Immunization Update

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September 26, 2015

Disclosures

Diane Bezzant Ogborn declares no conflicts of interest, real or apparent, and no financial interests in any company, product, or service mentioned in this program, including grants, employment, gifts, and stock holdings.

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Learning Objectives

• List changes in recommendations made by the Advisory Committee on Immunization Practices (ACIP) in the past year

• Discuss the 2014-2015 flu season and prepare for the 2015-2016 flu season

• Explain procedures to prevent or manage vaccine misadventures, including product waste, adverse events or needle sticks
Learning Objectives

- Describe and practice appropriate immunization delivery technique and documentation
- Promote registering for, reporting of, and accessing immunization information from the Utah Statewide Immunization Information System (USIIS)
- Identify vaccines required for school entry and grade level entry
- Understand APhA recommendations for staying up to date on immunization training

VACCINES IN THE MEDIA

- "Vaccine refusal helped fuel Disneyland measles outbreak, study says", LA Times 5/16/15
- "California Gov. Jerry Brown signs new vaccination law, one of nation’s toughest", LA Times 6/30/15
- "Disneyland measles outbreak spreads", USA Today 1/23/15
- "Flu season could be rough this year", USA Today, 12/4/14
- "CDC: Flu shot less effective this year because current virus has mutated", CNN, 12/30/14
- "CDC: Flu vaccine only 23 percent effective this season, but still better than nothing", Washington Post, 1/15/15

http://www.cdc.gov/flu/weekly/
http://www.disneyland.disney.go.com/
ACIP Meetings - Votes

- August 2014
  - PCV13 for adults 65 and older
- October 2014
  - Updates to general vaccine recommendations
  - 2015 adult and child schedules
- February 2015
  - Use of new meningococcal B vaccines (Bexsero, Trumenba)
  - Updated recommendation for HPV vaccines
  - Recommendations for who should receive flu vaccine in 2015-2016
  - Recommendation for yellow fever vaccine
- June 2015
  - Recommendations for influenza vaccine
  - More specific meningococcal B vaccine recommendation
  - Clarification on PPSV23 and PCV13 intervals
  - More specific HPV vaccine recommendation
  - Remaining updates to general vaccine recommendations

PCV13 (Prevnar)

- Clinical trial with PCV13 (CAPITA) demonstrated
  - 75% reduction in invasive pneumococcal disease (IPD)
  - 45% reduction in vaccine-type non-bacteremic pneumonia (NBP)

- Recommendation will be re-evaluated in 2018 due to expected herd immunity
Pneumococcal Vaccine Algorithm

General Vaccine Recommendations - Updates

- Efforts should be made to vaccinate prior to anesthesia/surgery/hospitalization or before discharge
- Safe injection practices – MDVs shouldn’t be stored in patient treatment areas
- Injecting IM vaccine SC – repeat dose as IM
- PCV13 and PPSV23 should not be given together

Meningococcal Vaccines

- Meningococcal Quadrivalent Conjugate Vaccine (MCV4)
  - Covers serotypes A, C, W & Y
  - Available formulations: Menactra & Menveo

- Meningococcal Quadrivalent Polysaccharide Vaccine (MPSV4)
  - Covers serotypes A, C, W & Y
  - Available formulation: Menomune

Meningococcal Vaccine Recommendations

- All adults with the following risk factors:
  - Anatomical or functional asplenia
  - Microbiologists who are routinely exposed to isolates of Neisseria meningitidis
  - Military recruits
  - Travelers to meningococcal disease epidemic areas
  - First-year college students age 21 and younger who are living in residence halls
Meningococcal B Vaccines

- **Trumenba**
  - FDA approved October 2014
  - 3 dose IM series (0, 2, 6 months)

- **Bexsero**
  - FDA approved January 2015
  - 2 dose IM series (0 and 1 month)

- Both vaccines approved for ages 10-25

MenB ACIP Recommendations

- Persistent complement component deficiencies
- Anatomic or functional asplenia
- Microbiologists routinely exposed to isolates of Neisseria meningitidis
- Persons identified to be at increased risk because of MenB outbreaks

- May be administered to adolescents and young adults 16 through 23 years of age to provide short-term protection against most strains of serogroup B meningococcal disease. The preferred age for MenB vaccination is 16 through 18 years of age.

