

# **What's New in Adolescent and Adult Immunization**

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# **Vaccination Schedule for Adults -- 2009**

- **Published in *MMWR* on  
January 9, 2009**
- **Format revisions to improve  
clarity**
- **Several changes to footnotes  
including HPV, pneumococcal  
polysaccharide, hepatitis A  
and hepatitis B**

# **New Pneumococcal Polysaccharide Vaccine\* Recommendation**

- **On October 22, 2008, ACIP voted to recommend PPSV for 2 new groups:**
  - **Adults (19 through 64 years of age) with asthma**
  - **Adults (19 through 64 years of age) who smoke cigarettes**
- **Provisional recommendations are expected to be posted on the ACIP website in the next 1 to 2 weeks**

**\*don't call it "pneumonia vaccine"**

# **Pneumococcal Polysaccharide Vaccine Revaccination**

- **Routine revaccination of immunocompetent persons is not recommended**
- **Revaccination recommended for persons 2 years of age or older who are at highest risk of serious pneumococcal infection**
- **Single revaccination dose at least 5 years after the first dose**

# **Pneumococcal Polysaccharide Vaccine Candidates for Revaccination**

- **Persons 2 years or older with:**
  - **functional or anatomic asplenia**
  - **immunosuppression**
  - **transplant**
  - **chronic renal failure**
  - **nephrotic syndrome**
- **Persons vaccinated at younger than 65 years of age**

# Human Papillomavirus Vaccine

- **Contains noninfectious HPV L1 major capsid protein of 4 HPV types (16 and 18 [oncogenic], 6 and 11 [genital warts])**
- **Produced using genetic engineering technology similar to hepatitis B vaccine**
- **Does not contain preservative or antibiotic**
- **Supplied in single-dose vials and syringes**

# Human Papillomavirus Vaccine

- **High efficacy among females without evidence of infection with vaccine HPV types**
- **No evidence that the vaccine had efficacy against existing disease or infection (i.e., the vaccine is not therapeutic)**
- **Prior infection with one HPV type did not diminish efficacy of the vaccine against other vaccine HPV types**

# Human Papillomavirus Vaccine Recommendations

- **ACIP recommends routine vaccination of females 11-12 years of age with three doses of quadrivalent HPV vaccine**
- **The vaccination series can be started as young as 9 years of age at the clinician's discretion**
- **Maximum age 26 years (i.e. until the 27<sup>th</sup> birthday)**

# HPV Vaccination Schedule

- **Routine schedule is 0, 2, 6 months**
- **Third dose should be at least 24 weeks after the first dose**
- **An accelerated schedule using minimum intervals is NOT recommended**
- **If the 3 dose series was administered over at least 16 weeks then no doses need to be repeated**

# HPV Vaccine Interval Violations

- **There is no MAXIMUM interval between HPV vaccine doses**
- **If the interval between doses is longer than recommended you should just continue the series where it was interrupted**

# HPV Vaccine

- **HPV vaccine is not currently approved for males and women older than 26 years**
  - **Limited safety and immunogenicity data available for males**
  - **Off-label use not recommended**
- **Studies of clinical efficacy in progress now**
- **Merck has applied to FDA for extension of age through 45 years (females only)**

# Human Papillomavirus Vaccine Safety

- **Safety data available from multiple clinical trials**
  - 11,778 vaccine recipients
  - 9,686 placebo recipients
- **Detailed safety data available for 8,878 females 9-26 years of age (5,088 vaccine, 3,790 placebo)**
- **Data collected using report cards for 14 days following vaccination**

