The ITAT sharp shooter

Fall 2009

The newsletter of the Immunization Technical Assistance Team (ITAT), a partnership of leaders from various organizations who are dedicated to improving and maintaining maximum immunization rates utilizing practice-based interventions.

Influenza Update

By Margaret Huffman, ND, RN, Immunization Provider Services Program Manager--CDPHE

Influenza is a highly infectious viral illness. It is a single-stranded RNA virus, in the family Orthomyxoviridae, with three types (A, B, and C). Subtypes of type A are determined by hemagglutinin and neuraminidase. The structure of hemagglutinin (H) and neuraminidase (N) periodically change. When the change is a "drift," it is a minor change that may result in an epidemic. When the change is a "shift," it is a major change, with a subsequent new subtype, and exchange of gene segment. This type of change, or shift, may result in a pandemic.

What we are experiencing at this point, is a novel H1N1 influenza virus. Seasonal influenza typically circulates in late winter and early spring, and is not associated with the current World Health Organization-declared pandemic influenza, known as the 2009 H1N1 influenza.

Influenza type A results in potentially severe illness, and can be rapidly changing. This is the type that may cause epidemics and pandemics. Type B usually is less severe, though epidemics have resulted from this type. It is genetically more stable than type A. Type C is rarely reported in humans, and there have been no epidemics noted from this type.

Annual influenza vaccinations are the consequence of strain drift. Contrary to other vaccines, influenza vaccines can produce immunity only for a limited duration of time. If the strain drift is considered significant, vaccine composition is changed.

It is important to remember influenza pathogenesis: there is respiratory transmission of the virus, and the virus is replicated in the respiratory epithelium with subsequent destruction of cells. Viral shedding in the respiratory secretions lasts for 5-10 days. Complications of influenza include pneumonia, both of a primary influenza infection, or from secondary bacterial infections. Other complications include Reye's syndrome and myocarditis, and death may occur in 0.5-1 in 1000 cases.

Seasonal influenza is responsible for approximately 36,000 deaths in the United States each season. Influenza takes a high annual toll in the United States with resulting 25 million physician visits, more than 200,000 hospitalizations, and $3-$5 billion in direct medical costs. These are important figures to remember when considering that influenza is a vaccine-preventable disease.

*See **INFLUENZA** on page 2*

INFLUENZA *from page 1*

Intervention is centered on prevention and treatment. Prevention is based on good hygiene, education about the virus, and vaccination

There are two options for vaccination: Trivalent inactivated vaccine (TIV) delivered by intramuscular injection, and Live-attenuated influenza vaccine (LAIV) delivered by intranasal administration. Treatment is based on education regarding signs and symptoms, and on pharmocotherapy. There recently has been evidence of resistance among the traditional antiviral medications of amantadine and rimantadine; these two are no longer considered to be front-line treatments. The antiviral medications of "Tamiflu" and "Relenza" now are considered to be the first treatment for influenza illness and/or direct exposure.

Influenza vaccine is 70 to 90 percent effective in the population younger than 65. It is 30 to 40 percent effective among frail, elderly populations. Vaccine is 50 to 60 percent effective in preventing hospitalization, and 80 percent effective in preventing death. These figures are important to remember when considering the people healthcare workers come in contact with. This is worth considering, as elderly patients may experience half the efficacy from the vaccine as the younger healthcare worker who is caring for them. Healthcare workers have a responsibility to protect patients as well as themselves from this vaccine-preventable disease and its possible subsequent health concerns.

Prevention is the key in reduction of influenza infections. Avoid close contact with people who are sick. **Stay home from work or school if you are sick!** Cover your mouth and nose with a tissue when coughing or sneezing or cough or sneeze into your sleeve, and not your hands. Wash your hands often, and avoid touching your eyes, nose, and mouth. Above all, **this year, get your seasonal influenza vaccination, and get your 2009 H1N1 influenza vaccination when it is available.**