Human Papilloma Virus (HPV) Vaccines

- **Bivalent**
  - Cervarix
    - Target types 16, 18
    - Females only

- **Quadrivalent**
  - Gardasil
    - Target types 6, 11, 16, 18
    - Males and females

- **9-valent**
  - Gardasil 9
    - Target type 6, 11, 16, 18, 31, 33, 45, 52, 58
    - Males and females

- HPV 16 and 18 cause about 66% of cervical cancers
- HPV 6 and 11 cause anogenital warts
- HPV 31, 33, 45, 52, 58 cause about 14% and 4% of HPV-associated cancers in females and males, respectively
- 3 dose series (0, 1-2 and 6 months)
- Vaccines approved for ages 9 to 26
HPV Vaccine Recommendations

- Adolescents aged 11 to 12 years
- Persons who were not vaccinated previously
  - Females aged 13 to 26 years
  - Males aged 13 to 21 years
  - Males aged 22 to 26 years
    - Men who have sex with men
    - Immunocompromised persons (including HIV)

Bivalent/Quadrivalent vs. 9-Valent

- If a patient started their HPV vaccine series with bivalent (Cervarix) or quadrivalent (Gardasil), you may complete the series with 9-valent (Gardasil 9) following the same schedule (0, 1-2 and 6 months)
- If a patient completed their HPV vaccine series with bivalent or quadrivalent, there is no recommendation to receive doses of 9-valent


FLU SEASON –
A LOOK BACK AND AHEAD
2014-2015 Flu Season

- Moderately severe season, especially severe in adults >65
  - H3N2 antigenic drift caused mismatch

- Live, Attenuated Influenza Vaccine (Flumist)
  - June 2014: Preferential recommendation for children 2-8 to get LAIV
  - October 2014: Conflicting data shared in ACIP meeting regarding effectiveness

2015-2016 Influenza Vaccination Recommendations

- All persons ≥6 months of age should receive a flu vaccine yearly

- Children 6 months to 8 years old may require 2 vaccinations separated by ≥4 weeks

- Vaccinate as soon as influenza vaccine is available and continue vaccinating while influenza viruses are circulating (March/April)

- No preference is given to any of the influenza vaccines
  - Do not wait for a specific vaccine to be in stock if an appropriate vaccine is available

Strains Covered by 2015-16 Influenza Vaccines

- Trivalent
  - A/California/7/2009 (H1N1)-like virus
  - A/Switzerland/9715293/2013 (H3N2)-like virus*
  - B/Phuket/3073/2013-like (Yamagata lineage) virus*

- Quadrivalent
  - B/Brisbane/60/2008-like (Victoria lineage) virus

*Changed viruses when compared to 2014-15 vaccines
Children aged 6 mos to 8 years

Handling Egg Allergies

VACCINE MISADVENTURES
Vaccine Misadventures

- Vaccine administration errors
- Adverse events
- Vaccine waste

Vaccine Errors

- Adverse events due to vaccine administration errors are more common than adverse events from the vaccines themselves
- Involve the patient in the verification process
  - Provide the VIS with adequate time for patient to read through it before administration of the vaccine
  - Discuss vaccines prior to administration to ensure correct vaccine is given

Common Vaccine Errors

- Wrong vaccine: age-specific formulations
  - Verify patient name and date of birth
  - Store age-specific formulations on different shelves or different areas of the refrigerator
  - Label and/or highlight age-specifications on the package
- Wrong vaccine: similar vaccine names
  - Store vaccines with similar names or packaging on different shelves or different areas of the refrigerator
  - Verify any verbal vaccine orders or requests to ensure the correct vaccine is processed and administered
    - Verify with physician (if applicable)
    - Verify with patient at time of request and before administration
Common Vaccine Errors

• Incorrect route or dose
  — Post a simple reference that is easily accessible
• Unsafe vaccine storage
  — Label specific locations in storage units
    • Include reminders to combine diluents where needed
  — Draw up vaccines at the time of administration
  — Monitor temperatures

www.immunize.org/catg.d/p3084.pdf
www.ismp.org

Common Vaccine Errors

• Administration of an expired vaccine
  — Check vaccination expiration dates weekly
  — Remove expired vaccines from storage units with viable vaccine
  — Live, attenuated influenza vaccines have shorter shelf-lives
• Administration of a vaccine outside of ACIP recommendations or vaccine protocol
  — Educate staff on protocol
  — Ensure anything outside of the protocol is only administered with a valid prescription from a physician
  — Document any discussions with the patient and/or provider on current guidelines and recommendations

Adverse Event (AE) Protocol

• Recognizing an adverse event:
  — Localized redness, swelling, bleeding
  — Syncope (fainting)
  — Hives/itching – localized vs. generalized
  — Anaphylaxis – respiratory distress, angioedema, hypotension, abdominal cramping
Adverse Event (AE) Protocol

• Hives/Itching
  – If localized, apply cold compress and monitor for development of more generalized symptoms
  – Consider administering antihistamine
    • Diphenhydramine (po or IM): Standard dose is 1-2 mg/kg, ranging from 25-50 mg

Adverse Event (AE) Protocol

• Anaphylaxis
  1. Immediately send someone to call 911
  2. Help patient lay down and assess airway, breathing, circulation
  3. Begin CPR
  4. Administer 1 dose of epinephrine (administer in arm, 1 inch from vaccination site)
  5. Repeat epinephrine dose every 15 minutes for a total of 3 doses, until EMS arrives