# Adverse Events Following Any Dose of HPV Vaccine Among Females 9-23 Years

<b>Adverse Event</b>	<b>Vaccine</b>	<b>Adjuvant placebo</b>	<b>Saline placebo</b>
<b>Pain</b>	<b>83.9</b>	<b>75.4</b>	<b>48.6</b>
<b>Swelling</b>	<b>25.4</b>	<b>15.8</b>	<b>7.3</b>
<b>Erythema</b>	<b>24.7</b>	<b>18.4</b>	<b>12.1</b>
<b>Temp 100-101</b>	<b>4.4</b>	<b>--</b>	<b>3.6</b>
<b>Temp <math>\geq</math>102</b>	<b>0.5</b>	<b>--</b>	<b>0.6</b>
<b>Nausea</b>	<b>6.7</b>	<b>--</b>	<b>6.6</b>
<b>Malaise</b>	<b>1.4</b>	<b>--</b>	<b>1.4</b>

FDA product approval data

# HPV Vaccine VAERS Reports\*

- **More than 23 million doses distributed**
- **11,916 VAERS reports**
  - **94% classified as non-serious (local reactions, syncope, fatigue, etc)**
  - **6% classified as serious (involves hospitalization, death, permanent disability or life-threatening illness)**

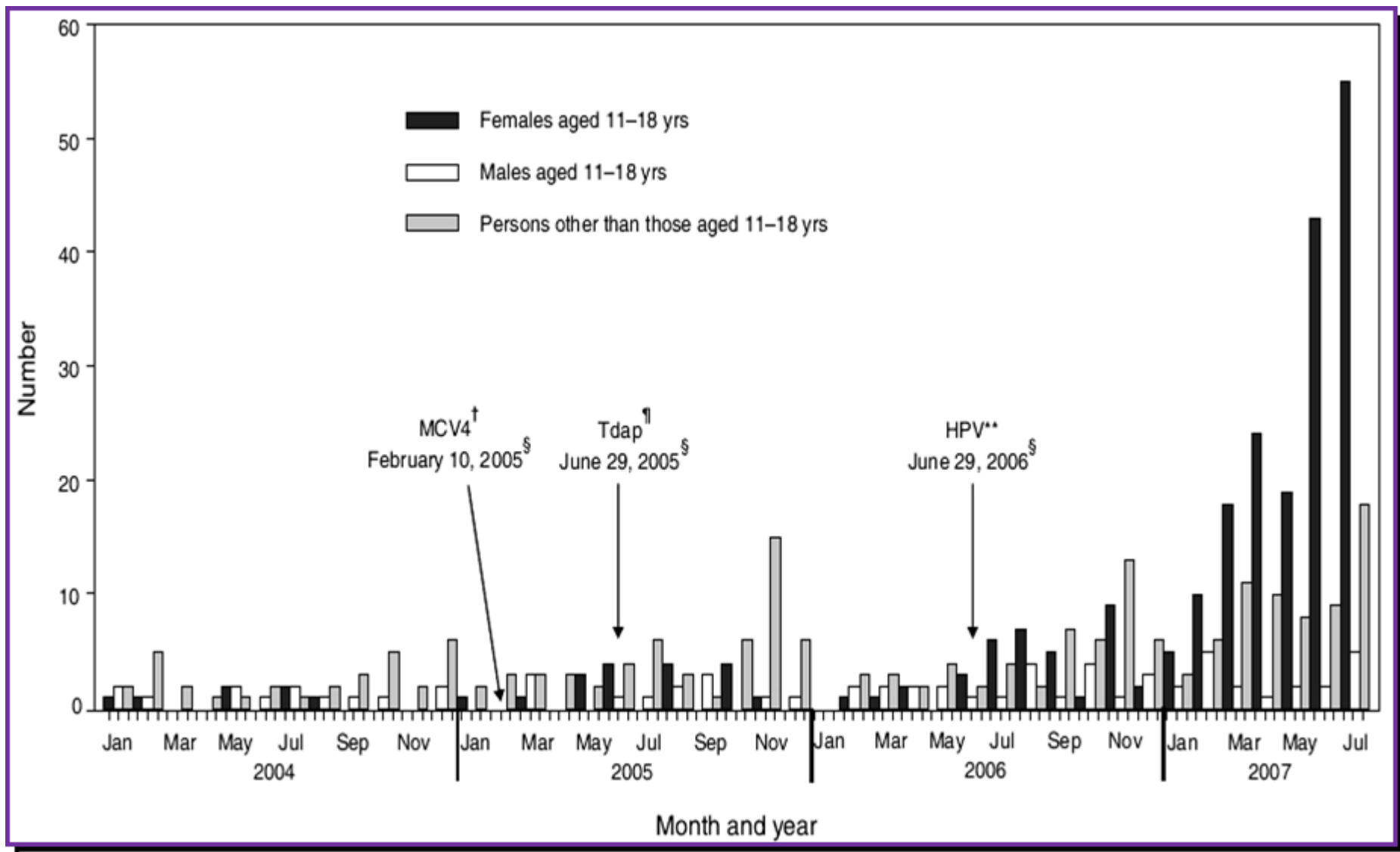
\*As of December 31, 2008

[www.cdc.gov/vaccinesafety/vaers/gardasil.htm](http://www.cdc.gov/vaccinesafety/vaers/gardasil.htm)

# **Syncope Following Vaccination**

- **An increase in the number of reports of syncope has been detected by the Vaccine Adverse Event Reporting System (VAERS)**
- **11-18 year old females have contributed most of the increase, many of whom received HPV vaccine**
- **Serious injuries have resulted, including 1 death due to intracranial hemorrhage**
- **70% of syncopal episodes occurred within 15 minutes of vaccination**

