the vaczine

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In this Issue

Announcements and Upcoming Events

I**mmunization Division 2016 Webcast Schedule:** The remaining quarterly webcasts hosted by the Immunization Division will be broadcast on Tuesday, October 18. Each webcast will begin at 9:30 a.m. If you miss the live webcast, a recorded version is archived and available at http://videocenter.isdh.in.gov/videos/channel/38/recent/page1/.

CHIRP 2016 User Group Meeting (UGM) Schedule: CHIRP UGMs are currently scheduled for the following dates in 2016:

Thursday, August 18: Dearborn County Health Department, Lawrenceburg

Thursday, October 20: Vanderburgh County Health Department, Evansville

Tuesday, December 13: Marion County Health Department, Indianapolis

For more information about the UGM sessions or to register to attend, please visit https://chirp.in.gov/calendar/index.html, or contact CHIRP at chirp@isdh.in.gov or 888-227-4439.

2016 Conferences:

Indianapolis will host a CDC Pink Book training in October. The Pink Book training is a two-day, comprehensive immunization course covering immunization principles and practices, vaccine-preventable diseases and currently available immunizations. This invaluable training is presented by faculty from the CDC's National Center for Immunization and Respiratory Diseases. The training is scheduled for Wednesday, October 12, and Thursday, October 13. The course will run from 7:30 a.m. to 5 p.m. both days and will be held at the 502 East Convention Center in Carmel. More details can be found on the Indiana Immunization Coalition's event page, including the link to register.

Call for A-Z Training Hosts: ISDH offers immunization trainings called "Immunizations A-Z". These trainings are free of charge. A full Immunizations A-Z is approximately four hours of training that covers all immunizations, signs and symptoms, vaccine-preventable diseases, state law and school requirements, as well as exemptions. This class will also cover vaccine administration and vaccine safety. Please contact the health educator in your area to arrange training.

Sharon Griffin, Districts 8, 9, 10 (Southern region), sgriffin@isdh.in.gov

Deb Doctor, Districts 2 and 3 (Northeast region), ddoctor@isdh.in.gov

Shawn George, Districts 1 and 4 (Northwest region),

Jelisa Brown, Districts 5a and 7 (Marion County and Central West region), jelibrown@isdh.in.gov

Katie Lewman, Districts 5 and 6 (Central and Central East region), klewman@isdh.in.gov

A-Z Training Schedule:

Wednesday, September 7: Hamilton County Health Department, Fishers – Katie Lewman

New Staff Members

Shawn George

Shawn George is the new District 1 & 4 Immunization Health Educator. Born and raised in the "Region", she is a graduate of Wirt High School. Shawn earned a Bachelor degree from Purdue University in Health Sciences. Shawn also has two minors in Health Promotion and Organizational, Leadership, Supervision. She holds a Master of Science in Public Health and continues to pursue her Doctorate in Epidemiology. Currently she holds a State of Indiana teaching license in Health Education and was a Certified Health Education Specialist. Prior to joining the ISDH Immunization team, Shawn managed a VCF program housed in a school-based health clinic and served as the Health and Safety Coordinator for the Lafayette School System.

Shawn is happily married and the mother of three children. She and her family currently reside in Portage. Shawn is proud to serve the providers of the "Region" and surrounding areas through active support and educational efforts to promote exceptional public health in the immunization sector.

National Immunization Awareness Month

Cortnee Hancock, RN; Chief Nurse Consultant

August is National Immunization Awareness Month! Vaccines are an important step in protecting people against several serious, and sometimes deadly, diseases. There are many things we want to pass on to our loved ones, and illness is not one of them.

Providers, encourage patients to take charge of their health, and help protect those around them, by educating them about vaccines. Patients trust you to give them the best counsel on how to protect their health. Your strong recommendation is critical in ensuring that they get the vaccines they need to help them stay healthy.

