Boston Medical Center Maternity Care Guideline
Guideline: Routine Prenatal and Postpartum Vaccinations
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Introduction

- Definition: There are certain vaccinations recommended during routine pregnancy and postpartum care for disease prevention.

- Prevalence: All pregnant patients should be offered routine vaccinations when indicated.

- Risk factors: Some screening tests for vaccine eligibility and certain immunizations are recommended for high risk populations only, see below for information on these populations.

- Maternal/fetal risks: Inactivated virus/bacterial/toxoid vaccinations considered safe for administration during pregnancy pose no documented risks to the developing fetus. The prevention of disease during pregnancy by administration of recommended vaccinations is an important part of preventative medicine and outweighs risks. Live vaccines such as MMR or varivax are contraindicated during pregnancy because of theoretical risks of harm to the developing fetus.

Diagnosis

- Varicella Antibody (IgG). Screened once in lifetime if found to be immune. If non-immune recommend vaccination postpartum. **Of note, if the patient has already received 2 doses of varicella vaccine, she should NOT be screened for immunity and should NOT be vaccinated again even if negative IgG** (it is not sensitive enough to detect all seroconversions after vaccination).
- Rubella Antibody (IgG). Screened once in lifetime if found to be immune. If non-immune, then recommend vaccination postpartum.
- Hepatitis B Surface Antigen (HBSAG). If high risk population (see below) consider Hepatitis B antibody and recommendation for vaccination.

Hepatitis B antibody screening

Anti-Hbc testing should be performed in the following high risk populations:

- Household, sex, and needle-sharing contacts of HBsAg-positive persons
- HIV-infected persons
- Injection drug-users
- Incarcerated persons

Foreign born persons from countries with Hepatitis B prevalence of >8% (listed below)

- Africa: all countries except Algeria, Djibouti, Egypt, Libya, Morocco, Tunisia
- Southeast Asia: All countries except Malaysia
- East Asia: China, Hong Kong, Mongolia, North Korea, South Korea, Taiwan
- Australia and South Pacific: all countries except Austrailia, Guam, and New Zealand
- Middle East: Jordan and Saudi Arabia
- Eastern Europe and Northern Asia: Albania, Armenia, Azerbaijan, Moldova, Tajikistan, Turkmenistan, Uzbekistan

PRENATAL VACCINATION RECOMMENDATIONS

Covid-19 Vaccination:

- Covid-19 vaccination is recommended by ACOG, ACNM, AWOHNN, CDC, WHO for pregnant patients in all trimesters as well as postpartum
- Resources for COVID and pregnancy can be found at:
    - **https://hub.bmc.org/covid-and-pregnancy-resources**
    - **https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/pregnancy.html**
- Coadministration with other vaccines (CDC website 8.2021) https://www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html#Coadministration
    - Covid vaccines and other vaccines may now be administered without regard to timing
    - If multiple vaccines are administered at a single visit, administer each injection in a different injection site. For adolescents and adults, the deltoid muscle can be used for more than one intramuscular injection.
    - Best practices for multiple injections include:
    - Label each syringe with the name and the dosage (amount) of the vaccine, lot number, the initials of the preparer, and the exact beyond-use time, if applicable.
    - Separate injection sites by 1 inch or more, if possible.
    - Administer the COVID-19 vaccines and vaccines that may be more likely to cause a local reaction (e.g., tetanus-toxoid-containing and adjuvanted vaccines) in different limbs, if possible.

Influenza annually during flu season

- Flu is more likely to cause severe illness in pregnant women than in women who are not pregnant. Changes in the immune system, heart, and lungs during pregnancy make pregnant women (and women up to two weeks postpartum) more prone to severe illness from flu, as well as to hospitalizations and even death. Pregnant women with flu also have a greater chance for serious problems for their unborn baby, including premature labor and delivery. http://www.cdc.gov/flu/protect/vaccine/pregnant.htm
- Flu vaccine can be administered during any trimester of pregnancy.
- Receiving a vaccine with thimerosal (a preservative) is not contraindicated during pregnancy.

Pertussis (in the form of Tdap) WITH EACH PREGNANCY (27-36 weeks GA).

