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VACCINE NEWS

CDC's Recent Recommendations on 9-valent HPV vaccine (9vHPV)

- The Centers for Disease Control and Prevention (CDC) recommends the use of nine-valent human papilloma virus vaccine (9vHPV) at the same ages and on the same schedule as two-valent HPV vaccine (2vHPV) and four-valent HPV vaccine (4vHPV).
- Vaccination of females is recommended with 2vHPV, 4vHPV (as long as this formulation is available), or 9vHPV.
- Vaccination of males is recommended with 4vHPV (as long as this formulation is available) or 9vHPV.
- 2vHPV, 4vHPV, and 9vHPV are each given in a 3-dose schedule. The second dose is given at least 1 to 2 months after the first dose, and the third dose at least 6 months after the first dose with minimum intervals of 1 month between the first and second dose, 3 months between the second and third dose, and 6 months between the first and third dose.
- If vaccination providers do not know or do not have available the HPV vaccine product previously administered, or are in settings transitioning to 9vHPV, any available HPV vaccine product may be used to continue or complete the series for females; 9vHPV or 4vHPV may be used to continue or complete the series for males.
- 4vHPV and 9vHPV are contraindicated for persons with a history of immediate hypersensitivity to yeast.
- 2vHPV should not be used in persons with anaphylactic latex allergy.
- HPV vaccines are not recommended for use in pregnant women although pregnancy testing is not needed before vaccination.
- Additional guidance on transitioning from 2vHPV or 4vHPV to 9vHPV is expected to be addressed at the June 2015 ACIP meeting.

See *Morbidity and Mortality Weekly Report* (MMWR) [March 27, 2015](#).

CDC Updates Recommendations on *Salmonella typhi* Vaccines

- Typhoid vaccines are recommended for:
 - Travelers to areas where there is a recognized risk for exposure to [typhoid fever](#) (*Salmonella* serotype Typhi). Additional information is available through the CDC's Traveler's Health [website](#).
 - Persons with intimate exposure (e.g., household contact) to a documented *Salmonella* serotype Typhi chronic carrier (defined as excretion of *Salmonella* serotype Typhi in urine or stool for >1 year).
 - Microbiologists and other laboratory workers routinely exposed to cultures of *Salmonella* serotype Typhi or specimens containing this organism or who work in laboratory environments where these cultures or specimens are routinely handled.
- Two typhoid vaccines are licensed for use in the United States (U.S.):
 - [Typhim Vi](#)[®], an inactivated capsular polysaccharide vaccine that is given intramuscularly as a single dose for ages ≥ 2 years old with revaccination every 2 years as needed.
 - [Vivotif](#)[®], a live, attenuated, oral vaccine that is given in a four dose series on day 0, 2, 4, and 6 for ages ≥ 6 years old with revaccination every 5 years if needed.

See MMWR [March 27, 2015](#).

ACIP Votes on Recommendations for Use of Meningococcal B Vaccines

- There are two Food and Drug Administration (FDA) approved meningococcal serogroup B vaccines:
 - [Trumenba[®]](#) which is licensed for ages 10-25 years old as a three dose series at 0, 2, and 6 months.
 - [Bexsero[®]](#) which is licensed for ages 10-25 years old as a two dose series at least one month apart.
- The Advisory Committee on Immunization Practices (ACIP) voted on February 26, 2015 to recommend the use of either of these meningococcal serogroup B vaccines for use in persons aged ≥ 10 years old who are at increased risk for meningococcal disease. These include:
 - Persons with persistent complement component deficiencies including those taking eculizumab ([Soliris[®]](#)).
 - Persons with anatomic or functional asplenia including sickle cell disease.
 - Microbiologists routinely exposed to isolates of *Neisseria meningitidis*.
 - Persons at increased risk because of a serogroup B meningococcal disease outbreak.
- The same meningococcal serogroup B vaccine should be used to complete the series.
- The ACIP vote on meningococcal serogroup B vaccines will become official CDC policy once the recommendations are published in the MMWR.
- The [slide presentation](#) from the recent ACIP meeting describing the new meningococcal serogroup B recommendations is posted on CDC's ACIP webpage.

