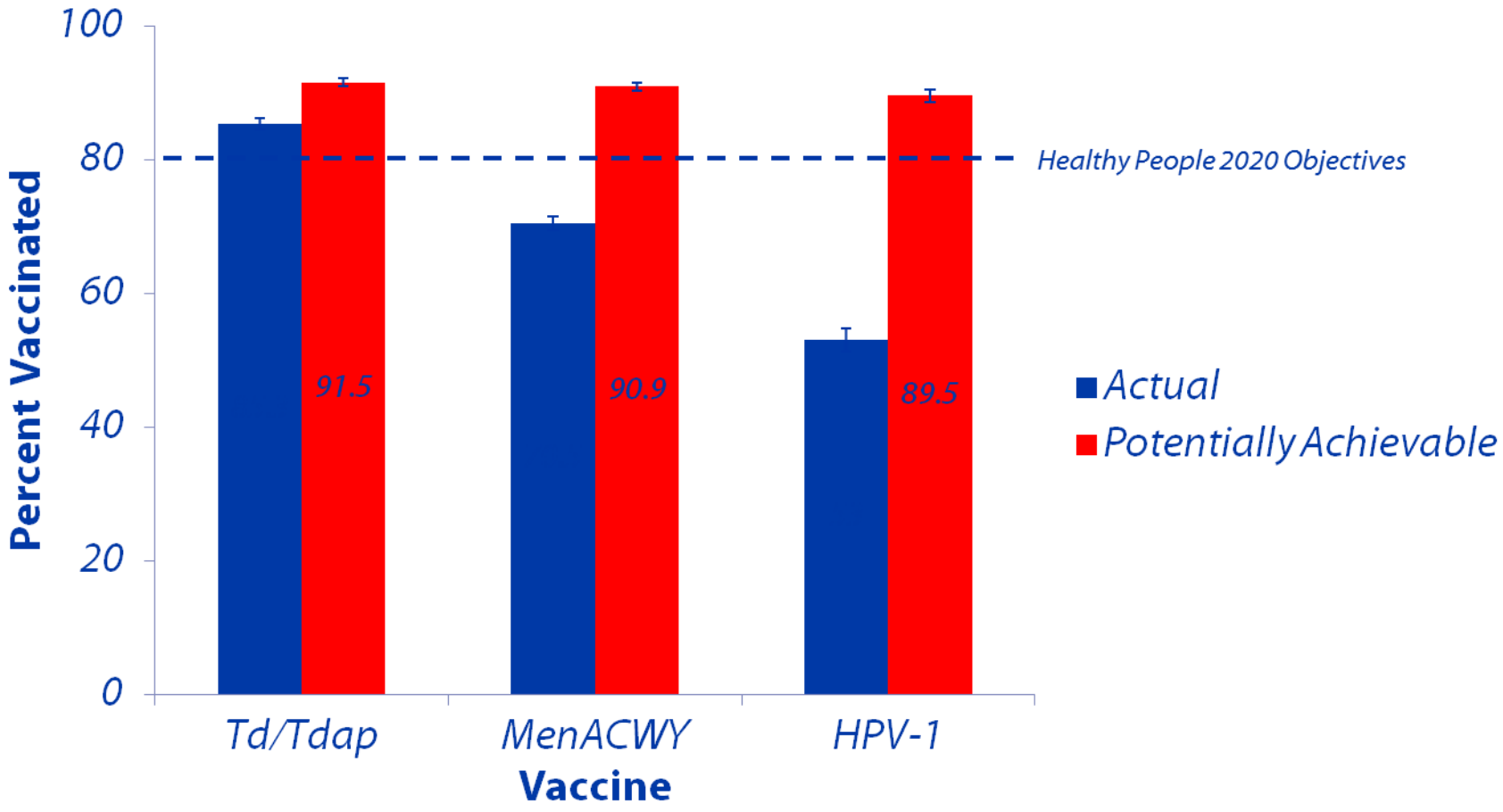
Parents of girls		Parents of boys	
Not needed or necessary	23.2%	Not recommended	22.7%
Not sexually active	19.5%	Not needed or necessary	25.3%
Safety concern/side effects	19.3%	Lack of knowledge	15.1%
Lack of knowledge	15.2%	Not sexually active	13.6%
Not recommended	9.6%	Child is male	10.5%

