



ARIZONA DEPARTMENT OF HEALTH SERVICES

Arizona Vaccine News

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Health and Wellness for all Arizonans

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VACCINE AND VACCINE-PREVENTABLE DISEASE NEWS

ACIP Votes on New Zoster Vaccine

- The Food and Drug Administration (FDA) has licensed the use of Shingrix®, a non-live, recombinant subunit [zoster](#) vaccine (HZ/su).
 - HZ/su is administered intramuscularly as a two dose series, with the 2nd dose at 2-6 months from the first dose.
 - HZ/su causes more local and systemic reactions than Zostavax® (live-attenuated zoster vaccine [ZVL]).
- The Advisory Committee on Immunization Practices ([ACIP](#)) voted in October 2017 to:
 - Recommend HZ/su for vaccination of immunocompetent adults 50 years and older.
 - Recommend HZ/su for persons who had previously received ZVL with a minimum of two months between a dose of ZVL and a subsequent dose of HZ/su.
 - Recommend a preference for HZ/su over ZVL.

NOTE: These ACIP votes have been adopted by the CDC Director and will become official once published in *Morbidity and Mortality Weekly Report* ([MMWR](#)).

Infants 6-11 Months Old Need a Dose of MMR Vaccine if Traveling Internationally

- Measles remains a common disease in many parts of the world, including areas in Europe, Asia, the Pacific, and Africa.
- Since November 2017, CDC has issued [travel notices](#) about measles outbreaks in England, Greece, Italy, Romania, Ukraine, Indonesia, and the Democratic Republic of the Congo.
- Infants [6-11 months old](#) who are traveling internationally should receive a dose of measles-mumps-rubella (MMR) vaccine.
- All international travelers should be [up-to-date](#) on measles vaccination.

FDA Licensure of HEPLISAV-B, a New Hepatitis B Vaccine

- HEPLISAV-B is now approved by the FDA for ages 18 years and above as a two dose series given intramuscularly (IM) at least one month apart.
- The vaccine is composed of a hepatitis B surface antigen (HBsAg) that is produced using recombinant technology and combined with the adjuvant [CpG 1018](#)
- ACIP may give recommendations regarding the use of HEPLISAV-B during ACIP’s [February 2018](#) meeting.

For more information, see the [package insert](#).



Third Dose of MMR Vaccine May Be Used during Mumps Outbreaks

- [ACIP](#) voted in October 2017 for the use of a 3rd dose of a mumps-containing vaccine for persons identified by public health as at increased risk for mumps because of an outbreak.

NOTE: This ACIP vote has been adopted by the CDC Director and will become official once published in the [MMWR](#).

INFLUENZA AND INFLUENZA VACCINES

Arizona's Influenza Season Is Early and Large

- Influenza has been [widespread](#) in Arizona since the middle of December.
- It is [not too late](#) to give patients influenza vaccine, since influenza will continue to spread for many months.
- Influenza vaccine should continue to be offered as long as there is influenza circulating in the community.

See CDC guidance for vaccination for the 2017-2018 influenza season in MMWR, [August 25, 2017](#).

Influenza Vaccination Decreases Disease Severity among Hospitalized Adults

- Adults who received influenza vaccine but then were hospitalized with influenza were less likely to have an in-hospital death than hospitalized patients who had not received influenza vaccine.
- Patients hospitalized with influenza who had received influenza vaccine had:
 - Fewer intensive care unit (ICU) admissions (patients 18–49 years and ≥65 years).
 - Shortened length of stay (LOS) in the ICU (patients 50 years and older).
 - Shortened LOS in the hospital (patients 50 years old and above).

See the abstract in *Clinical Infectious Diseases* (CID), [October 15, 2017](#).

Preliminary Influenza Vaccination Coverage for the 2017-2018 Season

- By early November 2017, people who had received influenza vaccine included:
 - About two of every five [children and adults](#) in the U.S.
 - About 2/3 of [health care personnel](#).
 - About 1/3 of [pregnant women](#).

Follow the links for more information about each group (Source: CDC).

The Need for a Universal Influenza Vaccine

- The United States sees 140,000 to 710,000 influenza-related hospitalizations and 12,000 to 56,000 deaths each year, with the highest burden of disease in the very young, the very old, and people with coexisting medical conditions.
- Influenza vaccines are an important public health tool, but mismatches with circulating viruses decrease vaccine efficacy.