Nurses Essential in Ensuring All Children are Protected with Immunizations

Cortnee Hancock, RN; Chief Nurse Consultant

Parents consider healthcare professionals one of the most trusted sources in answering questions and addressing concerns about their child's health. A recent survey on parents' attitudes, knowledge, and behaviors regarding vaccines for young children – including vaccine safety and trust – found that 8 out of 10 parents consider pediatric healthcare professionals to be one of their most trusted sources of vaccine information. With so many parents relying on the advice of healthcare professionals about vaccines, a nurse's recommendation plays a key role in guiding parents' vaccination decisions.

The survey also found that 7 out of 10 parents were confident or very confident in the safety of routine childhood immunizations, however, parents had questions about vaccines. Parents' most common question is what side effects they should look for after vaccination. One out of four is concerned that children get too many vaccines in one doctor's visit and one out of five parents surveyed are concerned that vaccines may cause autism.

"Reinforcing that vaccines are safe and effective can go a long way towards assuring parents that they are doing the best thing for their children," says Patsy Stinchfield, a pediatric nurse practitioner who represents the National Association of Pediatric Nurse Practitioners. "One of the best ways you can establish trust with parents is by asking open-ended questions to help identify and address concerns they may have about vaccines. Also, restate their questions and acknowledge concerns with empathy."

Make sure to address questions or concerns by tailoring responses to the level of detail the parent is looking for. Some parents may be prepared for a fairly high level of detail about vaccines – how they work and the diseases they prevent –while others may be overwhelmed by too much science and may respond better to a personal example of a patient you've seen with a vaccine-preventable disease. A strong recommendation from you as a nurse can also make parents feel comfortable with their decision to vaccinate.

For all parents, it's important to address the risks of the diseases that vaccines prevent. It's also imperative to acknowledge the risks associated with vaccines and highlight the benefits of vaccines. Parents are seeking balanced information. Never state that vaccines are risk-free, and always discuss the known side effects caused by vaccines.

If a parent chooses not to vaccinate, keep the lines of communication open and revisit their decision at a future visit. Make sure parents are aware of the risks and responsibilities they need to take on, such as informing schools and child care facilities that their child is unimmunized, and being careful to stay aware of any disease outbreaks that occur in their communities. If you build a trusting relationship over time with parents, they may reconsider their vaccination decision.

To help communicate about vaccine-preventable diseases, vaccines, and vaccine safety, the Centers for Disease Control and Prevention (CDC), the American Academy of Family Physicians (AAFP), and the American Academy of Pediatrics (AAP) have partnered to develop Provider Resources for Vaccine Conversations with Parents. These materials include vaccine safety information, fact sheets on vaccines and vaccine-preventable diseases, and strategies for successful vaccine conversations with parents. They are free and available online at www.cdc.gov/vaccines/conversations.

School-Aged Children

Jelisa Brown, Health Educator

One of the most important things a parent can do to protect their child's health is getting them vaccinated according to the recommended immunization schedule. It provides your child with the best protection against preventable diseases. Between the time your child is born and when they go off to college, they'll get vaccines to protect against a number of serious diseases. Among groups of children who aren't vaccinated, diseases can spread quickly. Whether it's a baby starting at a new child care facility, a toddler heading to preschool, a student going back to elementary, middle or high school – or even a college freshman – parents should check their child's vaccination records.

Some places that are prone to outbreaks of infectious diseases include childcare facilities, preschool programs, schools and colleges. Children in these settings can easily spread illnesses to one another due to poor hand washing, not covering their coughs, and other factors such as interacting in crowded environments. You will also be helping to protect people in your community who cannot receive vaccines for medical reasons.

Additionally, the State of Indiana has a list of required vaccines for the children who are entering childcare or school to be vaccinated against. Colleges and Universities may have their own requirements, especially for students living in a dormitory. Parents should check with their child's doctor, school, or the local health department to learn about the requirements in their state or county.

If you want to know more about the vaccines that are required for school, please visit the Immunization page of the Indiana State Department of Health website at http://www.in.gov/isdh/17094.htm

Influenza, Pneumonia, and the Elderly

Katie Lewman, MPH, Health Educator

The final numbers are in: According to the National Vital Statistics Reports (NVSR) published in February, influenza and pneumonia collectively were the 8th leading cause of death in 2013. 1,132 deaths in Indiana can be attributed to these two respiratory infections[1]. While we expect chronic diseases due to aging to be on this list, it should be surprising that two vaccine preventable diseases (VPD) were in the Top 10 and that rates of these diseases had increased from prior years.

