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### **Arizona Vaccine News**

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- FDA Approves First Influenza Vaccine Grown with Cell Culture Technology
- MenAfriVac<sup>®</sup> Becomes the First Vaccine to Gain Approval to Be Transported Outside a Cold Chain
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## **VACCINE NEWS**

### **Arizona Partnership Against Pertussis (APAP) Tdap Vaccine Contest**

- Only 20% of healthcare providers in the US have received the adult form of pertussis vaccine (Tdap.)
- The March of Dimes has brought together 17 community organizations to form APAP, which is a coalition to fight pertussis.
- As part of their fight against pertussis, APAP is having a contest to encourage all Arizona healthcare personnel to be immunized against pertussis.
- If your health entity achieves a 100% pertussis immunization rate by April 1, 2013, you will be entered into a random drawing to win an iPad or one of five \$100 gift cards.

See [further details](#) about the contest.

### **FDA Approves First Influenza Vaccine Grown with Cell Culture Technology**

- The U.S. Food and Drug Administration (FDA) has approved Flucelvax<sup>®</sup> (Novartis), the first seasonal influenza vaccine licensed in the US produced using cultured animal cells, instead of fertilized chicken eggs. Cell culture technology has already been in use for several decades to produce other U.S. licensed vaccines.
- Advantages of cell culture technology include the potential for a faster start-up of vaccine manufacturing in the event of a pandemic.
- Flucelvax<sup>®</sup> is approved to prevent seasonal influenza in people ages 18 years and older.

For more information, see the [FDA press announcement](#).

### **MenAfriVac<sup>®</sup> Becomes the First Vaccine to Gain Approval to Be Transported Outside a Cold Chain**

- MenAfriVac<sup>®</sup>, a meningococcal A conjugate vaccine that was created to meet the needs of people living in the meningitis belt of sub-Saharan Africa, is the first vaccine to be approved to be transported and stored for as long as four days without refrigeration or even an icepack.
- It is estimated that by the end of 2012, more than 100 million people in Africa will have received MenAfriVac<sup>®</sup>, which is produced by Serum Institute of India, Ltd. and costs less than 50 cents a dose.

For more information, see the [Meningitis Vaccine Project](#) and the associated [press release](#).

### **CDC Influenza Vaccine Recommendations for the 2012-2013 Influenza Season**

- This year's trivalent seasonal influenza vaccines still have the pandemic 2009 H1N1 influenza A strain, but the influenza A H3N2 and the influenza B strains are different from last year. All commercially available influenza vaccines this year will be trivalent.
- This season's CDC recommendations contain algorithms for which children need a 2<sup>nd</sup> dose of influenza vaccine, and which patients with egg allergies can receive influenza vaccines.

For more information, see *Morbidity and Mortality Weekly Report* (MMWR), [August 17, 2012](#).

## **LITERATURE ON VACCINES AND VACCINE-PREVENTABLE DISEASES**

### **Correlates of High Vaccination Exemption Rates among Kindergartens in Arizona**

- Arizona schools with the highest personal vaccine exemption (PBE) rates had a higher proportion of white students.
- Charter schools and those with fewer children receiving free and reduced pay lunches (reflecting higher economic levels) had higher rates of PBE.
- Statewide, there were higher rates of permanent PBE in northern Arizona compared to southern Arizona. In central Arizona, more PBEs were found in the east compared to the west.

The article is in press in *Vaccine*. For more information, see the online [prepublication abstract](#).

### **Vaccination Coverage among American Indian and Alaska Native Children, United States, 2006-2010**

- A previous study on vaccination coverage in the American Indian/Alaska Native (AI/AN) population had found disparities in vaccine coverage between AI/AN and white children from 2001 to 2004 but the previous disparities were absent in 2005.
- Vaccine coverage between 2006 and 2010 in AI/AN children ages 19-35 months in the United States were analyzed. Although demographic risk factors often associated with under-immunization were significantly higher for AI/AN respondents compared with white respondents in most years studied, overall vaccination coverage was similar between the two groups in most years.

See the abstract in *Pediatrics*, [December 2012](#).

### **Risk Factors for Pertussis Complications in Older Adults**

- A prospective study of 263,094 Australian adults  $\geq 45$  years old identified 205 adults with pertussis. Of these patients, 12 (5%) were hospitalized.
- The older the patients were, the more likely they were to be hospitalized, although the incidence of pertussis did not differ by age. Among patients  $\geq 65$  years, 11.5% were hospitalized with pertussis, in contrast to 2.4% of those between 45-64 years old.