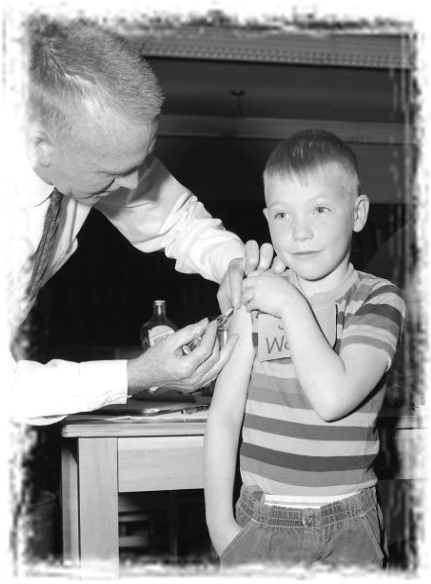
Colorado VFC
VACCINES FOR CHILDREN

The VFC program is a federally funded and state-operated vaccine supply program that provides vaccines for eligible children without cost to the provider.

For more information, please call Nicole Ortiz (303) 692-2334 at the Colorado Department of Public Health and Environment.

Article Review: Vaccine Refusal, Mandatory Immunization, and the Risk of Vaccine-Preventable Diseases. New Engl J Med 2009;360:1981–8.

By Robert Brayden, MD, Professor of Pediatrics, University of Colorado School of Medicine



Immunization requirements for school entry have contributed to high coverage rates against vaccine-preventable diseases for many years. In recent years, there have been concerns that the success of vaccines has, in some ways, become the very cause of loss of confidence in the safety of vaccines. The paradox is that vaccine-preventable diseases are no longer seen. And thus concern is allowed to shift to the safety of vaccines. The risk of vaccines is not supported by a credible body of scientific evidence; however, the rate of non-medical exemptions has increased.

The first school vaccination law required students to be vaccinated against smallpox in Massachusetts schools. This law was passed clear back in 1809. The effect of the law was that smallpox vaccination increased and the wild-type disease decreased. Vaccination against smallpox became a contentious issue in the 1870s, and as a result, smallpox made a resurgence.

In the early 20th century in two cases, the Supreme Court found school entry requirements to be constitutional.

All states allow medical exemptions, 48 states allow religious exemptions, and 21 states allow philosophical exemptions (Colorado is one of those states). Rates of refusal are highest in those states that allow philosophical exemptions (2.5 percent). Vaccination rates in states with only medical exemptions remain about 1 percent. Geographic heterogeneity exists in the distribution of exemptions.

Clustering of vaccine refusers has been found especially in Washington state with refusal rates as high as 26 percent. Researchers have found both measles and pertussis to be more common among children who have been undervaccinated or unvaccinated. Sixty-three of 64 cases of measles in early 2008 were either in people choosing not to be vaccinated or without records that could be identified. Unvaccinated children (total refusers) were more likely to have parents with a higher income than vaccinated children. Under-vaccinated children were more likely to have parents with a lower income than vaccinated children. Parents of both un- and under-vaccinated children are more likely to believe that children receive too many vaccines (Arch Pediatr Adolesc Med 2004;158:569 – 75).

Providers' opinions make a difference. In general, provider perception about vaccines is positive; however, if a child is unvaccinated, his or her provider is less likely to have confidence in vaccine safety and less likely to perceive vaccines as benefiting individuals and communities.

In summary, school immunization laws and regulations have had a dramatic and beneficial effect on reducing vaccine-preventable disease.

DTaP, DT, Td, and Tdap Vaccines: What's the Difference? Why Is It Important?

By Rosemary Spence, RN MA; Adult/Adolescent Immunization Coordinator/Colorado Immunization Program

Are you confused about the differences among DTaP, DT, Td, and Tdap vaccines? You're not alone. The Colorado Immunization Program has received calls from providers that have incorrectly administered these vaccines due to confusion about age indications for usage.

There are two basic products, DTaP and DT, that can be used for children 6 weeks through 6 years of age, and two products, Td and Tdap, that can be used for children over 6 years and adults. DTaP and DT usually have three to five times as much diphtheria component as Td and Tdap. This is indicated by an upper-case "D" for DTaP and DT and a lower case "d" for Td and Tdap. The amount of tetanus toxoid in each of the products is equivalent, so it remains an upper-case "T." Tdap contains lower amounts of some pertussis antigens compared with DTaP.