Statistics for 2013 Calendar Year (Xu, p. 40):

Death By	Total (all ages)	Total 65+	65-74	65-74	75-84	85+
Influenza	3,697	3,060	374	401	693	1,592
Pneumonia	53,282	49,750	4,405	7,040	13,256	25,049

There are several factors that contribute to the mortality rate in this population. Adults with one or more co-morbidities correlate with increased mortality rate. A large study published in 2003 concluded: "Half of all elderly patients admitted to the hospital for Community-acquired pneumonia (CAP) die within one year of diagnosis"[2]. This particular study showed that renal disease and liver disease were the most common co-morbidities. Other studies have shown that pulmonary disease, hypertension and diabetes are common among CAP patients[3]. Chertow & Memoli (2013) found that patients with a viral influenza infection commonly had bacterial coinfections and that these coinfections developed within days of the initial viral infection[4].

Physiological changes to the thymus as people age can affect their ability to have a robust immune response. The size of the thymus decreases in size as part of the normal aging process, and this thymic involution is especially noticeable in individuals over age 60. Accordingly, this causes the thymus to have a decreased ability to create new T-cells as well as for those T-cells created to become antigen-specific. In addition to the body's limited ability to produce lymphocytes as we age, lymphocytes apoptosis (scheduled cell death) ramps up. All these processes combined create an age-associated decreased immune response referred to as immunosenescence[5,6].

Adults over age 65 comprise only 13% of the United States population in 2010[7]; however, they account for 82% of influenza mortality and 93% of pneumonia mortality in 2013. An alarming fact is that the bacterium that cause pneumococcal diseases are becoming antibiotic resistant. Due to possible limited ability to treat the disease, vaccination provides the best protection against these diseases in individuals over age 65.

The Flu Shot.

In May, the FDA Advisory Committee recommended these four influenza strains be included in the 2016-2017 formulation[8]:

- A/California/7/2009 (H1N1)pdm09-like virus;
- A/Hong Kong/4801/2014 (H3N2)-like virus;
- B/Brisbane/60/2008-like virus (B/Victoria lineage).
- Quadrivalent vaccine will contain the above three viruses and a B/Phuket/3073/2013-like virus (B/Yamagata lineage).

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[1] Xu JQ, Murphy SL, Kochanek KD, Bastian BA. (2016). Deaths: Final data for 2013. *National Vital Statistics Reports; 64*(2). Hyattsville, MD: National Center for Health Statistics. Retrieved from: http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_02.pdf

[2] Kaplan V, Clermond G, Griffin MF, Kasal J, Watson RS, Linde-Zwirble WT, & Angus DC (2002). Pneumonia: Still the Old Man's Friend? *Arch Intern Med, 163*, 317-323.

[3] Ishiguro T, Takayanagi N, Yamaguchi S, Yamakawa H, Nakamoto K, Takaku Y, Miyahara Y, Kagiyama N, Kurashima K, Yanagisawa T, & Sugita Y (2013). Etiology and Factors Contributing to the Severity and Mortality of Community-acquired Pneumonia. *Intern Med, 52*, 317-324.

[4] Chertow DS & Memoli MJ (2013). Bacterial Coinfection in Influenza: A Grand Rounds Review. *JAMA, 309*(3), p. 275-282.

[5] Domington MG & Bowdish ME (2013). Immunosenescence and Novel Vaccination Strategies for the Elderly. *Frontiers in Immunology, 4*(171), 1-10.

[6] Gui J, Mustachio LM, Su D-M, & Craig RW (2012). Thymus Size and Age-related Thymic Involutin: Early Programming, Secual Dimorphism, Progenitors and Stroma. *Aging and Disease, 3*(3), 280-290.