For more details, see the editorial in *New England Journal of Medicine* (NEJM), [November 29, 2017](#).



LITERATURE ON VACCINES AND VACCINE-PREVENTABLE DISEASES

Immunogenicity and Safety of Herpes Zoster Subunit Vaccine in Previously Vaccinated Adults

- Two doses of Herpes Zoster subunit vaccine were given to two groups of adults ≥ 65 years old: 1) Those who were previously vaccinated with live-attenuated zoster vaccine at least 5 years previously, and 2) those who had never received a zoster vaccine.
- Humoral immune responses, cellular immunogenicity, reactogenicity, and safety were comparable between the two groups.
- Previous vaccination with live-attenuated zoster vaccine did not affect patients' responses to the Herpes Zoster subunit vaccine.

See the article in *Journal of Infectious Diseases* (JID), [December 1, 2017](#).

Economic Burden of a Single Case of Measles in the U.S.

- Two unrelated measles cases in Colorado that were acquired during international travel resulted in public health costs of \$49,769 and \$18,423, respectively.
- Other published cost estimates of public health agency responses to a single measles case have ranged from \$5,655 through \$181,679.
- Health care providers need to:
 - Recommend MMR vaccination before international travel when appropriate.
 - Maintain a high index of suspicion for measles in patients with a febrile rash illness.
 - Suspect measles in unvaccinated people with a febrile illness with rash who are returning from international travel.

See the article in MMWR, [September 23, 2017](#).

Impact of Nonmedical Vaccine Exemption Policies on Measles

- Using a model that simulated measles outbreaks under different nonmedical vaccine exemption policies (easy, medium, difficult), the cost of a measles outbreak was calculated for these different nonmedical vaccine exemption policies.
- A state with **easy** nonmedical vaccine exemption policies is 140% and 190% more likely to experience a measles outbreak compared with states with **medium** or **difficult** policies, respectively.
- Strengthening nonmedical vaccine exemption policies is one way to increase measles vaccination coverage and to reduce the health and economic effects of a measles outbreak.

See the abstract in *Academic Pediatrics*, [July 2017](#).

The Prevalence of Oral Human Papillomavirus (HPV) Infection in Males and Females

- US adults ages 18-64 years old were tested for oral HPV.
- The prevalence of oral HPV infection was 11.5% in men and 3.2% in women.
- Oral infection with high-risk HPV was more common among men (7.3%) than women (1.4%).
- The probability of high-risk oral HPV infection was highest among those who smoked more than 20 cigarettes daily, current marijuana users, black participants, and those who reported 16 or more lifetime vaginal or oral sex partners.

See the article in *Annals of Internal Medicine*, [October 17, 2017](#).



HPV Vaccination Helps Prevent Juvenile-Onset Recurrent Respiratory Papillomatosis

- Juvenile-Onset Recurrent Respiratory Papillomatosis ([JORRP](#)) is a rare but potentially life-threatening disease caused by HPV.
- After quadrivalent HPV vaccination was widely instituted in Australia, the occurrence of JORRP declined from 0.16/100,000 in 2012 to 0.02/100,000 in 2016.

See the article in *JID*, [November 9, 2017](#). (E-published ahead of print).

Updated Clinical Guidance on Hepatitis B Vaccination and Screening

- Best Practice Advice for Hepatitis B Vaccination, Screening, and Linkage to Care has been written by a task force from the American College of Physicians and the CDC.
- Clinicians should immunize against hepatitis B virus (HBV) in all unvaccinated adults at risk for infection, including pregnant women.
- Clinicians screening for HBV in high-risk persons should order hepatitis B surface antigen (HBsAg), antibody to hepatitis B core antigen (anti-HBc), and antibody to hepatitis B surface antigen (anti-HBs).

For more details, see the article by in *Annals of Internal Medicine*, [December 5, 2017](#).

Zika Virus DNA Vaccine Safety and Immunogenicity in Phase 1 Trial in Humans

- A Zika DNA vaccine encoding Zika virus premembrane and envelope proteins was given intradermally in three doses to forty participants with each injection followed by pulsed electric field to introduce the DNA sequence into cells.
- Local reactions occurred in about 50% of recipients.
- Pre- and post-vaccination blood was collected from participants.
 - Intraperitoneal injection of post-vaccination serum protected 103 of 112 mice from a lethal dose of Zika virus while no mice survived who received pre-vaccination serum.