Vaccine Error and AE Reporting

• Vaccine Error Reporting
  – Follow your organization’s policy for reporting medication errors

• Adverse Event Reporting
  – Includes Vaccine Adverse Event Reporting System (VAERS) instructions
  https://vaers.hhs.gov/esub/index
Vaccine Storage

• Refrigeration units (medical grade, not combo)
• Does your thermometer need to be replaced?
• Check temperatures twice daily and act upon out-of-range readings
• Immediate placement of vaccines into fridge/freezer upon receipt of shipments
• Do not draw up doses from multi-dose vials ahead of time

Needle Stick Prevention

• Use devices with safety features; *activate* the safety feature after use
• Do not recap after use in a patient
• Sharps container should be within easy reach BEFORE you need it
• Immediately dispose of the needle after use
• Consider use of needle free technology
• In the event of a needle stick, refer to your organization’s accidental needle stick protocol for instructions

VACCINE ADMINISTRATION TECHNIQUE AND DOCUMENTATION REVIEW
“SIRVA”

- Shoulder injury related to vaccine administration
- Caused by
  - Unintentional injection of vaccine into tissues and structure underlying the deltoid muscle
  - Trauma from the needle into and around the bursa
- Characterized by
  - Severe, persistent shoulder pain
  - Prolonged loss of range of motion
- Symptoms develop within 24-48 hrs of vaccination

Preventing SIRVA

- Give IM injections
  - In the thickest, most central portion of the deltoid
  - At a 90-degree angle to the skin
  - Avoiding the upper 1/3 of the deltoid
- Both vaccinator and patient should be seated
- Choose appropriate needle size
  - 1 inch needle for most patients
  - 1.5 inch needle for men > 260 lbs, women > 200 lbs
  - Consider 5/8 inch needle for men or women < 130 lbs

Documentation

- Patient Name
- Date of Birth (DOB)
- Ask screening questions and document responses
- Use the Sticker
  - Vaccine type
  - Manufacturer
  - Dose
- Site
  - RD, RSC
  - LD, LSC
- Immunizer
- Immunization date
- VIS statement date
- Date scheduled for next shot in series
SCHOOL ENTRY VACCINE REQUIREMENTS

Kindergarten Entry

Immunization Requirements
Kindergarten Entry 2015-2016

To attend kindergarten, a student must have written proof of receiving the following immunizations:

1. DTaP-5Y (a dose of DTaP, if 6th dose given on/after the 4th birthday)
2. Polio (2 doses, if 1st dose was given on/after the 4th birthday)
3. Haemophilus, Meningococcal, Rotavirus
4. Hepatitis A
5. Hepatitis B
6. Varicella (chickenpox) - history of disease is acceptable; a parent must sign the verification statement on the school immunization record


Seventh Grade Entry

Immunization Requirements
7th Grade Entry 2015-2016

To attend the 7th grade, a student must have written proof of receiving the following immunizations:

1. DTaP
2. Haemophilus, Meningococcal, Rotavirus (HMR)
3. Hepatitis A
4. Haemophilus (chickenpox) - history of disease is acceptable; a parent must sign the verification statement on the school immunization record
5. Measles (mumps) (MMR)
6. Polio (2 doses, if 1st dose was given on/after the 4th birthday)
7. Hepatitis A
8. DTaP

UTAH STATEWIDE IMMUNIZATION INFORMATION SYSTEM (USIIS)

USIIS

http://www.usiis.org/index.shtml

Sign Up for Access

- Pharmacists
- Technicians
How to stay current and legal:

**APHA IMMUNIZATION TRAINING CERTIFICATE OF ACHIEVEMENT**

APhA Training

- March 2015 statement that APhA Immunization Training “expired” after 3 years.
- August 2015 wording changed to recommend practitioners:
  - Begin immunizing within 12 months of training
  - Complete an annual immunization update (1-2 hours CPE) that provides updated information regarding ACIP guidelines
  - Maintain current CPR/BCLS certification

Where to go with vaccine questions

- Colleagues
- Advisory Committee on Immunization Practices (ACIP)
  [http://www.cdc.gov/vaccines/acip/](http://www.cdc.gov/vaccines/acip/)
- Immunization Schedules
  [http://www.cdc.gov/vaccines/schedules/index.html](http://www.cdc.gov/vaccines/schedules/index.html)
- Vaccine Information Statements (VIS)
  [http://www.cdc.gov/vaccines/hcp/vis/](http://www.cdc.gov/vaccines/hcp/vis/)
Where to go with vaccine questions

- Package Inserts for individual vaccines
- CDC "Pink Book" Epidemiology and Prevention of Vaccine-Preventable Diseases
- Immunization Action Coalition
  [http://www.immunize.org/pharmacists/](http://www.immunize.org/pharmacists/)
- Utah Immunization Guidebook

QUESTIONS?

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