*Response categories are not mutually exclusive



Source: NIS-Teen, 2011

Actual and potentially achievable vaccination coverage if missed opportunities were eliminated: NIS-Teen, 2011



HPV-1 coverage is among females only

Evidence-Based Communication Campaign

- **Developing messages, content, and materials based on audience research**
  - IDIs with immunization providers
  - Focus groups with moms
  - Online surveys of parents
  - Message testing with parents and providers

HPV Vaccine: A Shot of Cancer Prevention

CME/CE

Medscape Education Infectious Diseases, August 10, 2012

THE OFFICIAL NEWSMAGAZINE OF THE AMERICAN ACADEMY OF PEDIATRICS

DEDICATED TO THE HEALTH OF ALL CHILDREN

AAP News

NEWS AND FEATURES

HPV vaccine *can't* wait

Immunization of younger teens is critical to preventing serious cancers later in life

Anne Schuchat, M.D. and Michael T. Brady, M.D., FAAP

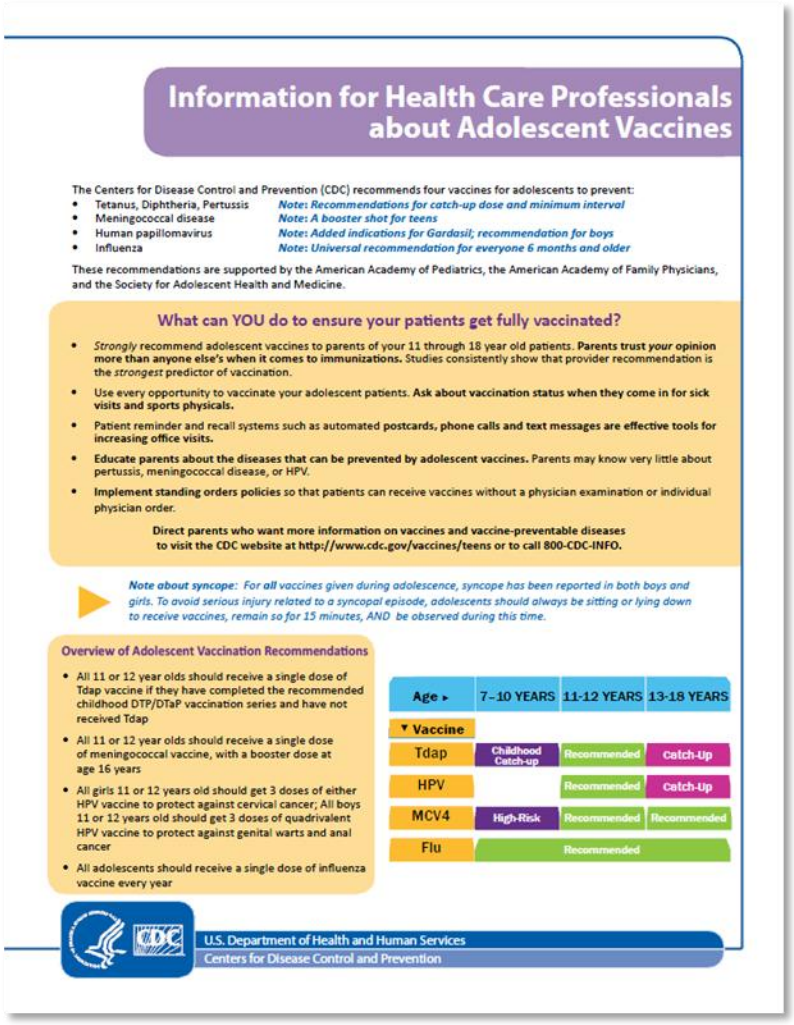
Increasing HPV Vaccine Coverage Providers can take steps to ensure that cervical cancer does not develop in this generation of girls at the rates of their mothers and grandmothers.

