IMMUNIZATION IN WOMEN'S HEALTH

FLAME LECTURE: 17

LO 11.25.17

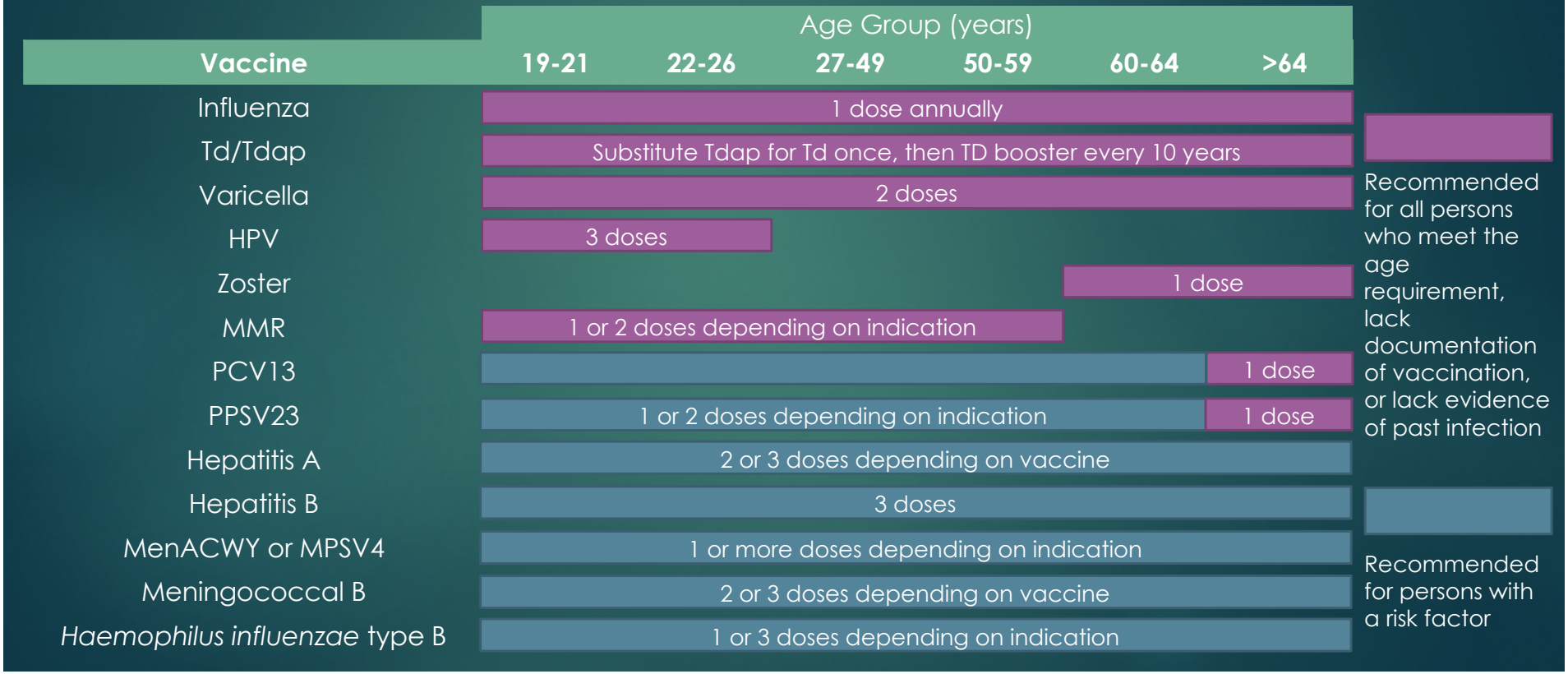
LEARNING OBJECTIVES

- Counsel patients regarding immunizations
- Describe routine prenatal immunizations, immunizations during and after pregnancy and which immunizations to avoid during pregnancy
- Prerequisites:
  - None
- Related FLAMES:
  - None