See the abstract at *Clinical Infectious Diseases*, [December 1, 2012](#).

### **Mumps Outbreak in Orthodox Jewish Communities in the United States, 2009-2010**

- Orthodox Jewish persons accounted for 97% of mumps cases in an outbreak in New York and New Jersey in 2009-2010.
- The groups that were disproportionately affected were adolescents 13 to 17 years of age (27% of all patients) and males (78% of patients in that age group).
- Among the patients 13 to 17 years of age with documented vaccination status, 89% had previously received 2 doses of a mumps-containing vaccine, and 8% had received 1 dose.
- Orchitis was the most common complication (7% of male patients  $\geq 12$  years of age), with rates significantly higher among unvaccinated persons than among persons who had received two doses of vaccine.
- Intense exposures such as a school setting may have overcome vaccine-induced protection provided by 2 doses of MMR vaccine.

See the abstract from *New England Journal of Medicine*, [November 1, 2012](#).

### **Outbreak of Mumps at a California University Campus, 2011**

- Twenty-nine university students with mumps were identified over a four month period, with the source case being an unimmunized student who had traveled to Europe.
- The management of this mumps outbreak was complicated by physicians failing to report suspected mumps cases to public health officials, and a delay in receiving the medical records of suspect patients due to the Family Educational Rights and Privacy Act ([FERPA](#)) which limits disclosure of student medical records by stipulating that even reportable diseases cannot be disclosed to public health authorities without prior permission from the student, except in an emergency.
- The outbreak demonstrated that persons who have received 2 doses of mumps vaccine may not always be protected against mumps.
- Neither MMR vaccine nor immune globulin is effective as post-exposure prophylaxis. However, in an outbreak setting, MMR vaccine might reduce transmission to susceptible persons who have not yet been exposed to the mumps virus.

For more information, see MMWR, [December 7, 2012](#).

### **Impact of a Third Dose of Measles-Mumps-Rubella Vaccine on a Mumps Outbreak**

- A US religious community experienced a large mumps outbreak in 2009-2010 despite high coverage levels with two doses of measles-mumps-rubella vaccine (MMR). A third dose of MMR was offered to students in three schools in an effort to control the outbreak.
- Of 2265 eligible sixth- to twelfth-grade students, 2178 (96.2%) provided documentation of having received 2 previous doses of MMR vaccine. Of these, 1755 (80.6%) chose to receive an additional MMR dose.
- The attack rate for all sixth- to 12th-grade students declined from 4.93% in the pre-vaccination period to 0.13% after vaccination. Throughout the community, the attack rate declined by 75.6%. The decline in mumps was most prominent among 11- to 17-year-olds, the age group targeted for the 3<sup>rd</sup> MMR, than among all other age groups.
- The decline in mumps cases shortly after the 3<sup>rd</sup> MMR dose intervention suggests that a 3<sup>rd</sup> dose of MMR may help control mumps outbreaks among populations with preexisting high 2-dose MMR coverage.

See the abstract in the [December 2012](#) issue of *Pediatrics*.

### **Most Physicians Unaware that MMRV Is More Likely than MMR to Cause Febrile Seizures in Young Children**

- A national survey of 620 pediatricians and family practitioners showed that 29% of pediatricians and 74% of family practitioners were unaware of an increased risk of febrile seizures among 12-15 month old recipients of the combined measles-mumps-rubella-varicella (MMRV) vaccine when compared with other 12-15 month olds who were given measles-mumps-rubella vaccine (MMR) and varicella vaccines separately at the same visit.
- After reading an informational statement about the increased febrile seizure risk, only 20% of pediatricians and 7% of family practitioners would recommend MMRV to a healthy 12-15 month-old child.

See the abstract for *Vaccine*, [November 6, 2012](#).

