Immunization Update
VFC Regional Meetings, 2014

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OVERVIEW

• Preschool immunizations

• School requirements, 2014

• Human papillomavirus prevention
Immunization Coverage Levels, 19-35 months olds, Chicago, 2009-12
Summary

- Coverage levels appear to have decreased
  - 2012 survey population more reflective of US population
    - More cell phone-only households

- Coverage for booster doses of DTaP, HiB and PCV are the lowest
Challenges with booster doses

• Lack of parental awareness of need for boosters
• Infrequent healthcare visits at ≥ 1 year of age
• Missed opportunities by clinic staff
# Immunizations for Babies, 2014

<table>
<thead>
<tr>
<th>Age</th>
<th>Immunizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>At birth</td>
<td>HepB</td>
</tr>
<tr>
<td>2 months</td>
<td>HepB + DTaP + PCV13 + Hib + Polio + RV</td>
</tr>
<tr>
<td>4 months</td>
<td>HepB + DTaP + PCV13 + Hib + Polio + RV</td>
</tr>
<tr>
<td>6 months</td>
<td>HepB + DTaP + PCV13 + Hib + Polio + RV + Influenza</td>
</tr>
<tr>
<td>12 months and older</td>
<td>MMR + DTaP + PCV13 + Hib + Chickenpox + HepA + Influenza</td>
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</tbody>
</table>
Effective Interventions

• Reminders for clinic staff
  – Color coded stickers or electronic reminders
• Standing orders for nurses or medical assistants
• Administer all vaccines at each visit
• Use I-CARE to track immunizations
• Send reminders/recalls to patients missing doses
  • I-CARE letters
  • Automated phone calls
Pertussis

HiB periorbital cellulitis

Pneumococcal pneumonia
Does your child meet the new immunization requirements?
Tdap Vaccination Requirement
Illinois, 2014-15

• Students entering 6th through 12th grades
  • Proof of a single dose of Tdap
  • Unvaccinated students can be excluded from school

• Acceptable Documentation
  • Note from HCP with Tdap and date administered
  • EMR print out with Tdap and date administered
  • Current Certificate of Child Health Examination with Tdap and date administered
Varicella Vaccine Requirement, 2014-15

- Students entering K, 6th and 9th grade must show:
  - Proof of having received 2 doses of varicella vaccine
    - 1st dose on or after the first birthday
    - 2nd dose > four weeks after the first dose OR
  - Proof of prior varicella disease
    - Physician diagnosed varicella
    - Healthcare provider interpretation that a description of varicella is indicative of past infection
    - Laboratory evidence of varicella immunity
Meningococcal Conjugate Vaccine Requirement, 2015-16

• Students entering 6th grade will be required to show proof of having received one dose of meningococcal conjugate vaccine

• Students entering 12th grade will be required to show proof of having received two doses of meningococcal conjugate vaccine
  – If 1st dose administered at 16 years or older, second dose not required
# Minimum Immunization Requirements for Those Entering a Child Care Facility or School in Illinois, Fall-2014

