EPIC® Educating Physicians in their Communities INSIDER

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Mark Your Calendars:

CDC Netconference
July 25, 2013
12pm—1pm
Moderator: Andrew Kroger, MD
Topic: TBA

CHOP Vaccine Education Center Webinars
September 11, 2013
http://vaccine.chop.edu/webinars

20th Annual Immunize Georgia Conference
September 12, 2013
Callaway Gardens, Pine Mountain, GA

Religious Exemptions for Immunization and Risk of Pertussis in New York State, 2000-2011
Pediatrics (06/13) Halsey, Neal A.; Easton, Delia E.; Shaw, Jana; et al.

Religious vaccination exemptions and the risk of pertussis in New York State is the subject of a new study. The overall annual state mean prevalence of religious exemptions for vaccines increased significantly, from 0.23 percent in 2000 to 0.45 percent in 2011. The prevalence of religious exemptions varied among counties. Those with higher exemption rates had higher rates of reported pertussis among exempted and vaccinated children when compared with the low-exemption counties. According to the authors, more research is needed to understand the differences in the process of obtaining exemptions at schools as well as the risks to the community of individuals who opt out of recommended vaccinations.

Study Finds Shingles Vaccine Effective, But Uptake Remains Low
AAFP News Now (06/11/13)

A new study indicates that although the herpes zoster vaccine is effective at preventing shingles and related complications, many people have not received the vaccine. The study involved more than 765,000 randomly selected Medicare beneficiaries ages 65 and older between 2007 and 2009 and found that vaccine uptake was only 3.9 percent. In addition, the shingles incidence rate was 5.4 per 1,000 person-years among those who had been vaccinated, compared to 10 per 1,000 person-years among unvaccinated individuals, for an overall vaccine effectiveness level of 48 percent. While the vaccine only had 37 percent effectiveness against incident herpes zoster among those with compromised immune systems, its effectiveness against postherpetic neuralgia was 59 percent. "Despite strong evidence supporting (the vaccine's) effectiveness, clinical use remains disappointingly low, with particularly low vaccination rates in particular patient groups," the authors wrote in PLoS Medicine. "This study shows that herpes zoster vaccination is associated with a reduction in PHN in routine clinical use. As PHN is the major complication of herpes zoster and is associated with highly significant morbidity and adverse impacts on quality of life, substantial efforts are needed to increase vaccine use in routine care of elderly individuals."

SHANRITA MCCLAIN
EPIC PROGRAM COORDINATOR
404-881-5054
smcclain@gaaap.org

SANDRA YARN, RN, BSN, CHES
EPIC PROGRAM DIRECTOR
404-881-5081
syarn@gaaap.org

ACOG publishes updated committee opinion regarding vaccinating pregnant women with Tdap vaccine

The American College of Obstetricians and Gynecologists (ACOG) recently published Update on Immunization and Pregnancy: Tetanus, Diphtheria, and Pertussis Vaccination. Developed by ACOG's Committee on Obstetric Practice, the updated opinion replaces an opinion on the same topic, which ACOG issued in 2012. The abstract of the June 2013 opinion is reprinted below.

In the face of dramatic and persistent increases in pertussis disease in the United States, the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices has updated its guidelines for the use of the tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine (Tdap) for pregnant women. The new guidance was issued based on an imperative to minimize the significant burden of pertussis disease in vulnerable newborns, the reassuring safety data on the use of Tdap in adults, and the evolving immunogenicity data that demonstrate considerable waning of immunity after immunization. The revised Advisory Committee on Immunization Practices guidelines recommend that health care personnel administer a dose of Tdap during each pregnancy, irrespective of the patient's prior history of receiving Tdap. To maximize the maternal antibody response and passive antibody transfer and levels in the newborn, optimal timing for Tdap administration is between 27 weeks and 36 weeks of gestation, although Tdap may be given at any time during pregnancy. However, there may be compelling reasons to vaccinate earlier in pregnancy. There is no evidence of adverse fetal effects from vaccinating pregnant women with an inactivated virus or bacterial vaccines or toxoids, and a growing body of robust data demonstrates safety of such use. For women who previously have not received Tdap, if Tdap was not administered during pregnancy it should be administered immediately postpartum to the mother in order to reduce the risk of transmission to the newborn. Additionally, other family members and planned direct caregivers also should receive Tdap as previously recommended (sustained efforts at cocooning). Given the rapid evolution of data surrounding this topic, immunization guidelines are likely to change over time and the American College of Obstetricians and Gynecologists will continue to issue updates accordingly.