[7] Federal Interagency Forum on Aging-Related Statistics (2012). Older Americans 2012:
Key Indicators of Well-Being. *Federal Interagency Forum on Aging-Related Statistics*. Washington, DC: U.S. Government Printing Office. Retrieved from: http://www.agingstats.gov/main_site/data/2012_documents/docs/entirechartbook.pdf

[8] CDC (2016). What You Should Know for the 2016-2017 Influenza Season. Retrieved from: http://www.cdc.gov/flu/about/season/flu-season-2016-2017.htm

The names for these influenza strains use a World Health Organization accepted nomenclature. The "A" and "B" refer to the antigen type. "A" strains are capable of causing pandemics. The next section identifies the location where the strain was first identified. The strain number is included next followed by the year the strain was isolated, hemagglutinin (H) and neuraminidase (N) protein configuration along with any other unique identifying information. For the first strain in the 2016-2017 formulation, it has one H and one N protein and is similar to the H1N1 that caused the pandemic in 2009[9].

The ACIP recommends one influenza immunization each year. Because the influenza viruses circulating worldwide can change from year to year, the annual flu shot should be considered one dose in a lifelong series.

That Pneumonia Shot

There are two vaccines licensed by the FDA for the prevention of pneumococcal disease. Prevnar13 (PCV13) is a conjugate vaccine licensed for both children and adults. The package insert approved by the FDA indicates that a decreased response to PCV13 may occur when co-administered with a trivalent influenza vaccine; however, ACIP has not issued guidance recommending that these immunizations be given on separate visits[10].

Pneumovax23 (PPSV23) is a polysaccharide vaccine that provides protection against 23 serotypes of pneumococcal disease. "Polysaccharide vaccines are a unique type of inactivated subunit vaccine composed of long chains of sugar molecules that make up the surface capsule of certain bacteria"[11]. PPSV23 is licensed for adults over age 50. PPSV23 may also be administered to children over the age of 2 years or additional doses recommended for some individuals, i.e., patients with sickle cell disease[12].

PPSV23 and PCV13 should not be co-administered. Refer to the FDA package inserts and ACIP vaccination schedules for minimum intervals between doses as minimum intervals vary based on age, vaccine status and individual patient risk factors.

These vaccines use different techniques to protect against pneumococcal disease, but the difference does not stop there. Each vaccine covers different serotypes although there is some overlap. Refer to the following table for a comparison of the coverage each vaccine provides:

Serotypes	PCV13	PPSV23
1	X	X
2		X
3	X	X
4	X	X
5	X	X
6A	X	
6B	X	X
7F	X	X
8		X
9N		X
9V	X	X
10A		X
11A		X
12F		X
14	X	X
15B		X
17F		X
18C	X	X
19A	X	X
19F	X	X
20		X
22F		X
23F	X	X
33F		X

[9] CDC (2014). Types of Influenza Viruses. Retrieved from: http://www.cdc.gov/flu/about/viruses/types.htm
[10] Pfizer (2016). Package Insert. *PREVNAR 13*. Retrieved from: http://labeling.pfizer.com/showlabeling.aspx?id=501
[11] CDC (2015). Principles of Vaccination. *The Pink Book*. Retrieved from: http://www.cdc.gov/vaccines/pubs/pinkbook/princac.html
[12] Merck (2015). Package Insert. *PNEUMOVAX 23*. Retrieved from: http://www.merck.com/product/usa/pi_circulars/p/pneumovax_23/pneumovax_pi.pdf

Pregnancy and Immunization

Sharon Griffin, Health Educator

Pregnancy is a good time for healthcare providers to educate expectant mothers about the safety and proven protection vaccines provide. Pregnant women need to know that vaccines play an important role in protecting their health, and in safeguarding the health of their baby, too. Women of childbearing age, particularly women planning to become pregnant, should be up to date on the recommended adult vaccines such as the measles, mumps, and rubella (MMR) vaccine. Live vaccines, such as the MMR, should be given at least one month prior to conception. Inactivated vaccines can be safely given before, during, or after pregnancy.