CDC Expert Commentary, December 2011

HPV Vaccine Now Recommended for Boys and Young Men Help parents understand why boys should start the HPV vaccine series at age 11-12 years.

CDC Expert Commentary, March 2012

Factsheet for Clinicians



Information for Health Care Professionals about Adolescent Vaccines

The Centers for Disease Control and Prevention (CDC) recommends four vaccines for adolescents to prevent:

- Tetanus, Diphtheria, Pertussis — *Note: Recommendations for catch-up dose and minimum interval*
- Meningococcal disease — *Note: A booster shot for teens*
- Human papillomavirus — *Note: Added indications for Gardasil; recommendation for boys*
- Influenza — *Note: Universal recommendation for everyone 6 months and older*

These recommendations are supported by the American Academy of Pediatrics, the American Academy of Family Physicians, and the Society for Adolescent Health and Medicine.

What can YOU do to ensure your patients get fully vaccinated?

- *Strongly* recommend adolescent vaccines to parents of your 11 through 18 year old patients. **Parents trust *your* opinion more than anyone else's when it comes to immunizations.** Studies consistently show that provider recommendation is the *strongest* predictor of vaccination.
- Use every opportunity to vaccinate your adolescent patients. **Ask about vaccination status when they come in for sick visits and sports physicals.**
- Patient reminder and recall systems such as automated **postcards, phone calls and text messages are effective tools for increasing office visits.**
- **Educate parents about the diseases that can be prevented by adolescent vaccines.** Parents may know very little about pertussis, meningococcal disease, or HPV.
- **Implement standing orders policies** so that patients can receive vaccines without a physician examination or individual physician order.

Direct parents who want more information on vaccines and vaccine-preventable diseases to visit the CDC website at http://www.cdc.gov/vaccines/teens or to call 800-CDC-INFO.

Note about syncope: *For **all** vaccines given during adolescence, syncope has been reported in both boys and girls. To avoid serious injury related to a syncopal episode, adolescents should always be sitting or lying down to receive vaccines, remain so for 15 minutes, AND be observed during this time.*

Overview of Adolescent Vaccination Recommendations

- All 11 or 12 year olds should receive a single dose of Tdap vaccine if they have completed the recommended childhood DTP/DTaP vaccination series and have not received Tdap
- All 11 or 12 year olds should receive a single dose of meningococcal vaccine, with a booster dose at age 16 years
- All girls 11 or 12 years old should get 3 doses of either HPV vaccine to protect against cervical cancer; All boys 11 or 12 years old should get 3 doses of quadrivalent HPV vaccine to protect against genital warts and anal cancer
- All adolescents should receive a single dose of influenza vaccine every year

Age ▸	7–10 YEARS	11-12 YEARS	13-18 YEARS
▾ Vaccine			
Tdap	Childhood Catch-up	Recommended	Catch-Up
HPV		Recommended	Catch-Up
MCV4	High-Risk	Recommended	Recommended
Flu	Recommended		

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Tdap (tetanus toxoid - reduced diphtheria toxoid - acellular pertussis) Vaccine

Because immunity from childhood DTaP vaccines wanes by adolescence, a booster dose is recommended. **Of the nearly 17,000 cases of pertussis reported in the United States in 2009, 4265 occurred among 10- through 19-year-olds.** Increasing immunization rates among adolescents is an important strategy for reducing disease among both adolescents and infants too young to be fully immunized. According to the 2010 National Immunization Survey-Teen (NIS-Teen), about 69% of 13- through 17-year-olds received Tdap.