Whooping Cough Can Be Deadly for Infants, But 61 Percent of Adults Don't Know Their Vaccine Status

University of Michigan Health System (06/17/13)

Cases of pertussis in the United States have reached their highest level in 50 years, and a new University of Michigan poll shows that 61 percent of adults do not know when they were last vaccinated against the potentially deadly disease. This lack of vaccination could expose vulnerable babies to the disease. The majority of deaths from pertussis occur in children under three months of age, as the disease can spread quickly through households, daycare facilities, and schools. The poll found that only 20 percent of adults said they received the pertussis vaccine less than 10 years ago, and 19 percent reported being vaccinated more than 10 years ago. Pertussis vaccines (the Tdap vaccine) are recommended for teens and adults, including pregnant women, and increasing adult immunity against pertussis also can help shield newborns against it. Expectant parents are advised to talk to their families and close friends about pertussis vaccination before they can visit the new baby.

FDA Approves New Quadrivalent Influenza Vaccine
(Red Book Online)

A new quadrivalent flu vaccine, approved for use in children 6 months of age and older, was approved by the Food and Drug Administration (FDA) and will be available for distribution during the 2013-2014 influenza season.

Fluzone Quadrivalent (Sanofi Pasteur) will be distributed in pre-filled, single-dose syringes (0.25 mL) for children 6 months through 35 months of age; prefilled single-dose syringes (0.5 mL) for children 36 months of age and older; and single-dose vials (0.5 mL) for children 36 months of age and older.

Fluzone Quadrivalent is now the second four-strain seasonal flu vaccine on the market. Last December, the FDA approved Fluarix Quadrivalent (GlaxoSmithKline Plc), which was approved for use in children 3 years of age and older. It will also be available for use during the upcoming flu season.

The Centers for Disease Control and Prevention and the AAP recommend that children 6 months of age and older receive flu vaccine annually. See the full article in AAP News.

ACIP recommends Flublok flu vaccine for adults with egg allergies
Published on June 25, 2013 by Bryan Cohen
Vaccine News Daily

Protein Sciences Corporation, a vaccine development company, announced on Friday that the Advisory Committee on Immunization Practices passed a measure to recommend the use of Flublok influenza vaccine for adults with an egg allergy.

The Meriden, Conn.-based Protein Sciences said the unanimous 13-0 vote to recommend the vaccine for adults between the ages of 18 and 49 showed unprecedented support by the ACIP. The advisory committee advises the U.S. Centers for Disease Control and Prevention.

Protein Sciences does not use eggs in any part of the manufacturing process for Flublok.
"We are grateful to receive ACIP's unanimous support," Manon Cox, the president and CEO of Protein Sciences, said. "It is wonderful that we are able provide a solution to those egg allergic individuals who have never felt comfortable getting a flu vaccine."
On January 16, the U.S. Food and Drug Administration approved Flublok, a recombinant protein-based vaccine for the prevention of seasonal influenza disease. The vaccine employs modern cell culture technology and does not contain any preservatives, latex or egg proteins. Flublok also contains three times the active ingredient of traditional flu vaccines.

The ACIP is composed of 15 experts selected by the Secretary of the U.S. Department of Health and Human Services. The committee develops recommendations on how to use vaccines for disease control in the U.S.

Flu Vaccines Aimed at Younger Populations Could Break Annual Transmission Cycle
Science Daily (06/11/2013)

A study published in the journal Vaccine indicates that programs that increase flu vaccination among school-age children and young adults--who account for a large part of flu transmission--would have a bigger payoff than historic vaccine programs targeting the elderly and other groups at high risk of death and serious complications. According to Jan Medlock of the Department of Biomedical Sciences in Oregon State University's College of Veterinary Medicine, one of the study's co-authors, "That approach could really limit the cycle of transmission, preventing a great deal of illness while also reducing the number of deaths among high risk groups. ... Our new analysis suggests we should reconsider our priorities for vaccination." Although there is a reluctance to add more vaccines to those mandated for school-age children, the researchers determined that targeting children, young adults, and high-risk individuals for flu vaccination would reduce flu-related deaths by 25 to 100 percent.

Federal Officials Weigh H7N9 Vaccine Options
CIDRAP (06/11/13) Schnirring, Lisa

Federal health officials are considering whether to stockpile a vaccine against the H7N9 flu virus, as vaccine companies ramp up production of the vaccine for clinical trials scheduled to commence in August. Dr. Robin Robinson, director of the U.S. Department of Health and Human Services' Biomedical Advanced Research and Development Authority, told the National Vaccine Advisory Committee that an assessment tool has been used over the last four years to gauge the risks of novel flu viruses and determine whether vaccines and other preparedness activities are warranted. He said a large-scale vaccination campaign would be considered for H7N9 if human-to-human transmission occurs. Nine seed strains of H7N9 have been developed, mainly using reverse genetics, with Robinson noting that traditional egg-based production methods have resulted in disappointing yields of antigen, just like with the 2009 H1N1 vaccine. However, he says vaccine developers have two new platforms for the H7N9 trials, cell-based and recombinant. Robinson cautions that H7 vaccines have not produced strong results so far.