DTaP (Diphtheria and Tetanus Toxoids and Acellular Pertussis) Vaccine

DTaP is the vaccine of choice for children 6 weeks through 6 years of age. **DTaP is not licensed for use in anyone 7 years of age or older.**

Routine DTaP Immunization Schedule

Dose	*Recommended Age*
Primary 1	2 months
Primary 2	4 months
Primary 3	6 months
Primary 4	15-18 months
Dose 5 (Booster) *	4-6 years

*The booster dose is not necessary (but may be given) if the fourth dose in the primary series was given on or after the 4th birthday.

DT (Diphtheria and Tetanus Toxoids) Vaccine

DT should be used only if a child 6 weeks through 6 years of age has a valid contraindication to pertussis vaccine. **DT is not licensed for use in anyone seven years of age or older.** The number of doses of DT needed to complete the series depends on the child's age at the first dose. If the child was younger than 12 months old when the first dose of DT was administered (as DTP, DTaP, or DT), the child should receive a total of four primary DT doses. If the child was 12 months of age or older when the first dose of DT was administered, three doses (third dose 6-12 months after the second) complete the primary series. A booster dose of DT should be given at 4 to 6 years of age but is not necessary if the child received the fourth dose on or after the 4th birthday.

Td (Tetanus and Diphtheria Toxoids) Vaccine

Td is the vaccine of choice for children 7 years through 9 years of age who may be behind with immunizations. **Td is not licensed for use in anyone six years of age or younger.** A booster dose of Td should be given routinely to adults every 10 years, with one exception. **One** of the Td boosters should be replaced with Tdap vaccine.

*See **DTaP** on page 5*

DTaP *from page 4*

Tdap (Tetanus and Diphtheria Toxoids and Acellular Pertussis) Vaccines

There are two brands of Tdap vaccine. Boostrix™ is manufactured by GlaxoSmithKline and is approved for persons 10 years through 64 years of age. ADACEL™ is manufactured by Sanofi Pasteur and is approved for people 11 years through 64 years of age. ***Tdap is not licensed for use in anyone 9 years of age or younger, and Boostrix™ is the only Tdap licensed for use in 10-year-olds.***

How to Avoid Incorrectly Administering DTaP, DT, Td, Tdap

The following can reduce the risk of vaccine administration errors:

- Separate stock of the different formulations and place alerts (e.g., "For Use in 7- to 9- Year-Olds", etc.) on the products
- Post the "Check Your Vials: Is It Tdap, DTaP, or Td" poster on your vaccine refrigerator and in clinic exam rooms. The poster was developed by the Immunization Branch of the California Department of Health and is available at: http://www.doh.wa.gov/cfh/immunize/documents/checkyourvials.pdf
- Make sure the products are described as clearly as possible in computer databases to avoid order-entry errors.
- Write both the brand and generic names, along with indication, when ordering vaccines for administration.
- Check, and double-check, the vaccine vial to ensure you have the correct vaccine before administering
- Verify the age of the patient prior to administering vaccine.
- Conduct quality assurance reviews of vaccine administration records in your clinic to ensure staff is correctly administering vaccine

Follow-up When DTaP, DT, Td, or Tdap Is Incorrectly Administered

The Advisory Committee on Immunization Practices (ACIP) provided guidance about the inadvertent incorrect administration of Tdap and pediatric DTaP in the **MMWR Recommendations and Reports March 24, 2006/55 (RR03); 1-34**. The information is summarized below and is available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5503a1.htm?s_cid=rr5503a1_e

Guidance on the best approach to immunization following inadvertent incorrect administration of Tdap or pediatric DTaP is based primarily on expert opinion. The family should be informed of any inadvertent incorrect vaccine administration. Vaccine administration errors should be reported to the Institute for Safe Medication Practices on-line reporting system at https://www.ismp.org/orderforms/reporterrortoismp.asp
Adverse events associated with inadvertent vaccine administration should be reported to the Vaccine Adverse Event Reporting System (VAERS). Cinda Ewing, RN, is the Colorado Immunization Program's VAERS contact, and she can be reached at 1-866-896-1586.