Recommendations:

- **All 11- through 18-year-olds should receive a single dose of Tdap vaccine (preferably at age 11 or 12 years) if they have completed the recommended childhood DTP/DTaP vaccination series and have not received Tdap.**
- Children aged 7 through 10 years and adolescents aged 11 through 18 years who did not complete the childhood DTaP series or with unknown vaccine history should be given one dose of Tdap as part of the catch-up regimen. Td should be used for any other doses needed.
- Tdap should be administered regardless of interval since the last tetanus or diphtheria toxoid-containing vaccine. While longer intervals between Td and Tdap vaccination could decrease the occurrence of local reactions, the benefits of protection against pertussis outweigh the potential risk for adverse events.
- Tdap vaccine can be administered at the same time as other adolescent vaccines.

Vaccines licensed in the United States:

- Boostrix® (GlaxoSmithKline) is indicated for active booster immunization for the prevention of tetanus, diphtheria and pertussis as a single dose in persons 10 through 64 years of age.
- Adacel® (sanofi pasteur) is indicated for active booster immunization for the prevention of tetanus, diphtheria and pertussis as a single dose in persons 11 through 64 years of age.

Possible side effects:

Pain, redness, swelling at the injection site; mild fever; headache; fatigue; nausea, vomiting, diarrhea, or stomach ache.

Contraindications and precautions:

- Tdap is contraindicated for persons with a history of serious allergic reaction (e.g., anaphylaxis) to any component of the vaccine.
- Tdap is contraindicated for adolescents with a history of encephalopathy (e.g., coma or prolonged seizures) not attributable to an identifiable cause within 7 days of administration of a vaccine with pertussis components. This contraindication is for the pertussis components and these adolescents should receive Td instead of Tdap.

Meningococcal Conjugate Vaccine (MCV4)

Although rates of meningococcal disease are the lowest they have ever been in the United States, about 1000 cases are reported each year in this country. Each case is alarming and potentially deadly. **The incidence of meningococcal disease increases in adolescence and early adulthood.** About 10-15% of adolescents who contract the disease will die, and about 20% will suffer from a long-term disability. According to the 2010 National Immunization Survey-Teen (NIS-Teen), about 63% of 13- through 17-year-olds received MCV4.

Recommendations:

- **All 11- or 12-year-olds should receive a single dose of meningococcal vaccine, with a booster dose at age 16 years.**
- For adolescents who receive the first dose at age 13 through 15 years, a one-time booster dose should be administered, preferably at age 16 through 18 years. Persons who receive their first dose of meningococcal conjugate vaccine at or after age 16 years do not need a booster dose.
- Adolescents with persistent complement component deficiencies (e.g., C5-C9, properidin, factor H, or factor D) and asplenia should receive a 2-dose primary series administered 2 months apart and then receive a booster dose every 5 years.
- Adolescents aged 11–18 years with HIV infection should be routinely vaccinated with a 2-dose primary series.
- Vaccination is also recommended for unvaccinated college freshmen who live in dormitories, and also for unvaccinated military recruits. Older adolescents, including college students, who wish to decrease their risk for meningococcal disease, may elect to receive meningococcal vaccine.
- Meningococcal vaccine can be administered at the same time as other adolescent vaccines.

Vaccines licensed in the United States:

- Menactra® (sanofi pasteur) is indicated for active immunization of persons 9 months through 55 years of age for the prevention of invasive meningococcal disease caused by *N. meningitidis* serogroups A, C, Y and W-135.
- Menveo® (Novartis) is indicated for active immunization of persons 2 through 55 years of age to prevent invasive meningococcal disease caused by *N. meningitidis* serogroups A, C, Y, and W-135.

Possible side effects:

The most commonly reported side effects are redness or pain at the injection site. A small percentage of recipients reported fever.