# Number of Postvaccination Syncope\* Episodes Reported to the Vaccine Adverse Event Reporting System



# Prevention of Syncope After Vaccination

- **Vaccine providers should strongly consider observing patients for 15 minutes after they are vaccinated**
- **If syncope develops, patients should be observed until symptoms resolve**
- **Clinicians should be aware of presyncopal manifestations (weakness, dizziness, pallor, etc) and take appropriate measures to prevent injuries if they occur**

# HPV Vaccine VAERS Reports\*

- **Guillain-Barré Syndrome (GBS)**
  - background rate 1-2/100,000 persons 13-19 years of age
  - no evidence that HPV vaccine has increased the rate above that expected in the population
- **Thromboembolic disorders (blood clots)**
  - most had known risk factors (e.g., oral contraceptive use)
  - additional studies are being conducted

\*As of December 31, 2008

[www.cdc.gov/vaccinesafety/vaers/gardasil.htm](http://www.cdc.gov/vaccinesafety/vaers/gardasil.htm)

# HPV Vaccine VAERS Reports\*

- **32 deaths reported**
  - **no common pattern to the deaths**
  - **the cause of death was explained by factors other than the vaccine**
    - **Diabetes or heart failure (3), viral illnesses or meningitis (4); drug use (2); thromboembolism (3); seizure disorder (1); unknown cause (4)**
    - **7 reports still being investigated**
    - **In 8 cases the person could not be identified or verified that the death had occurred**