If Tdap is inadvertently administered instead of pediatric DTaP to a child younger than 7 years as any one of the first three doses of the tetanus-diphtheria-pertussis immunization series, the Tdap dose should not be counted as valid, and a replacement dose of pediatric DTaP should be administered. If the inadvertent administration is discovered while the child is in the office, the pediatric DTaP can be administered during the same visit. If the child has left the office, some experts suggest administering the replacement dose of pediatric DTaP within approximately 72 hours, or administering it four weeks later to optimize the child's immune response to the antigens in pediatric DTaP.

See ***DTaP*** *on page 6*

***DTaP** from page 5*

This practice helps ensure that the child stays on the primary series schedule and has adequate protection against diphtheria and pertussis. However, the replacement dose of pediatric DTaP can be administered as soon as feasible at any interval after the inadvertent Tdap dose. The remaining doses of the pediatric DTaP series should be administered on the routine schedule, with at least a four-week interval between the replacement dose of pediatric DTaP and the next dose of pediatric DTaP.

If Tdap is inadvertently administered as the fourth or the fifth dose in the tetanus-diphtheria-pertussis vaccination series to a child younger than 7 years, the Tdap dose should be counted as valid and does not need to be repeated. The child who received Tdap as a fourth dose should complete the pediatric DTaP schedule. The routine adolescent Tdap vaccination recommendations would apply when this child becomes an adolescent. For example, a child who inadvertently receives Tdap at age 5 years instead of the fifth dose of pediatric DTaP should receive a second dose of Tdap at age 11 to 12 years.

If Tdap or pediatric DTaP is inadvertently administered to a child aged 7 to 9 instead of Td as part of catch-up vaccination or for wound management, this dose can be counted as the adolescent Tdap dose, or the child can later receive an adolescent booster dose of Tdap according to the interval guidance used for Td to Tdap

If pediatric DTaP is inadvertently administered to an adolescent aged 11 to18, the dose should be counted as the adolescent Tdap booster. The adolescent should receive the next dose of a vaccine containing tetanus and diphtheria toxoids 10 years after the inadvertent pediatric DTaP dose.To err may be human, but to avoid an error is divine! **For questions or additional information, contact Rosemary Spence at 303-692-2798 or rosemary.spence@state.co.us.**

References

Epidemiology and Prevention of Vaccine-Preventable Diseases, 11th Edition, May 2009, Centers for Disease Control and Prevention

MMWR Recommendations and Reports March 24, 2006/55 (RR03); 1-34

Daptacel (DTaP) and Adacel (Tdap) Administration Errors. February 2, 2007, University Health Care Hospitals and Clinics, Drug Information Service, Alerts, University of Utah Hospitals and Clinics, Salt Lake City, UT

ADACEL (Tdap) and DAPTACEL (DTaP) Confusion, August 24, 2006, Institute of Safe Medication Practices, Horsham, PA

Ask the Experts: Diphtheria, Tetanus, Pertussis. Immunization Action Coalition, Saint Paul, MN

SAVE THE DATE!

Epidemiology and Prevention of Vaccine-Preventable Diseases Course Presented by CDC Staff in Person!

Mark your calendars for November 16 & 17, 2009

This live 2-day course provides a comprehensive review of immunization, vaccine-preventable diseases and their respective vaccines.

TARGET AUDIENCE: Physicians, nurses, nursing students, medical assistants, pharmacists, immunization program managers, health educators, and other health professionals who provide immunizations.

Additional information is available at: www.cdphe.state.co.us/dc/immunization

ASK THE EXPERTS

The column in The ITAT Sharp Shooter *newsletter that allows you to get your questions answered by the professionals. We hope its content will be both informative and helpful.*

Q: ***When will vaccine for the 2009 H1N1 influenza virus be available?***

A: CDC estimates that approximately 45 million doses of H1N1 influenza vaccine will be available in mid-October. Approximately 20 million additional doses will be released in each subsequent week. Once vaccine is available, vaccination should begin immediately.