Contraindications and precautions:

- Meningococcal vaccine is contraindicated among persons known to have a severe allergic reaction to any component of the vaccine, including diphtheria toxoid, or to dry natural rubber latex.

http://www.cdc.gov/vaccines/who/teens/downloads/hcp-factsheet.pdf

In-Depth HPV Vaccine/Disease Sheet

HPV
also known as *Human Papillomavirus*

DISEASES and the VACCINES THAT PREVENT THEM
Updated June 2012

As parents, you do everything you can to protect your children's health for now and for the future. Today, there is a strong weapon to prevent several types of cancer in our kids: the HPV vaccine.

HPV and Cancer

HPV is short for Human Papillomavirus, a common virus. In the United States each year, there are about 18,000 women and 7,000 men affected by HPV-related cancers. Many of these cancers **could be prevented with vaccination.** In both women and men, HPV can cause anal cancer and mouth/throat (oropharyngeal) cancer. It can also cause cancers of the cervix, vulva and vagina in women; and cancer of the penis in men.

For women, screening is available to detect most cases of cervical cancer with a Pap smear. Unfortunately, there is no routine screening for other HPV-related cancers for women or men, and these cancers can cause pain, suffering, or even death. **That is why a vaccine that prevents most of these types of cancers is so important.**

More about HPV

HPV is a virus passed from one person to another during skin-to-skin sexual contact, including vaginal, oral, and anal sex. HPV is most common in people in their late teens and early 20s. Almost all sexually active people will get HPV at some time in their lives, though most will never even know it.

Most of the time, the body naturally fights off HPV, before HPV causes any health problems. But in some cases, the body does not fight off HPV, and HPV can cause health problems, like cancer and genital warts. Genital warts are not a life-threatening disease, but they can cause emotional stress, and their treatment can be very uncomfortable. About 1 in 100 sexually active adults in the United States have genital warts at any given time.

HPV vaccination is recommended for preteen girls and boys at age 11 or 12 years

HPV vaccine is also recommended for girls ages 13 through 26 years and for boys ages 13 through 21 years, who have not yet been vaccinated. So if your son or daughter hasn't started or finished the HPV vaccine series—**it's not too late!** Talk to their doctor about getting it for them now.

Two vaccines—Cervarix and Gardasil—are available to prevent the HPV types that cause most cervical cancers and anal cancers. One of the HPV vaccines, Gardasil, also prevents vulvar and vaginal cancers in women and genital warts in both women and men. Only Gardasil has been tested and licensed for use in males. Both vaccines are given in a series of 3 shots over 6 months. The best way to remember to get your child all three shots is to make an appointment for the second and third shot before you leave the doctor's office after the first shot.

Is the HPV vaccine safe?

Yes. Both HPV vaccines were studied in tens of thousands of people around the world. More than 46 million doses have been distributed to date, and there have been no serious safety concerns. Vaccine safety continues to be monitored by CDC and the Food and Drug Administration (FDA). **These studies continue to show that HPV vaccines are safe.**

The most common side effects reported are mild. They include: pain where the shot was given (usually the arm), fever, dizziness, and nausea.

Why does my child need this now?

HPV vaccines offer the best protection to girls and boys who receive all three vaccine doses and have time to develop an immune response **before** they begin sexual activity with another person. This is not to say that your preteen is ready to have sex. In fact, it's just the opposite—it's important to get your child protected before you or your child have to think about this issue. The immune response to this vaccine is better in preteens, and this could mean better protection for your child.

You may have heard that some kids faint when they get vaccinated. Fainting is common with preteens and teens for many medical procedures, not just the HPV shot. Be sure that your child eats something before going to get the vaccine. It's a good idea to have your child sit or lay down while getting any vaccine, and for 15 minutes afterwards, to prevent fainting and any injuries that could happen from fainting.

The HPV vaccine can safely be given at the same time as the other recommended vaccines, including the Tdap, meningococcal, and influenza vaccines. Learn more about all of the recommended preteen vaccines at **www.cdc.gov/vaccines/teens**

Help paying for vaccines

The Vaccines for Children (VFC) program provides vaccines for children ages 18 years and younger who are under-insured, not insured, Medicaid-eligible, or American Indian/Alaska Native. Learn more about the VFC program at **www.cdc.gov/Features/VFCprogram/**

Whether you have insurance, or your child is VFC-eligible, some doctors' offices may also charge a fee to give the vaccines.