<table>
<thead>
<tr>
<th>Vaccine Requirement</th>
<th>Child Care Facility, Preschool, Early Childhood Pre-Kindergarten Programs</th>
<th>Kindergarten through 12th Grade</th>
<th>Other Grades</th>
<th>Minimum Intervals Allowed Between Doses and Other Options for Proof of Immunity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DTaP or Tdap, Td</strong></td>
<td>Three doses by 1 year of age, one additional booster dose by 2nd birthday</td>
<td>Four or more doses of DTaP with the last dose qualifying as a booster and received on or after the 4th birthday</td>
<td>Three or more doses of DTaP or Td with the last dose qualifying as a booster and received on or after the 4th birthday</td>
<td>Between series doses: 4 weeks (28 days) Between series and booster: 6 months</td>
</tr>
<tr>
<td><strong>Polio</strong></td>
<td>Two doses by 1 year of age, one additional booster dose by 2nd birthday</td>
<td>Three or more doses of the same type of Polio vaccine with the last dose qualifying as a booster and received on or after the 4th birthday</td>
<td>Three or more doses of Polio with the last dose qualifying as a booster and received on or after the 4th birthday</td>
<td>Minimum interval between series doses: 4 weeks (28 days)</td>
</tr>
<tr>
<td><strong>Measles</strong></td>
<td>One dose on or after the 1st birthday but prior to 24 months of age</td>
<td>Two doses of Measles Vaccine, the 1st dose must have been received on after the 1st birthday and the second dose no less than 4 weeks (28 days) later.</td>
<td>Laboratory evidence of measles immunity OR Certified physician verification* of measles disease by date of illness *Cases diagnosed after 7/1/02 must include lab evidence</td>
<td></td>
</tr>
<tr>
<td><strong>Rubella</strong></td>
<td>One dose on or after the 1st birthday but prior to 24 months of age</td>
<td>Two doses of Rubella Vaccine, the 1st dose must have been received on after the 1st birthday and the second dose no less than 4 weeks (28 days) later.</td>
<td>Laboratory evidence of rubella immunity History of disease is not acceptable proof of immunity to rubella</td>
<td></td>
</tr>
<tr>
<td><strong>Mumps</strong></td>
<td>One dose on or after the 1st birthday but prior to 24 months of age</td>
<td>Two doses of Mumps Vaccine, the 1st dose must have been received on after the 1st birthday and the second dose no less than 4 weeks (28 days) later.</td>
<td>Laboratory evidence of mumps immunity OR Certified physician verification of mumps disease by date of illness</td>
<td></td>
</tr>
<tr>
<td><strong>Haemophilus influenzae type b</strong></td>
<td>Refer to Hib vaccination schedule for series: Children 24-69 mos without series must have one dose after 15 mos. of age</td>
<td>Not required after the 5th birthday (60 months of age)</td>
<td>Refer to Hib vaccination schedule</td>
<td></td>
</tr>
<tr>
<td><strong>Hepatitis B</strong></td>
<td>Three doses for all children 2 years of age or older</td>
<td>No Requirements</td>
<td>Applies to Children entering grades 6 thru 12 for 2014-2015 school year</td>
<td>Minimum intervals between doses: 1 &amp; 2- at least 4 weeks (28 days) 2 &amp; 3- at least 2 months (66 days) 1 &amp; 3- at least 6 months (112 days) Laboratory evidence of prior or current infection</td>
</tr>
<tr>
<td><strong>Varicella</strong></td>
<td>One dose on or after the 1st birthday</td>
<td>Two doses of Varicella Vaccine, the 1st dose must have been received on after the 1st birthday and the second dose no less than 4 weeks (28 days) later</td>
<td>Applies to Students entering grades 1 thru 12 One dose of Varicella on or after the 1st birthday</td>
<td>Statement from physician or health care provider verifying disease history OR Laboratory evidence of varicella immunity</td>
</tr>
<tr>
<td><strong>Invasive Pneumococcal Disease</strong></td>
<td>Refer to PCV vaccination schedule for series: Children 24-69 mos without series must have one dose</td>
<td>Not required after the 9th birthday (50 months of age)</td>
<td>Applies to Students entering 6th or 9th grade beginning 2014-2015 school year Two doses of Varicella Vaccine, the 1st dose must have been received on after the 1st birthday and the second dose no less than 4 weeks (28 days) later</td>
<td>Statement from physician or health care provider verifying disease history OR Laboratory evidence of varicella immunity</td>
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Illinois Exemptions

Medical exemptions
Parents or legal guardians must submit a document indicating the medical condition which was endorsed/signed by the physician on the certificate of child health examination.

Religious
Parents or legal guardians must present to the local school authority a signed statement of objection, detailing the grounds for the objection. The objection must set forth the specific religious belief that conflicts with the examination, immunization or other medical intervention.
HPV Infection

- Almost all females and males will be infected with HPV at some point in their lives
  - 14 million new infections/year in the US
  - HPV infection is most common in people in their teens and early 20s

- Most people will never know that they have been infected

HPV Transmission

• HPV exposure can occur with any type of intimate sexual contact
  – Intercourse is not necessary to become infected

• Nearly 50% of high school students have already engaged in sexual (vaginal-penile) intercourse
  – 9th graders: 1/3
  – 12th graders: 2/3; 1/4 have had 4 or more partners

Acquisition of HPV after Sexual Debut

Average Number of New HPV-Associated Cancers by Sex, in the United States, 2005-2009

Women (N=20,413)
- Cervix 55% (n=11279)
- Vulva 15% (n=3039)
- Oropharynx 11% (n=2317)
- Anus 15% (n=3084)
- Vagina 4% (n=694)

Men (N=12,002)
- Oropharynx 78% (n=9312)
- Anus 14% (n=1687)
- Penis 8% (n=1003)

Preventing HPV Disease
Females: HPV4 recommended at 11-12 yrs or 13-26 yrs if not previously vaccinated

2006
Females: HPV4 recommended at 11-12 yrs or 13-26 yrs if not previously vaccinated

HPV2 recommended at 11-12 yrs or 13-26 yrs if not previously vaccinated (females)

HPV4 permissively recommended 9-26 yrs (males)

Females: HPV4 recommended at 11-12 yrs or 13-26 yrs if not previously vaccinated

2006

2009
Females: HPV4 recommended at 11-12 yrs or 13-26 yrs if not previously vaccinated

HPV2 recommended at 11-12 yrs or 13-26 yrs if not previously vaccinated (females)

HPV4 permissively recommended 9-26 yrs (males)

Females: HPV4 recommended at 11-12 yrs or 13-26 yrs if not previously vaccinated

Males: HPV4 recommended at 11-12 yrs or 13-21 yrs if not previously vaccinated; at 22-26 yrs for high risk