Be Ready to Answer Travelers' Questions about Novel Viruses
(Redbook Online)

Families planning international travel this summer may not only seek guidance regarding immunizations and malaria prophylaxis, they may also have concerns regarding human infections with novel viruses. Pediatric health care professionals should be prepared to answer questions about emerging infections.

Two new viruses were recently identified as causes of human infection: avian influenza H7N9 in China and Middle East Respiratory Syndrome Coronavirus (MERS-CoV) in the Arabian Peninsula. To date, neither virus has been detected in the United States. The emergence of these two viruses and the eventual impact on human health is unknown, although some data are available.

Both of these emerging viruses are thought to be zoonotic, with poultry being one possible reservoir for H7N9 and bats suggested as a possible reservoir for MERS-CoV. However, the definitive animal source of human infection has not been identified for either virus. The majority of reported infections with both H7N9 and MERS-CoV have been in adults, though children have been infected with both viruses. See the full article in *AAP News*.

Rotavirus vaccines deliver powerful public health impacts in the United States
Benefits of vaccination extend beyond infants and young children
PATH RotaFlash

PATH collaborates on rotavirus vaccine activities with the CDC, WHO, UNICEF, vaccine manufacturers, and countries around the world

Mounting scientific evidence demonstrates that widespread pediatric vaccination against rotavirus in the United States has resulted in significant, positive, public health gains.

Rotavirus vaccination program in the U.S. yields fantastic health returns

From major reductions in emergency room visits and hospitalizations for rotavirus diarrhea to substantial declines in rotavirus activity, three recent scientific studies from the U.S. Centers for Disease Control and Prevention demonstrate the powerful and real-world effectiveness of rotavirus vaccination:

"Effectiveness of Pentavalent and Monovalent Rotavirus Vaccines in Concurrent Use Among US Children <5 Years of Age, 2009-2011" showed that both RotaTeq® and Rotarix® are very effective in protecting U.S. children against severe rotavirus diarrhea. RotaTeq® and Rotarix® reduced rotavirus-associated emergency room visits and hospitalizations by 84% (95%CI 78%-88%) and 70% (95% CI 39%-86%) respectively. In addition, both vaccines continued to be effective against rotavirus disease through the first two years of life when children are most at risk from dying from the deadly dehydrating diarrhea caused by rotavirus.

Trends in National Rotavirus Activity before and After Introduction of Rotavirus Vaccine into the National Immunization Program in the United States, 2000-2012 found substantial and sustained declines in rotavirus cases during the five post-vaccine introduction seasons from 2007-2012. The reduction during the 2011-2012 season was so pronounced that there were not enough rotavirus cases in the North or South regions of the U.S. to signify the start of the rotavirus season.

Norovirus and Medically Attended Gastroenteritis in U.S. Children confirmed that there has been a major decrease in medical visits for rotavirus-related illnesses since the introduction of rotavirus vaccines. Norovirus has replaced rotavirus as the leading cause of acute gastroenteritis in U.S. children and was detected in 21 percent of the acute gastroenteritis cases studied as compared with rotavirus, which was identified in 12 percent of the cases studied.

Rotavirus vaccination of infants may also protect adults

Earlier this year, researchers in Chicago, Illinois found that the prevalence of rotavirus in U.S. adults during the peak rotavirus season declined by almost 50 percent during 2008-2010 compared with 2006-2007, the period immediately before the rotavirus vaccination was introduced in the national immunization schedule of the U.S. This dramatic decline in rotavirus prevalence in adults coincides with similar declines in older, unvaccinated children that were observed following widespread pediatric rotavirus vaccination in the U.S. These significant reductions in the presence of rotavirus suggest the benefits of rotavirus vaccines extend beyond infants and provide indirect protection to unvaccinated adults and children by reducing transmission of the virus (an effect called "herd immunity").

HPV vaccine effective at reducing infection rates among teen girls
Published on June 21, 2013 by Bryan Cohen
Vaccine News Daily

HPV
The human papillomavirus vaccine is significantly reducing vaccine-type HPV among U.S. teens, according to a recent study, the U.S. Centers for Disease Control and Prevention announced on Wednesday.

The study, which was published in *The Journal of Infectious Diseases*, found that since the HPV vaccine was introduced in 2006, vaccine-type HPV prevalence dropped 56 percent among female teenagers between the ages of 14 and 19. According to the CDC, approximately 19,000 cancers caused by HPV occur in women annually in the U.S. Cervical cancer is the most common cancer caused by HPV.