INFLUENZA AND INFLUENZA VACCINES

Deaths Averted by Influenza Vaccines in U.S. 2005/06 through 2013/14 Seasons

- Over nine influenza seasons in the U.S. from August, 2005 through June, 2014, approximately 40,127 deaths were averted by influenza vaccination.
 - Of all studied seasons, the most deaths were averted by influenza vaccination during the 2012/13 season (9,398) while the fewest deaths were averted during the 2009/10 pandemic (222).
 - Of all influenza-associated deaths averted, 88.9% were in people ≥ 65 years old.
- See the article in *Vaccine* [March 23, 2015](#) (online ahead of print).

H5N1 Adjuvanted Influenza Vaccine in Children Is Immunogenic with Good Safety Profile

- Avian influenza H5N1 has a high fatality ratio when it is acquired by humans. If it were to acquire the ability to easily spread from person to person, an effective vaccine would be essential.
- Children 6 months-17 years in the U.S., Canada, and Thailand participated in a double-blind study where two doses of vaccine or placebo were given 21 days apart.
- Immunogenicity was comparable with seasonal influenza vaccine and the immune responses lasted more than a year.
- The H5N1 vaccine was more reactogenic than placebo, but no major safety concerns were identified.
- Narcolepsy, a rare event reported after an adjuvanted 2009 H1N1 vaccine in Europe, was not found in this study.

See the article in *Journal of Infectious Diseases* (JID), [March 1, 2015](#).

High-dose Influenza Vaccine Gives More Protection to Patients \geq 65 Years Old

- Over 2 million Medicare patients 65 years and older were randomized to receive either high-dose influenza vaccine or a standard dose influenza vaccine during the 2012-2013 influenza season.
- There were 22% fewer probably influenza cases in the high-dose group than in the standard-dose group.
- The high-dose vaccine was 22% more effective for preventing influenza-related hospital admissions.
- At this time, the CDC has not expressed a preference for the high-dose influenza vaccine over the standard-dose influenza vaccine for people \geq 65 years old.

See the abstract in *The Lancet Infectious Diseases*, [February 8, 2015](#).

LITERATURE ON VACCINES AND VACCINE-PREVENTABLE DISEASES

Measles Outbreaks Are Expensive

- In 2011, the U.S. had 16 measles outbreaks with 107 confirmed measles cases.
- The total estimated number of identified contacts to measles cases ranged from 8,936 to 17,450, requiring from 42,635 to 83,133 personnel hours.
- The total economic burden on local and state public health ranged from an estimated \$2.7 million to \$5.3 million dollars.

See the article in *Vaccine*, [March 5, 2014](#).

How Fast Would Measles Spread if Herd Immunity Is Low?

- A simulation compared the rapid and continued spread of measles if community immunity were only 80% compared to relatively few cases if the community immunity were 95%.

See the [March 9, 2015](#) blog from the *Scientific American*.

Testing of a Recombinant Ebola Vaccine That Uses Vesicular Stomatitis Virus

- An attenuated, replication-competent, recombinant vesicular stomatitis virus expressing the glycoprotein of a Zaire strain of Ebola virus (ZEBOV) was studied for safety and antibody production.
- The most common adverse events were injection-site pain, myalgia, and fatigue.
- Transient vesicular stomatitis viremia was noted in all the vaccine recipients.
- By day 28, all the vaccine recipients had seroconversion against the glycoprotein of the ZEBOV strain.

See *New England Journal of Medicine* (NEJM), [April 1, 2015](#) (online ahead of print).

Fewer Resistant Pneumococcal Isolates from Otitis Media and Mastoiditis after PCV13 Use

- Thirteen-valent pneumococcal vaccine (PCV13) was licensed for use in the U.S. in 2010.
- Over a three year time period from 2011-2013, the proportion of pneumococcal isolates included in PCV13 and the proportion of these isolates with a penicillin minimal inhibitory concentration >2 $\mu\text{g}/\text{mL}$ decreased significantly among the middle ear and mastoid isolates in children.
- This decrease was largely related to decreases in pneumococcal serotype 19A isolates.

See the abstract in *Clinical Infectious Diseases* (CID), [May 1, 2015](#).