2006

2009

2012
Females: HPV2 and HPV4 recommended at 11-12 yrs or 13-26 yrs if not previously vaccinated

Males: HPV4 recommended at 11-12 yrs or 13-21 yrs if not previously vaccinated; at 22-26 yrs for high risk

2014
Eight Years Later
What do we know now?

EFFECTIVENESS

SAFETY
HPV Infections Decreased, US, 2007-10

• In 14-19 year olds, vaccine-type HPV prevalence decreased from 11.5 percent (2003-6) to 5.1 percent (2007-10)
  – Other age groups did not show a statistically significant difference over time
  – The research showed that vaccine effectiveness for prevention of infection was an estimated 82 percent

• National Health and Nutrition Examination Survey (NHANES) data

Genital Warts, Females by Age Group, US, 2003-2010

F MarketScan® Database
Flagg EW et al. AJPH 2013;108 (8):1428-35
Genital Warts among Females < 26 years, Australia, 2004-2010

Vaccine first introduced in Australia in 2006 (dashed line)

73% decrease in genital warts

HPV Vaccines are Safe

• Doses distributed in US since 2006
  – Nearly 60 million
• Most common adverse events were mild
• For serious adverse events, no unusual patterns that would suggest the events were caused by the HPV vaccine
• Findings similar to the safety of MCV4 and Tdap
HPV Vaccine Coverage Report Card
International HPV Vaccine 3 dose Coverage, by Country, 2010-2011

Brotherton, Lancet 2011; Cuzick BJC 2010; Ogilvie et al., 2010; Marc et al., 2010, NIS-Teen 2011
Coverage of 1 of More Doses of HPV among Adolescent Girls 13-17 Years by State, NIS-Teen 2012

Source: MMWR. 2013;62;685-93
Vaccine Coverage Levels among 13-17 years olds, US, NIS-Teen, 2006-2012

Source: MMWR. 2013;62;685-93
Actual and potentially achievable ≥1 HPV vaccine coverage among adolescent girls if missed opportunities* were eliminated, NIS-Teen

Among unvaccinated girls, 84% had a missed opportunity for HPV

*Missed opportunity defined as having a healthcare encounter where at least one vaccine was administered but HPV was not
MMWR. 2013; 62:591-5
Why is HPV vaccine different?

- HPV vaccine was sensationalized by popular media
- Parents think sexuality instead of cancer prevention
- Some clinicians aren’t giving strong recommendations
- Parents have questions that are seen as hesitation by some doctors
- Phased girls-then-boys recommendations initially confusing to parents
- System interventions to improve coverage rates depend on clinician commitment
What Can You Do?

• Give a STRONG recommendation
  – How often do you get a chance to prevent cancer?

• Start conversation early and focus on cancer prevention
  – Vaccination given well before sexual experimentation begins
  – Better antibody response in preteens

• Offer a personal story
  – Own children/grandchildren/c lose friends’ children
  – HPV-related cancer case

• Welcome questions from parents, especially about safety
  – Remind parents that the HPV vaccine is safe and not associated with increased sexual activity

• Screen immunization status at every visit
Try saying:

Your child needs three shots today: HPV vaccine, meningococcal vaccine and Tdap vaccine.

You child will get three shots today that will protect him/her from the cancers caused by HPV, as well as prevent tetanus, diphtheria, pertussis and meningitis.
Try saying:

HPV vaccine is very important because it prevents cancer. HPV can cause cancers of the cervix, vagina, and vulva in women, cancer of the penis in men, and cancers of the anus and the mouth or throat in both women and men.

I want your child to be protected from cancer.

That’s why I’m recommending that your daughter/son receive the first dose of the HPV vaccine series today.
Rationale for vaccinating early:
Protection prior to exposure to HPV

Markowitz MMWR 2007;
Holl Henry J Kaiser Found 2003;
Mosher Adv Data 2006
We're vaccinating today so your child will have the best protection possible long before the start of any kind of sexual activity.

We vaccinate people well before they are exposed to an infection, as is the case with measles and other childhood vaccines.

HPV vaccine is also given when kids are 11 or 12 years old because it produces a better immune response at that age.
Try saying:

Multiple research studies have shown that getting the HPV vaccine does not make kids more likely to be sexually active.

These studies have also shown that getting the HPV vaccine does not make kids more likely to start having sex at a younger age.
Try saying:

I strongly believe in the importance of this cancer-preventing vaccine.

I have given HPV vaccine to my son/daughter (or grandchild/niece/nephew/friend's children).

Experts, such as the American Academy of Pediatrics, cancer doctors, and the CDC, also agree that getting the HPV vaccine is very important for your child.
HPV vaccine was carefully studied before being recommended and has been continually monitored since being recommended.

Since 2006, about 57 million doses of HPV vaccine have been distributed in the U.S. It has proven to be very effective and very safe. HPV vaccine has a similar safety profile to the MCV4 and Tdap vaccines.

Like other shots, side effects can happen, but most are mild, primarily pain or redness in the arm. HPV vaccine has not been associated with any long-term side effects.
QUESTIONS?