The Advisory Committee on Immunization Practice (ACIP) recommends for every pregnancy, women should receive the tetanus, diphtheria, and acellular pertussis vaccine (Tdap) preferably between 27 and 36 weeks gestation. Pertussis is highly contagious causing serious complications and possibly death to infants. Giving the vaccine during pregnancy not only protects mom, but protects the baby through transplacentally transferred maternal antibodies.

If a woman is pregnant during influenza season it is important she receive the inactivated flu vaccine. Pregnancy places a woman at higher risk for influenza related complications, including premature labor and preterm birth. According to the Centers for Disease Control and Prevention (CDC), “Babies whose mothers were vaccinated during pregnancy have less respiratory tract illness in general, less influenza in particular, and fewer hospitalizations. Studies show that vaccine against influenza given to a pregnant woman reduces influenza morbidity of infants up to the age of 6 months by 63%.” The inactivated influenza vaccine is safe during any trimester but should be given as early in the influenza season as possible.

A pregnant woman who has not been vaccinated with Tdap during pregnancy should receive the vaccine immediately postpartum along with family members and close contacts of the infant. In addition, if mom does not have immunity against measles, mumps, and rubella, she should receive the MMR vaccine prior to hospital discharge. If the mother has not been vaccinated against varicella or influenza, vaccination should also be given before going home.
Routine vaccines can be safely given immediately following childbirth and while a woman is breastfeeding.

Immunization and Pregnancy Vaccines Chart can be viewed at:
http://www.cdc.gov/vaccines/pubs/downloads/f_preg_chart.pdf

LAIV Influenza Nasal Spray Vaccine Update

Cortnee Hancock, RN; Chief Nurse Consultant

The Advisory Committee on Immunization Practices (ACIP) voted in June to recommend that LAIV (commonly known as nasal spray flu or FluMist™) should not be used in any setting during the 2016-2017 Influenza Season. ACIP still recommends the annual influenza vaccination with either the inactivated influenza vaccine (IIV) or recombinant influenza vaccine (RIV) for everyone six months and older. Vaccine supply is still anticipated to be adequate, even with the changes made to the recommendations. The Immunization Division has released the Influenza Order Form. If you have not received this form, please let us know. Please contact immunization staff with any questions or concerns you may have.

FDA Approves Plans for First Human Zika Vaccine Trial

Cortnee Hancock, RN; Chief Nurse Consultant

The Center for Infectious Disease and Research Policy recently released an article discussing the plans for the first human Zika vaccine trial. Inovio Pharmaceuticals announced that that the Food and Drug Administration (FDA) gave them clearance to begin a phase 1 trial of a DNA-based vaccine they are developing with GeneOne Life Science. A trial beginning this early was unexpected, as a previous timeline showed that they expected the first trials to gain FDA approval at the end of 2016.

Inovio stated in a press release that they would be vaccinating 40 healthy subjects in the open-label dose-ranging study with an intradermal product. Participants are expected to receive their first vaccinations soon, and results from this first phase of trials are expected later in 2016.

The company reported encouraging outcomes in mice, and also in a trial with monkeys. The vaccinated monkeys showed a strong antibody and T-cell response.

Inovio isn't the only company in the Zika vaccine journey. Another DNA-based Zika vaccine developed by the National Institute of Allergy and Infectious Diseases (NIAID) is expecting to start a trial as soon as this month. This trial was expected to begin in September.

A target product profile (TPP) of Zika vaccine is being created to aid in the development of the vaccine. The World Health Organization (WHO) said that a final TPP is expected for release soon, and a consultation to examine regulatory issues expected to affect Zika vaccine use has already taken place.

Experts have estimated that a Zika vaccine might be available for emergency use only, especially for women of child-bearing age within the next three to five years.

For more information about the progress of these Zika vaccines please utilize the following links:

http://ir.inovio.com/news/news-releases/default.aspx

https://www.niaid.nih.gov/news/newsreleases/2016/Pages/Zika-vax-mice.aspx

http://www.who.int/mediacentre/factsheets/zika/en/

About The VacZine

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