Jacquelyn's story: "I was healthy—and got cervical cancer."

When I was in my late 20's and early 30's, in the years before my daughter was born, I had some abnormal Pap smears and had to have further testing. I was told I had the kind of HPV that can cause cancer and mild dysplasia.

For three more years, I had normal tests. But when I got my first Pap test after my son was born, they told me I needed a biopsy. The results came back as cancer, and my doctor sent me to an oncologist. Fortunately, the cancer was at an early stage. My lymph nodes were clear, and I didn't need radiation. But I did need to have a total hysterectomy.

My husband and I have been together for 15 years, and we were planning to have more children. We are so grateful for our two wonderful children, but we were hoping for more—which is not going to happen now.

The bottom line is they caught the cancer early, but the complications continue to impact my life and my family. For the next few years, I have to get pelvic exams and Pap smears every few months, the doctors measure tumor markers, and I have to have regular x-rays and ultrasounds, just in case. I have so many medical appointments that are taking time away from my family, my friends, and my job.

Worse, every time the phone rings, and I know it's my oncologist calling, I hold my breath until I get the results. I'm hopeful I can live a full and healthy life, but cancer is always in the back of my mind.

In a short period of time, I went from being healthy and planning more children to all of a sudden having a radical hysterectomy and trying to make sure I don't have cancer again. It's kind of overwhelming. And I am one of the lucky ones!

Ultimately I need to make sure I'm healthy and there for my children. I want to be around to see their children grow up.

I will do everything to keep my son and daughter from going through this. I will get them both the HPV vaccine as soon as they turn 11. I tell everyone—my friends, my family—to get their children the HPV vaccine series to protect them from this kind of cancer.

What about boys?

One HPV vaccine—Gardasil—is for boys too! This vaccine can help prevent boys from getting HPV-related cancers of the mouth/throat, penis and anus. The vaccine can also help prevent genital warts. HPV vaccination of males is also likely to benefit females by reducing the spread of HPV viruses.

Learn more about HPV and HPV vaccine at **www.cdc.gov/hpv**

For more information about the vaccines recommended for preteens and teens:
800-CDC-INFO *(800-232-4636)*
http://www.cdc.gov/vaccines/teens