GENERAL PRINCIPLES

- Women should be vaccinated against preventable diseases prior to conception according to the recommended adult immunization schedule (next slide)
- Vaccination during pregnancy is warranted when:
  - The risk of exposure is high
  - The infection poses risks to the mother and/or fetus
  - The vaccine is unlikely to be harmful
- Immunization of pregnant women appears to be as effective as in non-pregnant women
- Postpartum women should receive all recommended vaccines that could not be or were not administered during pregnancy

STANDARD NON-PREGNANT ADULT IMMUNIZATION SCHEDULE



BARRIERS TO IMMUNIZATION

- Financial factors:
  - Inadequate reimbursement
  - Cost of storing vaccines
- Knowledge about vaccine counseling, safety and administration

Autism and Immunizations???

- The overwhelming majority of epidemiologic evidence does NOT support an association between immunizations and autism
- See next slide for more information

Vaccine Safety by Type

TDAP

- Recommended of every pregnant woman during every pregnancy
- Can be given at any gestational age, however between 28-32 weeks optimizes the transfer of antibodies to the fetus

Live Vaccines (MMR & Varicella)

- Have the potential for infecting the fetus
- Subclinical infection has been documented
- Strongly discouraged unless the pregnant woman is at a substantial risk of exposure to a natural infection associated with serious morbidity or mortality
- If a woman becomes pregnant within four weeks after immunization, she should be counseled about the potential effects on the fetus

AUTISM AND IMMUNIZATIONS

- Prevalence of autism and autism spectrum disorders appears to have increased over the last several decades
  - Much of this trend is accounted for by changes in case definition and increased awareness of autism
- In its 2004 review, the Immunization Safety Review Committee of the Institute of Medicine (IOM) concluded that the evidence favors rejection of a causal relationship between MMR vaccine and autism
- Neither specific childhood vaccine components, such as thimerosal, have been proven by scientific study to have a causal relationship with the development of autism
  - There is evidence that other factors, including genetics, are important to the development of autism

Counseling Technique!

Studies have shown that patients are more likely to agree to immunization if you **describe what the disease can cause** vs. telling them that the vaccine is safe[1]

Outside Sources for Patient Education:
www.cdc.gov/vaccinesafety/Concerns/Autism/Index.html
https://www.uptodate.com/contents/why-does-my-child-need-vaccines-beyond-the-basics

LIVE IMMUNIZATIONS
TO BE OFFERED PRE-CONCEPTION

Mumps, Measles, Rubella

- Measles-related morbidity appears to be greater in pregnant than in non-pregnant women
- Congenital Rubella Syndrome:
  - Spontaneous abortion, stillbirth, intrauterine growth restriction
  - Congenital defects assoc. w/ maternal infection limited to maternal infection in the first 16 weeks of pregnancy
- Congenital Measles:
  - Spectrum of illnesses ranging from mild to severe
- Mumps in Pregnancy:
  - Not associated with congenital malformations
  - Increased risk of miscarriage in the first trimester

Varicella-Zoster

- Varicella pneumonia complicate 10-20% of maternal infections
- Congenital Varicella:
  - Can cause fetal limb hypoplasia, cutaneous dermatomal scarring blindness
  - Fewer than 2% of women who have acquired varicella infection during the first 20 weeks of gestation have given birth to an infected baby

OTHER IMMUNIZATIONS TO AVOID DURING PREGNANCY

- **Human Papillomavirus (HPV):**
  - If the series was started prior to pregnancy, delay the remainder of the doses until after the pregnancy
- **LAIV:** live, attenuated influenza vaccine
- **Tuberculosis (BCG)**: not given in the USA

IMMUNIZATIONS DURING PREGNANCY

- **Tdap** (tetanus toxoid, reduced diphtheria toxoid and acellular pertussis)
  - Women who have previously been immunized with a full three-dose series of Td vaccine should receive a single dose of Tdap every pregnancy no matter the timing/interval with which they have previously received the vaccine
    - It given ideally at 27 to 36 weeks gestation to maximize fetal exposure to the antibodies created
  - Women who had not previously been fully vaccinated against tetanus and diphtheria should also receive a tetanus and diphtheria toxoid (Td) series
    - Preferred schedule for the three-dose Td series: time 0, 4 weeks later, and at 6 to 12 months after the initial dose
    - Tdap should replace one of the Td doses to protect against pertussis - ideally between 27 and 36 weeks
- **Inactivated influenza vaccine**

