Immunizations – What’s New?

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Objectives

- Pharmacist
  - Summarize recent changes to the 0-18 yr immunization schedule
  - Identify strategies to deal with vaccine hesitancy
  - Apply key considerations for the various CDC-recommended immunizations to determine which are indicated for a given adult
  - Describe opportunities for pharmacists in utilizing the South Dakota Immunization Information System (SDIIS)
- Technician
  - Review recent changes to the 0-18 yr immunization schedule
  - Review strategies for addressing vaccine hesitancy
  - Recognize the various CDC-recommended immunizations and what diseases they prevent in certain eligible adult patients
  - Describe opportunities for pharmacy technicians and other staff in utilizing the South Dakota Immunization Information System (SDIIS)

Disclosure

- I have had no financial relationship over the past 12 months with any commercial sponsor with a vested interest in this presentation.
Immunization 2017 Schedule Updates, Age 0-18 Years

- Hepatitis B
- Polio vaccine
- Medical conditions
- Diphtheria, tetanus, and pertussis
- Hib
- HPV
- Influenza
- Meningococcal
- Pneumococcal

HPV Vaccination

- First recommended for females in 2006
- Males included in recommendation in 2011
- Currently, routine vaccination is recommended for boys and girls 11-12 years of age
- Vaccination is also recommended for females 13-26 years of age and males 13-21 years of age not previously vaccinated

HPV Vaccination

- WHO changed to a 2 dose recommended vaccination series in girls aged 9-14 years
- Shorter series based on immunogenicity studies comparing immune response in younger patients versus young women
- JAMA study of 9-valent HPV vaccine found noninferior immunogenicity using 2 doses in girls and boys age 9-14 compared to 3 doses in female adolescents and young women
Influenza Vaccination in Pediatrics

- Recommendation for inactivated vaccine annually beginning at 6 months of age for every infant, child, and adolescent
  - Two doses the first season the child is immunized
  - One dose the second season of immunization or at age 9 years
  - No live-attenuated influenza vaccine (LAIV)

- 2013 – 90% of pediatric patients who died of influenza were not vaccinated
- Pediatrics study (2010-2014) --
  - 74% of patients who died were not vaccinated
  - 47% of patients who died had no health conditions that put them at high risk
  - Less than half of the high risk children who died had received the annual vaccination

- Who is at high risk?
  - Asthma
  - Chronic lung disease
  - Neurologic/neurodevelopmental disorders
  - Blood disorders
  - Endocrine disorders
  - Metabolic disorders
  - Kidney or liver disorders
  - Immunosuppression
  - Pregnancy
Meningococcal Vaccination

• Quadrivalent vaccines (serogroups A, C, Y, W-135; MenACWY)
  – MenHibrix (Hib-MenCY; at least 6 weeks of age)
  – Menveo (MenACWY-CRM; at least 2 months of age)
  – Menactra (MenACWY-D; at least 9 months of age)
• Serogroup B vaccines
  – Trumenba (MenB-FHbp)
  – Bexsero (MenB-4C)

ACIP recommendation:

– “Administer at single dose of Menactra or Menveo vaccine at age 11 through 12 years, with a booster at age 16 years”
– SD requires 1 dose of MenACWY for children entering the 6th grade IF the child is 11 years of age and and transfer students grades 6-12
– Or 45 days after their 11th birthday to receive 1 dose of MenACWY

Serotype B

– ACIP has no preference for one vaccine over the other
– MenB-FHbp (Trumenba, 3 dose and 2 dose) and MenB-4C (Bexsero, 2 dose) are NOT interchangeable
– Recommended for “at risk” individuals
– Patients receiving eculizumab (Soliris)
Maternal Immunization

• Benefits to mom and infant
• Reductions in mortality from vaccine preventable diseases have been slower in infants compared to older children
• In the US, recommended vaccines for a mom-to-be are influenza (inactivated) and TDaP
• Results of vaccination studies in pregnant women

Maternal Influenza Vaccination

• Pregnancy is less likely to result in low birth weight
• Offers protection from secondary bacterial infection
• Inactivated influenza vaccination recommended for women who are or will be pregnant during the influenza season
• Safety

Maternal TDaP Vaccination

• Vital to protect the infant from pertussis
• Recommended for every pregnancy
• Studies have shown maternal vaccination to be 91-93% effective in the prevention of pertussis in young infants
• Safety
• Timing
**Minnesota Measles Outbreak**

- Headlines:
  - 4/15, Fox News: 5 new measles cases confirmed in Hennepin County, source still unknown
  - 5/4, CBS: Measles outbreak in Minnesota sickens dozens -- 34
  - 5/11, Helio.com: Minnesota measles outbreak linked to anti-vaccine rhetoric hits 50 cases
  - 6/2, CNN: Minnesota measles outbreak exceeds last year’s nationwide numbers -- 73 vs 70

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**Vaccine Hesitancy**

- Hesitancy versus resistance
- Knowledge and information gained
- Past experiences with vaccine and vaccine-preventable diseases
- Perceived importance of vaccination
- Risk perception
- Trust of medical professionals and experts
- Perceived societal “normal”
- Parental responsibility
- Religious beliefs

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**Hesitancy Versus Resistance**

- Definitions vary
  - WHO: “delay in acceptance or refusal of vaccines despite availability of vaccination services”
- Hesitant parents have a high risk of finding misinformation
- An important predictor of vaccine acceptance is recommendations from healthcare workers
Knowledge and Information Availability

- Amount of information on the internet
  - Information versus misinformation
- Conflicting information on the internet
- Incomplete understanding of scientific literature
- Media coverage
- Social media

Past Experiences

- Pain associated with immunizations
- Child’s anxiety due to vaccinations
- Short term side effects
- Non-science based influences

Perceived Importance of Vaccination

- Incidence of vaccine-preventable diseases
  - Vaccines can be a victim of their own success
- Belief the disease doesn’t “apply to my child”
- Misunderstanding direct and indirect immunization protection
- Concerns regarding vaccine efficacy and number of injections
Risk Perception

- Immune system overload
- Overestimated incidence of adverse outcomes
- Perception the natural disease is less severe than a vaccine reaction
- Vaccine scares
- Vaccine controversies
  - Thimerosal
  - Autism

Trust of Medical Professionals and Experts

- Recommendations regarding vaccination are vital
- Challenges for medical professionals
  - Keeping up with changes to the schedule
  - Keeping up with new vaccines
- Public health system influence

Perceived Societal “Normal”

- Geography
  - Nonmedical exemptions
- Behaviors and attitudes of peers
- Altered vaccine schedules
Parental Responsibility and Religious Beliefs

- Parents feel responsible for making the best decisions for their child
- Wanting control over the schedule
- Exemptions due to religious beliefs vary from avoidance of medical intervention to problems with vaccine components

Addressing Vaccine Hesitancy

- Real data
- Refer to reliable websites
- Reminders regarding dangers of the diseases
- Patience
- Remember: parents are trying to do what’s right for their children

Questions
References

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• Wang E, Baras Y, Buttenheim AM. “Everybody just wants to do what’s best for their child”: understanding how pro-vaccine parents can support a culture of vaccine hesitancy. Vaccine, 2015; 33: 6703-6709.

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