For more details, see the article in *NEJM*, [October 5, 2017](#).

Predictors of Post-vaccination Fainting

- Factors associated with post-vaccination fainting include:
 - Younger age
 - History of passing out or almost passing out after a shot or blood draw
 - Pre-vaccination anxiety
 - Receiving more than one injected vaccine
 - Greater post-vaccination pain
- Having the patient drink some water before vaccination did not decrease the incidence of post-vaccination fainting.

See the article in *Pediatrics*, [November 2017](#).

Review of Measles and Measles Vaccination

- For an in-depth review of measles history, epidemiology, clinical illness, management and vaccination, see the article in *Lancet*, [December 2, 2017](#).



Tdap in Pregnancy Reduces the Risk of Pertussis and Hospitalization in Infants

- A group of infants under two months old with pertussis were compared with a control group of infants without pertussis.
- Only 7.1% of the mothers of pertussis-infected infants had received tetanus-diphtheria-acellular pertussis vaccine (Tdap) during the 3rd trimester of pregnancy compared to 16.8% of control group mothers.
- Tdap efficacy in preventing pertussis was 77.7% and in preventing hospitalization was 90.5%.

See the abstract in CID, [December 15, 2017](#).

Pertussis Vaccination Reduces Severity and Complications of Pertussis

- Although pertussis vaccination does not protect against all cases of pertussis, age appropriate pertussis vaccination status was associated with:
 - 60% reduction in the likelihood of severe disease in children aged 7 months-6 years
 - 30% reduction in the likelihood of posttussive vomiting in ages 19 months-64 years.

See the abstract in CID, [September 1, 2017](#).

DO YOU KNOW?

How to Respond when an Intramuscular Injection Is Given Subcutaneously

- Put procedures in place to ensure that vaccines are given by the correct route.
- If an administration error occurs, ACIP states that vaccines recommended to be given IM that are given subcutaneously be counted as valid with *four exceptions*:
 - Inactivated influenza vaccines that are labeled for IM administration
 - Hepatitis B vaccines
 - Rabies vaccines
 - HPV vaccines
- These four exceptions given by any route other than IM should not be counted as valid and should be repeated.
 - There is no minimum interval between the invalid dose and the repeat dose.

See the Immunization Action Coalition (IAC) Webpage under [Vaccine Administration Errors](#).

Two Exceptions to the Recommendation for Simultaneous Administration of Vaccines

- Prevnar[®]13 (PCV13) and Pneumovax[®]23 (PPSV23) should not be given simultaneously.
- In persons with anatomic or functional asplenia, Menactra[®] (a quadrivalent meningococcal vaccine) and Prevnar[®]13 should not be given simultaneously.

For details, see ACIP's "General Best Practice Guidelines for Immunization:" Timing and Spacing of Immunobiologics, [page 15](#) (downloaded 12/29/2017).

RESOURCES

HPV Update with Pictures and Graphs from AAP

- The American Academy of Pediatrics (AAP) has created a presentation titled [2017 HPV update](#) with illustrations of HPV disease, in-depth vaccine data, and tips for talking to parents about HPV vaccine. (NOTE: In order for the PDF to appear, after clicking the above link, you may need to close the AAP pop ups).



CDC Algorithm for Deciding Dosing of HPV Vaccine

- CDC has produced a [decision tree](#) for deciding which patients need two doses and which need three doses of HPV vaccine.

Immunization Action Coalition Publishes “Vaccinating Adults: A Step-by-Step Guide”

- IAC has produced a 142-page [guide](#) for implementing and enhancing adult immunizations.

ACIP’s Best Practice Guidelines for Immunization Replaces Previous CDC Publication

- CDC’s [2011](#) General Recommendations for Immunizations has been replaced by the new online document “[Best Practices Guidance of the Advisory Committee on Immunization Practices.](#)”
- New ACIP recommendations will be added to this electronic document in a timely fashion.
- Click [here](#) to sign up to receive email updates regarding newly published ACIP recommendations that will be incorporated into this document.

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