Approximately 14 million people become newly infected each year with HPV in the U.S..
"This report shows that HPV vaccine works well, and the report should be a wake-up call to our nation to protect the next generation by increasing HPV vaccination rates," Tom Frieden, the CDC's director, said. "Unfortunately only one third of girls aged 13-17 have been fully vaccinated with HPV vaccine. Countries such as Rwanda have vaccinated more than 80 percent of their teen girls. Our low vaccination rates represent 50,000 preventable tragedies – 50,000 girls alive today will develop cervical cancer over their lifetime that would have been prevented if we reach 80 percent vaccination rates. For every year we delay in doing so, another 4,400 girls will develop cervical cancer in their lifetimes."

Lauri Markowitz and her colleagues at the CDC used data from the National Health and Nutrition Examination Survey to compare the prevalence of girls and women aged 14 to 59 years with certain types of HPV before and after the HPV vaccination program. The study showed the HPV vaccine is highly effective.

"The decline in vaccine type prevalence is higher than expected and could be due to factors such as to herd immunity, high effectiveness with less than a complete three-dose series and/or changes in sexual behavior we could not measure," Markowitz said. "This decline is encouraging, given the substantial health and economic burden of HPV-associated disease."

While the CDC recommends routine HPV vaccination at age 11 and 12 for both boys and girls, approximately half of girls in the U.S. and far fewer boys get the first dose of the HPV vaccine.

IAC Express June 12, 2013
Ask The Experts

Q: The recently updated ACIP recommendations, *Prevention and Control of Meningococcal Disease*, advise using MCV4 in certain adults older than age 55. Please give me more details.

A: Previously, ACIP recommended only the quadrivalent meningococcal polysaccharide vaccine (MPSV4, Menomune, sanofi pasteur) for use in adults age 56 years and older. The newest recommendations, published on March 22, 2013, call for use of quadrivalent meningococcal conjugate vaccine (MCV4: Menactra, sanofi pasteur; Menveo, Novartis) in adults age 56 years and older who (1) were vaccinated previously with MCV4 and now need revaccination or (2) are recommended to receive multiple doses (e.g., adults with asplenia, microbiologists working with *Neisseria meningitidis*). Both MCV4 vaccine products are licensed for use in people through age 55 years, which means that the use of these vaccines in people age 56 and older is off-label but ACIP-recommended.

Q: Some women have closely spaced pregnancies. Should we give Tdap during each pregnancy, even if it means such women would get 2 doses within 12 months?

A: Yes. ACIP looked into this issue and included related information in its recommendations published in *MMWR* on February 22, 2013 (pages 131–135). ACIP reviewed available data on birth statistics and discovered that among U.S. women who have more than one pregnancy, a very small percentage (2.5%) have an interval of 12 months or less between births. The majority of women who have two pregnancies have an interval of 13 months or more between births. Approximately 5% of women have four or more babies. ACIP concluded that (1) the interval between subsequent pregnancies is likely to be longer than is the persistence of maternal anti-pertussis antibodies, (2) most women would receive only 2 doses of Tdap, and (3) a small proportion of women would receive 4 or more doses.

A theoretical risk exists for severe local reactions (e.g., arthus reactions, whole limb swelling) for pregnant women who have multiple, closely spaced pregnancies. However, the frequency of side effects depends on the vaccine's antigen content and product formulation, as well as on preexisting maternal antibody levels related to the interval since the last dose and the number of doses received. The risk for severe adverse events has likely been reduced with current vaccine formulations (including Tdap), which contain lower doses of tetanus toxoid than did older vaccine formulations. ACIP believes the potential benefit of preventing pertussis morbidity and mortality in infants outweighs the theoretical concerns of possible severe adverse events in mothers.

Q: I work in a family medicine clinic that sees patients (children and adults) who are asplenic. Can we give them Hib vaccine since they are at high risk for *Haemophilus influenzae* type b disease?

A: Yes. In February 2013, ACIP voted to approve updated recommendations for the use of Hib vaccine in people with asplenia. The recommendations are to give 1 dose of Hib vaccine to asplenic patients age 5 years and older (including adults) if they have no history of receiving the vaccine. In addition, patients age 15 months and older (including adults) who are undergoing elective splenectomy should receive 1 dose if they have no history of receiving the vaccine. Ideally, administer the dose a minimum of 14 days before surgery. If the dose is not given before surgery, administer it after the procedure as soon as the patient's condition is stable. If the splenectomy was performed in the past, and there is no history of Hib vaccination, the vaccine should be given at the next clinic visit.