Q: ***Is the 2009 H1N1 influenza vaccine experimental?***

A: No. The 2009 H1N1 influenza vaccines are made using the same methods and facilities used annually to produce seasonal influenza vaccine and will be available in an inactivated, injectable form and a nasal-spray, live attenuated form. Neither is an experimental vaccine.

Q: ***Once a 2009 H1N1 influenza vaccine becomes available, who will be targeted to receive the vaccine?***

A: The CDC issued recommendations for five initial target groups for H1N1 influenza vaccination. They are (1) pregnant women; (2) people who live with or provide care for infants younger than age 6 months (e.g., parents, siblings, day care providers); (3) healthcare and emergency medical services personnel; (4) children and young adults ages 6 months through 24 years; and (5) people ages 25 through 64 years who have medical conditions that put them at higher risk for influenza-related complications. You can access the complete recommendations at http://www.cdc.gov/mmwr/PDF/rr/rr5810.pdf

Q: ***Why are pregnant women prioritized for vaccination?***

A: Data from early 2009 H1N1 influenza cases in the United States show that pregnant women account for a disproportionate number of deaths, making them a high-priority group for vaccination (see http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)61304-0/abstract). Also, guidance has been issued for clinicians to promptly treat pregnant women who become infected with the 2009 H1N1 virus with antiviral drugs (see http://www.cdc.gov/h1n1flu/clinician_pregnant.htm).

Q: ***Why aren't adults age 65 years and older included as a priority group for the 2009 H1N1 vaccination as they are for seasonal influenza?***

A: Studies indicate that the risk of infection, hospitalization, and death from the 2009 H1N1 influenza virus among persons age 65 years and older is less than is the risk for younger age groups, suggesting that there is some degree of immunity in the older age group to the 2009 H1N1 strains, possibly from previous exposure, either through infection or vaccination, to an influenza A (H1N1) virus. People age 65 years and older are included as a priority group if they live with or care for infants younger than age 6 months or are a healthcare or emergency services provider.

*See **ASK** on page 8*

ASK from page 7

Q: ***Will H1N1 influenza vaccine be available for healthy people age 25 years and older (who are not in targeted groups)?***

A: Once public health authorities at the local level determine that the H1N1 influenza vaccine demand for the five target groups has been met, providers will be notified that they can administer the vaccine to healthy people ages 25 through 64 years. Once demand for that age group is met, vaccination should be expanded to all people age 65 and older.

Q: ***Once H1N1 influenza vaccine becomes available, should we stop administering seasonal influenza vaccine?***

A: No. Providers should start administering seasonal influenza vaccine as soon as it is available and continue to administer it throughout influenza season.

Q: ***In anticipation of H1N1 monovalent vaccine arriving later this fall, CDC recommends that we begin vaccinating with seasonal influenza vaccine now. Does protection from seasonal influenza vaccine decline or wane within 3 or 4 months of vaccination? Should I wait until October or November to vaccinate my elderly or medically frail patients?***

A: CDC recommends that seasonal influenza vaccine be administered to all age groups as soon as it becomes available. Antibody to seasonal inactivated influenza vaccine declines in the months following vaccination. However, antibody level at a point several months after vaccination does not necessarily correlate with clinical vaccine effectiveness. In a recent review on antibody declines among the elderly after vaccination, authors conclude "…we found no compelling evidence for more rapid decline of the influenza vaccine-induced antibody response in the elderly, compared with young adults, or evidence that seroprotection is lost at 4 months if it has been initially achieved after immunization." (see Skowronski et al., Rapid Decline of Influenza Vaccine-Induced Antibody in the Elderly: Is It Real, or Is It Relevant? Journal of Infectious Diseases 2008;197:490-502). In addition, there is a lack of evidence for late season outbreaks among vaccinated persons that can be attributed to waning immunity.

Q: ***Will we be able to administer both the seasonal and H1N1 influenza vaccines at the same visit?***

A: You can in most cases. See the points below.