http://www.cdc.gov/vaccines/vpd-vac/hpv/downloads/dis-HPV-color-office.pdf

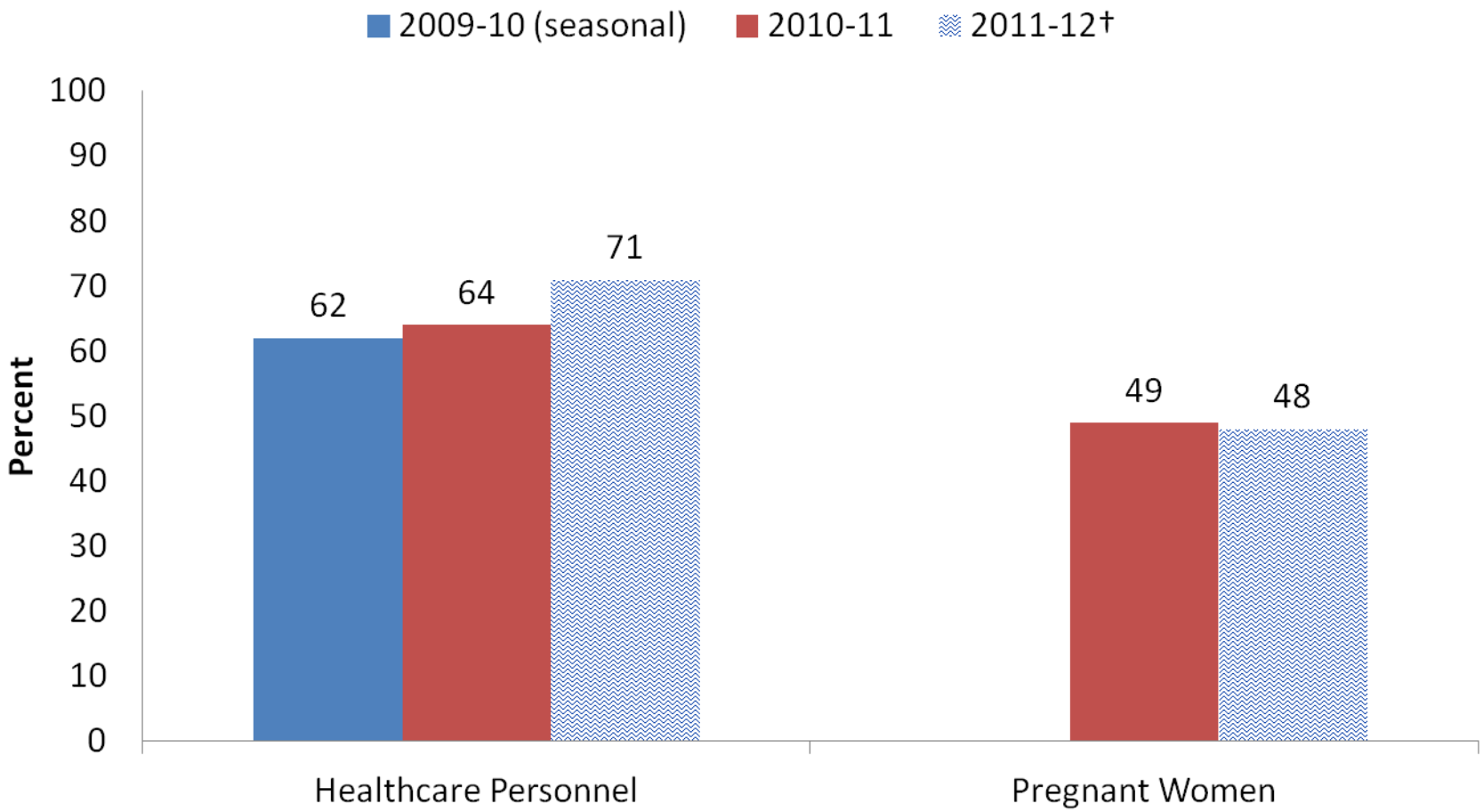
Looking Ahead

- Working with nurses
- Making the cancer connection
- Stronger provider recommendations
- Message testing with preteens and teens
- New materials
- Increasing digital reach

September 19th Presentation to the HP2020 Federal Interagency Workgroup-Proposal

- Will request a consolidation of the 10 influenza vaccination coverage subobjectives
- Reflects ACIP's universal influenza vaccination recommendation for everyone 6 months of age and older
- Will continue to track the various populations (e.g. high-risk adults, 65+, etc.) will only report out on the following for HP2020
  - Six months through 18 years of age
  - Adults 18+
  - Healthcare Personnel
  - Pregnant Women