Clinical Guidance for Smallpox Vaccine Use in a Postevent Vaccination Program

- Three smallpox vaccines are stockpiled in the U.S. Strategic National Stockpile for use if there were to be an intentional or accidental release of the virus.
 - ACAM2000 is a live, replication-competent vaccinia virus vaccine that is licensed by the Food and Drug Administration (FDA).
 - Aventis Pasteur Smallpox Vaccine (APSV) is a live, replication-competent vaccinia virus that has not yet received FDA approval.
 - Imvamune, a live, attenuated, replication-deficient vaccinia virus that cannot reproduce in mammalian cells, has not yet received FDA approval.

For more information, see MMWR, (RR-2), [February 20, 2015](#).

Adult Vaccination Coverage in the U.S. in 2013

- Vaccination rates in adults for vaccination against pneumococcal disease, tetanus, pertussis hepatitis A, hepatitis B, herpes zoster, and human papilloma virus (HPV) are analyzed by age, medical conditions, race, and ethnicity.
- In all adults ≥ 19 years old:
 - Pertussis vaccination (Tdap) is 17.2%.
 - Hepatitis A vaccination is 9.0%.
 - Hepatitis B vaccination is 25.0%.
- Receipt of at least one HPV vaccine:
 - In 19-21 year old females: 44.7%.
 - In 22-26 year old females: 32.4%.
 - In males 19-26 years old: 5.9%.
- Pneumococcal vaccination:
 - In high-risk adults 19-64 year old: 21.2%.
 - In ≥ 65 years old: 59.7%.
- Herpes zoster vaccine in ≥ 60 years old is 24.2%.

For additional details about vaccine coverage by age, medical conditions, race, and ethnicity, see MMWR, [February 6, 2015](#).

Higher Risk for Rotavirus Illness in Children in Areas with Less Rotavirus Vaccinations

- In locations with low rotavirus vaccine coverage rates, 31.4% of patients with acute gastroenteritis (AGE) were rotavirus-positive compared with 13.1% and 9.6% in medium- and high-coverage locations, respectively.
- Patients with AGE from low-coverage locations had 3.3 times the detection rate of rotavirus than patients with AGE from high vaccine coverage locations.

See the abstract in *Pediatrics*, [February 2015](#).

RESOURCES

Interactive Map on World Outbreaks of Vaccine Preventable Diseases

- The Global Health Program at the Council of Foreign Relations has produced an [interactive map](#) of world-wide vaccine-preventable disease outbreaks and attacks on vaccinators from the fall of 2008-2015.
- Outbreaks can be looked at by year and by specific diseases.

Measles Chapter from 2015 AAP Red Book Has Been Pre-released

- To help health-care providers deal with the current measles outbreaks in the U.S., the American Academy of Pediatrics (AAP) has pre-released the chapter on [measles](#) from the soon-to-be-published [2015 AAP Red Book](#).

Immunization Action Coalition (IAC) Resources

- A large number of vaccine-related resources are available for health-care practitioners on the IAC website (www.immunize.org).
- IAC sends out a weekly newsletter, [IAC Express](#), that features important immunization developments, new vaccine recommendations, updated VIS forms, and practical vaccination resources.
- IAC also publishes two quarterly newsletters: [Needle Tips](#) and [Vaccinate Adults](#). Providers can [register](#) to receive these free newsletters electronically.

CDC Online Continuing Medical Education (CME) Opportunities

- CDC's web-based training course "[You Call the Shots](#)" has updated online vaccine-related educational modules dealing with MMR vaccine, influenza vaccine, the Vaccines for Children program, vaccine storage and handling, and general recommendations on immunization.
- In addition, there are many other free CME training programs offered by CDC that deal with vaccine-preventable diseases and vaccines.
- To access these CME modules, register at the [CDC training site](#). Then go to Participant Services, search for what topics are available, and register for the desired training.
- Once the online courses have been registered for, you can take the training. Then you need to take a test that will determine if you have passed and can receive CME credit.
- You can print your CME certificate from the CDC training site once you have passed the test.

Anne Geddes Photography Series on Meningococcal Disease Survivors

- See [photographs](#) of 17 survivors of meningococcal disease taken by the award-winning photographer, Anne Geddes.

- 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>.