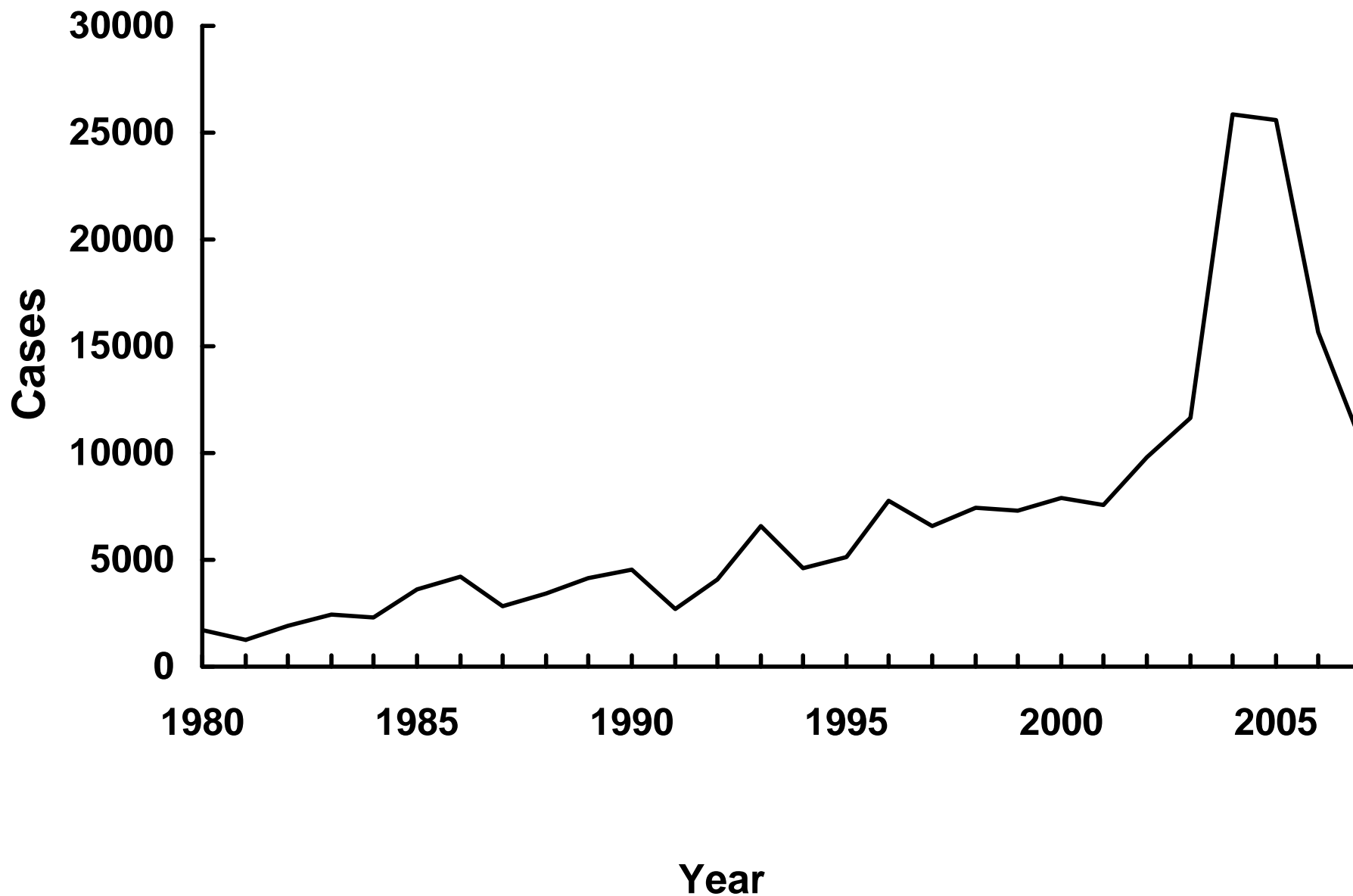
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