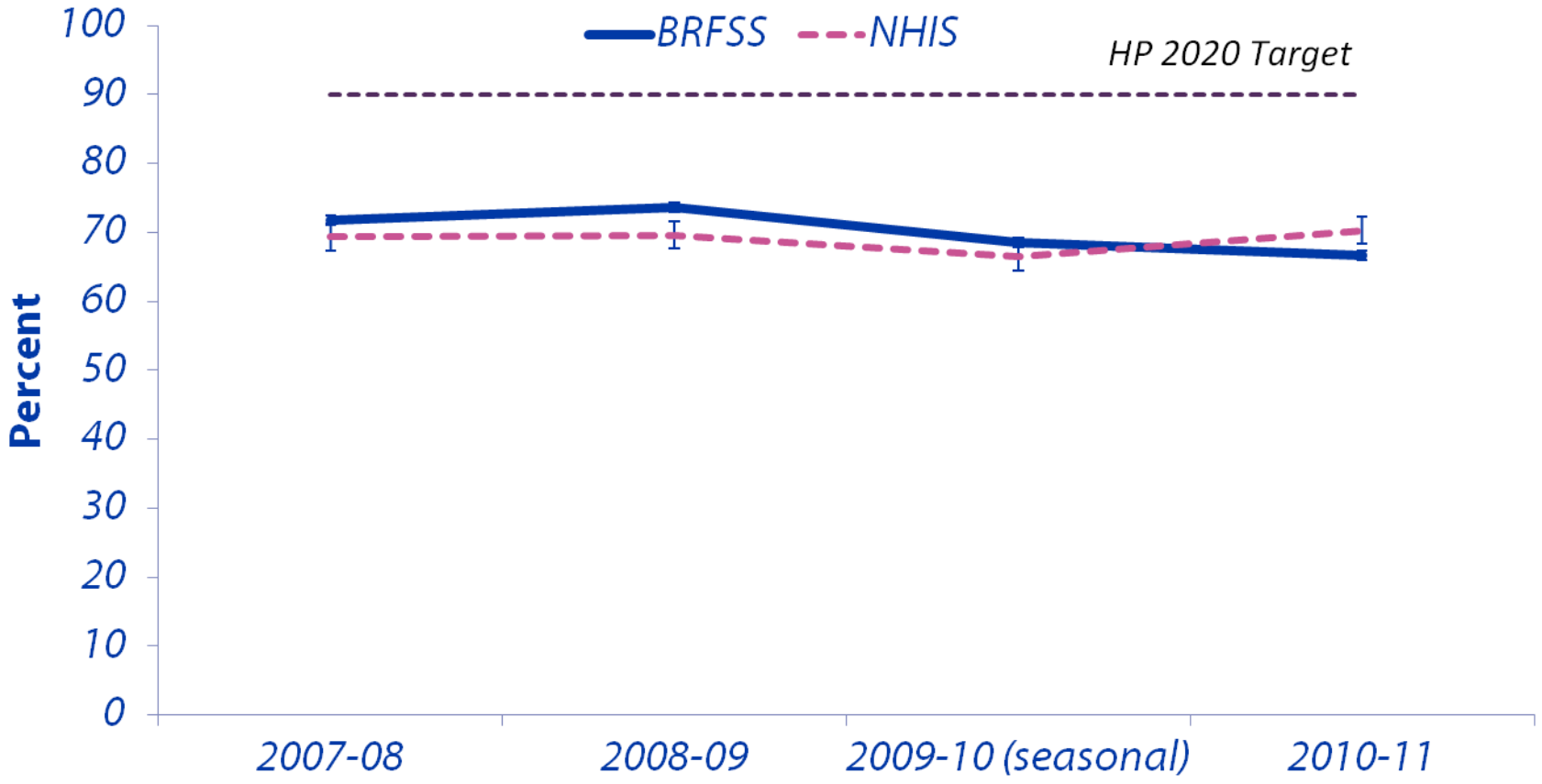
Estimated Influenza Vaccination Coverage, Healthcare Personnel and Pregnant Women*, Internet Panel Surveys



*** HP 2020 Targets are 90 percent for healthcare personnel and 80% for pregnant women**

† Projected coverage based on November 2011 surveys

Estimated Influenza Vaccination Coverage, Adults ≥65 Years



Source: CDC, Behavioral Risk Factor Surveillance System (BRFSS), National Health Interview Survey (NHIS)

Acknowledgments

- Jim Singleton
- Carla Black
- Rebecca Gold
- Matt Moore
- Jill Roark
- Shannon Stokley
- Christina Dorrell
- Tom Clark
- Stacie Greby