## **CDC Recommendations on Combining Measles, Mumps, Rubella, and Varicella Vaccines**

- Since MMRV is now commercially available again, health care providers may wish to review the most recent CDC recommendations concerning at what ages MMR and varicella vaccine should be given separately or combined. CDC updated its recommendations in 2010 for when children should receive the 1<sup>st</sup> and 2<sup>nd</sup> second doses of MMR and varicella vaccines.
  - For the 1<sup>st</sup> dose of MMR and varicella vaccines between ages 12–47 months, *either* MMR and varicella vaccine given separately, or MMRV vaccine may be used.
    - Providers considering MMRV vaccine should discuss the benefits and risks of both vaccination options with the parents or caregivers.
      - Among children ages 12–23 months, one additional febrile seizure occurred 5–12 days after vaccination per 2,300–2,600 children who had received the 1<sup>st</sup> dose of MMRV vaccine compared with children who had received the 1<sup>st</sup> dose of MMR vaccine and varicella vaccine administered as separate injections at the same visit.
  - Unless the parent or caregiver expresses a preference for MMRV vaccine, CDC recommends that MMR and varicella vaccine should be administered *separately* for the 1<sup>st</sup> dose in ages 12–47 months due to the higher risk of febrile seizures.
  - For the 2<sup>nd</sup> dose of measles, mumps, rubella, and varicella vaccines at any age (15 months–12 years) and for the 1<sup>st</sup> dose at age  $\geq$  48 months–12 years, MMRV vaccine is generally preferred over separate injections.

For more information, see MMWR, [May 7, 2010](#).

## **Decrease in HPV in Australia after National HPV Vaccination Program**

- The prevalence of human papillomavirus (HPV) infection was measured in women 18–24 years old before (2005–2007) and after (2010–2011) Australia funded a national HPV vaccination program in 2007.
- The prevalence of vaccine HPV genotypes (6, 11, 16, and 18) was significantly lower in the post-vaccine sample than in the pre-vaccine sample (6.7% vs 28.7%).
- A slightly lower prevalence of nonvaccine oncogenic HPV genotypes was also found in vaccinated women compared to unvaccinated women (30.8% vs 37.6%).

See the article in *Journal of Infectious Diseases*, [December 1, 2012](#).

## **Sexual Activity–Related Outcomes after Human Papillomavirus Vaccination of 11- to 12-Year-Olds**

- A cohort of 1398 eleven- and twelve-year old girls were followed for markers of sexual activity for 3 years after receipt of adolescent vaccines.
- Of the cohort, 493 received HPV vaccine while 905 did not receive HPV vaccine.
- The risk of outcome of any pregnancy/sexually transmitted infection testing/sexually transmitted infection diagnosis/contraceptive counseling was not significantly elevated in HPV vaccine–exposed girls relative to HPV vaccine–unexposed girls.
- The authors' conclusion was that HPV vaccination in the recommended ages was not associated with increased sexual activity–related outcome rates.

For more information, see *Pediatrics*, [November 2012](#).

## **CDC-CISA Review of Report Claiming that HPV Vaccine Was the Cause of Two Deaths**

- A recent [publication](#) described two teenage girls who died after receiving Human Papilloma Virus (HPV) vaccine. The authors suggested that the cause of their deaths was cerebral vasculitis due to HPV vaccine.
- Vaccine Adverse Event Reporting System (VAERS) surveillance data were examined and revealed no concerning signals for HPV vaccine-associated vasculitis.
- The Centers for Disease Control and Prevention (CDC) Clinical Immunization Safety Assessment (CISA) working group investigated and determined that the publication had substantial laboratory methodological concerns and a lack of evidence to support the authors' conclusions that the two patients had vasculitis, or that HPV4 vaccine particles were in the brain tissue, or that HPV vaccine was causally associated with death from cerebral vasculitis.

The full [CDC-CISA review](#) is posted on the CDC website.

## **RESOURCES**

### **Updated Arizona and United States Influenza Activity**

- [Arizona](#) Influenza Activity Weekly Updates
- [United States](#) Influenza Activity Weekly Updates

### **Online Educational Module for Vaccine Storage and Handling**

- “[You Call the Shots](#)” is an interactive, web-based module which provides learning opportunities, and self-test practice questions. Continuing education credit or a certificate of completion is available.

### **Slides from CDC’s October 2012 Advisory Committee on Immunization Practices (ACIP) Meeting**

- The [slides](#) from ACIP’s October meeting are now available.

### **Sources of Information about Contraindications and Precautions to Vaccination**

- CDC Pink Book. [Tables](#) in Appendix A (A-23 through A-27).
- CDC website. [Links](#) for the contraindications and precautions of each vaccine.
- CDC. [Quick Guide](#) to Contraindications and Precautions.
- CDC. General Recommendations on Immunization. MMWR, [January 28, 2011](#), pages 10-11 and Table 6.
- The Immunization Action Coalition. [Screening](#) for contraindications.

- Please feel free to distribute ADHS’ *Arizona Vaccine News* to any of your partners who may be interested. Past issues of *Arizona Vaccine News* can be found at: <http://www.azdhs.gov/phs/immun/vacNews.htm>