IMMUNIZATIONS FOR SPECIAL CIRCUMSTANCES

Pneumococcal (PPSV23)	• Recommended for adults with conditions that increase the risk of invasive pneumococcal disease (sickle cell, HIV, etc.) • Appears safe when given in the 2nd and 3rd trimesters
Haemophilus influenzae (Hib)	• Recommended for adults who have not received the childhood Hib series AND are at risk for invasive Hib disease (sickle cell, HIV, splenectomy) • Studies suggest that Hib vaccination during the 3rd trimester is safe and immunogenic
Meningococcal	• Recommended for adults with conditions that put them at increased risk (sickle cell, HIV, complement deficiency) or are traveling to endemic areas • Appears safe during pregnancy

IMMUNIZATIONS FOR SPECIAL CIRCUMSTANCES

Hepatitis B

- Indicated in pregnant women who are completing an immunization series started prior to conception and if at increased risk
- Typically given at time 0, one month later, and six months later

Hepatitis A

- Indicated for susceptible pregnant women at increased risk of HAV exposure (Africa/Asia) and/or complications
- Can be given as post-exposure prophylaxis

Yellow Fever

- Considered if traveling to tropical regions of South America and sub-Saharan Africa
- Can cause serious, including fatal, adverse effects in pregnant women (though very rare)

IMMUNIZATIONS FOR SPECIAL CIRCUMSTANCES

Poliovirus	• Indicated for women traveling to areas where polio has not been eradicated (Pakistan, Afghanistan, Nigeria, Somalia, etc.) • Inactivated polio vaccine (IPV) should be given. Adverse effects of IPV administration during pregnancy has not been documented in either the mother or fetus
Typhoid	• Partially protective and recommended for persons traveling to affected areas • Only give the inactive capsular polysaccharide vaccine (Typhim Vi) and not the live attenuated vaccine
Rabies, Smallpox, Anthrax	• Can all be given as post-exposure prophylaxis during pregnancy. Effects on the fetus have not been fully studied • Smallpox and Anthrax are only given in consultation with the CDC (Smallpox has been eradicated since 1977)

POSTPARTUM IMMUNIZATIONS
TO BE GIVE BEFORE DISCHARGE

- **Measles, Mumps, Rubella (MMR):** should be administered to women not immune to rubella
- **Varicella:** recommended for women without evidence of immunity
  - First dose given while the patient is in the hospital and the second dose is given four to eight weeks later (coincides with routine postpartum visit)
- **Tdap:** if not given during pregnancy it should be given postpartum
- **Anti-D immune globulin:** for women who are Rh(D)-negative who received the anti-D immune globulin should still receive the MMR and/or varicella vaccines if indicated
  - CDC suggests that women who received anti-D immune globulin and rubella vaccine be serologically tested after vaccination to ensure that seroconversion has occurred

OVERVIEW OF VACCINES AND PREG

Vaccine	Pregnant
Influenza	1 dose annually
Td/Tdap	1 dose Tdap each pregnancy
Varicella	Contraindicated
HPV	Only if indicated
Zoster	Contraindicated
MMR	Contraindicated
PCV13	Only if indicated
PPSV23	Only if indicated
Hepatitis A	Only if indicated
Hepatitis B	Only if indicated
MenACWY	Only if indicated
MenB	Only if indicated
Hib	Only if indicated

IMPORTANT LINKS & REFERENCES

- http://www.cdc.gov/vaccines/pregnancy/pregnant-women/
- https://www.vaccines.gov/who_and_when/pregnant/
- http://www.acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Obstetric-Practice/Update-on-Immunization-and-Pregnancy-Tetanus-Diphtheria-and-Pertussis-Vaccination
- http://www.acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Obstetric-Practice/Influenza-Vaccination-During-Pregnancy
- UpToDate.com