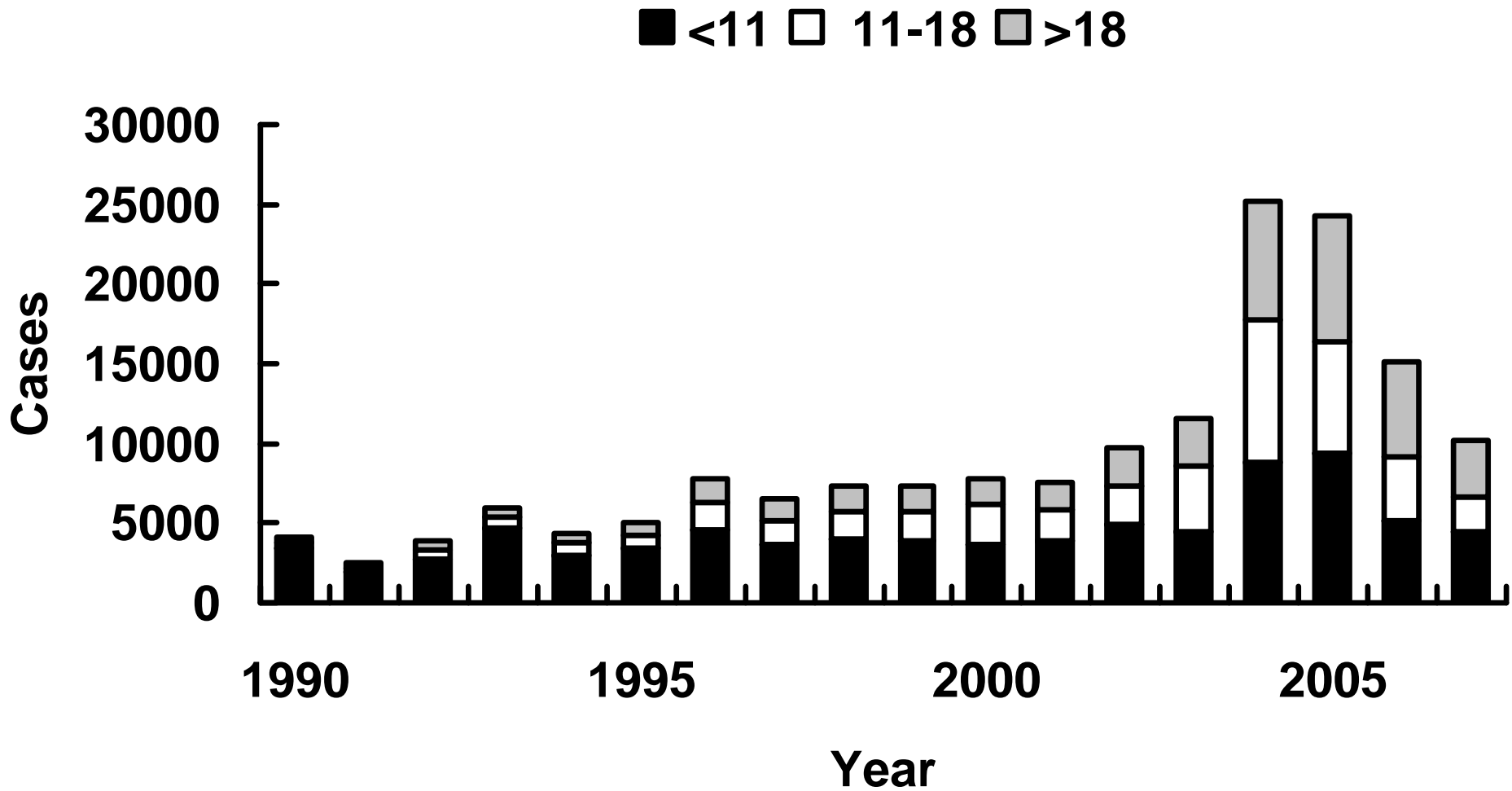
# **Human Papillomavirus Vaccine Safety Summary**