- You can administer both the inactivated seasonal and the inactivated H1N1 influenza vaccines at the same visit (using separate syringes and sites) or at any time before or after each other.
- You can administer the inactivated seasonal and live H1N1 influenza vaccines together or at any time before or after each other.
- You can administer the live seasonal and inactivated H1N1 influenza vaccines together or at any time before or after each other.
- Administering both the live attenuated seasonal and the live attenuated H1N1 influenza vaccines at the same visit is NOT recommended because of concerns about competition between the two vaccine viruses. If you have only live vaccines for both seasonal and H1N1 influenza available, you should separate the doses of the two live vaccines by at least 4 weeks.

*See **ASK** on page 9*

We are going green!

In an effort to save paper, the *Sharpshooter* Newsletter is now available via email. If you would like to receive your copy of the *Sharpshooter* Newsletter via email, please send a request to ccicoffice@tchden.org .

Thank you!

***ASK** from page 8*

Q: ***Will there be a new Vaccine Information Statement (VIS) for the 2009 H1N1 influenza vaccine or can we use the same VIS issued for seasonal influenza vaccine?***

A: A new VIS was developed that pertains only to the 2009 H1N1 vaccine. You can find it posted at http://www.immunize.org/vis.

Q: ***If a patient has received the seasonal influenza vaccine, do they need to receive the H1N1 influenza vaccine?***

A: Yes. If a patient is in a risk group to receive H1N1 influenza vaccine, they should be vaccinated. Studies suggest that vaccination with season influenza vaccine will not provide protection against the 2009 H1N1 influenza virus.

Coalition Corner

Immunization Coalition of Weld County Activities

Kimberly Koeltzow RN, BSN
Immunization Coordinator
Weld County Department of Public Health and Environment

The Immunization Coalition of Weld County is bustling with activity to promote the improvement of local immunization rates. In 2009, we have continued with our bimonthly meetings and monthly telethon activities, and planning is underway for our second annual educational dinner event. The coalition also is planning for upcoming activities and events to take place in 2010. This year, our coalition updated its mission statement and objectives. Our new mission statement is:

"The goal of the Immunization Coalition of Weld County is to improve the health of the community by increasing county immunization rates across the lifespan."

Coalition meetings are held on the second Monday of the month, every other month, from 12 to 1 p.m. Our meetings consist of planning for coalition activities, hosting guest speakers, and local networking of ideas to improve immunization rates. The Weld County Department of Public Health and Environment is host to monthly telethons on the second Monday of every month from 5 to 7 p.m. Volunteers from local Rotary and Kiwanis clubs make reminder phone calls to parents of children ages 2 months, 4 months, 6 months, 12 months, 15 months, and 2 years to remind them about making appointments for routine immunizations. Parents of newborns in Weld County receive an application to sign up for this service in the materials that are taken home from the hospital. The monthly telethon event has been, and continues to be, successful.

On October 21, 2009, we will have our second annual dinner event at the Greeley Country Club from 5:30 p.m. to 8:00 p.m. We are very excited to announce Dr. Michael J. Smith as our featured speaker for the evening. Dr. Smith is an assistant professor of pediatrics at the University of Louisville, Kentucky. He completed his fellowship in pediatric infectious diseases at the Children's Hospital of Philadelphia, where he developed an interest in vaccine risk communication under the tutelage of Dr. Paul Offit. In addition to his work at the University of Louisville, Dr. Smith is an attending physician at Kosair Children's Hospital, also in Louisville. His research focuses on the epidemiology of vaccine-preventable diseases in the community and the health-care setting.

To register for this event or to attend one of our coalition meetings, please visit the Colorado Children's Immunization Coalition web site at: www.childrensimmunization.org/WeldCountyEvent

Feature Articles

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- **Article Review: Vaccine Refusal**
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- **Ask the Experts: H1N1**
- **Coalition Corner: Weld County**

This Fall edition of *The ITAT Sharp Shooter* also includes important updates and announcements listed throughout.

For questions or information about this *Sharp Shooter* Newsletter and/or the ITAT workgroup, please contact Karen Willeke, Colorado Department of Public Health and Environment Immunization Program at (970) 246-0151 or kwilleke@wildblue.net.

The ITAT sharp shooter

This newsletter should be directed to all staff involved in immunizations including:

___ clerical and billing staff
___RNs
___LPNs
___MAs
___MDs
___PAs
___NPs
___DOs
___Clinical Director or Clinical Manager