- **Only local reactions occur more frequently among vaccine recipients than among placebo recipients**
- **Serious adverse reactions have been reported following HPV vaccine**
  - **Most do not appear to be causally related to the vaccine (i.e., the events are coincidental to vaccination)**
- **Monitoring and evaluation of reports will continue**

# Pertussis—United States, 1980-2007



# Reported Pertussis by Age Group, 1990-2007



# Pertussis Deaths in the United States, 2004-2006

	Age at onset		
	<u>&lt;3 mos</u>	<u>&gt;3 mos</u>	<u>Total</u>
<b>2004</b>	<b>24</b>	<b>3</b>	<b>27</b>
<b>2005</b>	<b>32</b>	<b>7</b>	<b>39</b>
<b>2006</b>	<b>13</b>	<b>3</b>	<b>16</b>
<b>Total</b>	<b>69</b>	<b>13</b>	<b>82</b>
	<b>(84%)</b>	<b>(16%)</b>	

CDC, unpublished data, 2007

# Preventing Pertussis Infection of Infants

- **Assure that you and other staff in your office or facility have received Tdap**
- **Partner with clinicians who have access to parents and siblings of infants (e.g., OB-GYN providers, prenatal/new parent educators) to provide Tdap to families of infants**
- **Vaccinate new mothers at the time of discharge if they have not previously received Tdap**

# **Tdap Use in Older Children**

- **Tdap minimum ages**
  - **10 years for Boostrix**
  - **11 years for Adacel**
- **Tdap not approved for children 7-9 years of age**
- **Off-label use of Tdap in this age group NOT recommended**

# Td and Tdap Minimum Intervals

- **There is no absolute minimum interval between Td and Tdap**
- **In “routine” circumstances separate Td and Tdap by 5 years to reduce the chance of a local reaction**
- **If pertussis immunity is imperative (HCP, infant in household) then administer Tdap regardless of interval since last Td**

# **Herpes Zoster (Shingles)**

- **Reactivation of varicella zoster virus**
- **Can occur years or even decades after illness with chickenpox**
- **Generally associated with normal aging and with reduced immunocompetence**
- **Lifetime risk ~30% in the United States**
- **Estimated 500,000- 1 million cases of zoster diagnosed annually in the U.S**
- **Recurrent disease?**

# **Post Herpetic Neuralgia (PHN)**

- **Prolonged, sometimes incapacitating, pain after resolution of rash**
  - **Variable definitions of “prolonged” by clinicians and researchers**
- **May persist months or years; some experience recurrence**
- **PHN prevention (antivirals +/- steroids): not fully effective**
- **PHN treatment (multiple modalities): partial, inconsistent efficacy**

# **Herpes Zoster Vaccine (Zostavax<sup>®</sup>)**

- **Administered to persons who had chickenpox to reduce the risk of subsequent development of zoster and postherpetic neuralgia**
- **Contains live varicella vaccine virus in much larger amount (14x) than standard varicella vaccine (Varivax<sup>®</sup>)**
- **Requires freezer storage AT ALL TIMES**

# Herpes Zoster Vaccine Trial

- **36,716 persons 60-80+ years of age followed for average of 3.12 years after vaccination**
- **Compared to the placebo group the vaccinated group had**
  - **51.3% fewer episodes of HZ**
  - **Less severe illnesses**
  - **66.5% less postherpetic neuralgia**

***NEJM 2005;352(22):2271-84***

# **ACIP Recommendations for Zoster Vaccine**

- **Adults 60 years and older should receive a single dose of zoster vaccine**
- **Routine vaccination of persons younger than 60 years is NOT recommended**
- **Need for booster dose or doses not known at this time**
- **A history of herpes zoster should not influence the decision to vaccinate**

***MMWR 2008;57(RR-5)***

# Zoster Vaccine

- **It is not necessary to inquire about chickenpox or test for varicella immunity before administering zoster vaccine**
- **Persons 60 years of age and older can be assumed to be immune\* regardless of their recollection of chickenpox**

*MMWR* 2008;57(RR-5)

\*for the purpose of establishing eligibility for zoster vaccine

# **Serologic Testing for Varicella Immunity**

- **If a person 60 years or older is tested for varicella antibody and found to be negative**
  - **Administer 2 doses of regular varicella vaccine (not zoster vaccine)**
  - **Zoster vaccine is not indicated for persons whose immunity is based upon varicella vaccination**

# **Zoster Vaccine**

## **Contraindications and Precautions**

- **Severe allergic reaction to a vaccine component or following a prior dose**
- **Immunosuppression from any cause**
- **Pregnancy or planned pregnancy within 4 weeks**
- **Moderate or severe acute illness**
- **Recent blood product is NOT a precaution**

# **CDC Vaccines and Immunizations**

## **Contact Information**

- **Telephone**      **800.CDC.INFO**
- **Email**              **nipinfo@cdc.gov**
- **Website**            **www.cdc.gov/vaccines/**
- **Vaccine Safety**  
**<http://www.cdc.gov/od/science/iso/>**