- Pregnant women should receive the pertussis vaccine with **each** pregnancy. Currently, this is available in the form the tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap). Tdap should be given between 27 and 36 weeks gestation. (CDC, 2014.)
- The level of pertussis antibodies decreases over time, so pertussis vaccine in the form of Tdap should be administered during every pregnancy in order to transfer the greatest number of protective antibodies to each infant.

- Postpartum Tdap administration only provides protection to the mother (and the patient should only be given tetanus vaccination if 1) she has never received Tdap, or 2) if it has been > 10 years since her last tetanus vaccination) — it does not provide immunity to the infant. It takes about 2 weeks after Tdap receipt for the mother to have protection against pertussis.

IMMUNIZATIONS CONTRAINDICATED IN PREGNANCY (give postpartum):
MMR (if non-immune and no documentation of immunizations)
Varicella (if non-immune) 2 doses: 0, 1-2 months
HPV (if 26 yo or younger) 3 doses: 0,3, 6, months

PRENATAL VACCINATIONS FOR SPECIAL POPULATIONS

Hepatitis B vaccination
Hepatitis B vaccine series (if non-immune and high risk- e.g., DM2, having more than one sex partner during the previous 6 months, been evaluated or treated for an STD, recent or current injection drug use, or having had an HBsAg-positive sex partner) 3 doses: 0, 1-2, 4-6 months.
http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/hepb-508.pdf

To be given to women with a negative HepB antibody screen

- Administer Dose #1 immediately after Anti Hbc drawn as vaccination of immune persons is not harmful.
- If series is delayed between doses, do not need to start series over
- Different preparations of Hepatitis B vaccines are equivalent

Hepatitis A vaccination

- Medical indications: persons with chronic liver disease and persons who receive clotting factor concentrates.
- Other indications: persons traveling to or working in countries that have high or intermediate endemicity of hepatitis A (a list of countries is available at http://wwwn.cdc.gov/travel/contentdiseases.aspx) and any person seeking protection from HAV infection.
- Single-antigen vaccine formulations should be administered in a 2-dose schedule at either 0 and 6–12 months (Havrix®), or 0 and 6–18 months (Vaqta®). If the combined hepatitis A and hepatitis B vaccine (Twinrix®) is used, administer 3 doses at 0, 1, and 6 months.

Meningococcal vaccination

- Medical indications: adults with anatomic or functional asplenia or terminal complement component deficiencies.
- Other indications: first-year college students living in dormitories; microbiologists who are routinely exposed to isolates of Neisseria meningitidis; military recruits; and persons who travel to or live in countries in which meningococcal disease is hyperendemic or epidemic, particularly if their contact with local populations will

be prolonged. Vaccination is required by the government of Saudi Arabia for all travelers to Mecca during the annual Hajj.

- Meningococcal conjugate vaccine is preferred for adults with any of the preceding indications who are aged <55 years, although meningococcal polysaccharide vaccine (MPSV4) is an acceptable alternative. Revaccination after 3–5 years might be indicated for adults previously vaccinated with MPSV4 who remain at increased risk for infection (e.g., persons residing in areas in which disease is epidemic).

Pneumococcal polysaccharide vaccination (PPSV23)

The safety of pneumococcal polysaccharide vaccine during the first trimester of pregnancy has not been evaluated, although no adverse consequences have been reported among newborns whose mothers were inadvertently vaccinated during pregnancy.

- Medical indications: chronic pulmonary disease (including adults ages 19-64 who smoke or have asthma); chronic cardiovascular diseases; diabetes mellitus; chronic liver diseases, including liver disease as a result of alcohol abuse; chronic alcoholism, chronic renal failure, or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy; immunosuppressive conditions; and cochlear implants and CSF fluid leaks. Vaccinate as close to HIV diagnosis as possible.
- Revaccination with pneumococcal polysaccharide vaccine
    - One-time revaccination after 5 years for persons with chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy); or immunosuppressive conditions.
- Of note: ACIP has not published pregnancy recommendations for PCV13 at this time.

IMMEDIATE POSTPARTUM

If indicated by review of prenatal chart/labs, these immunizations should be given immediately postpartum prior to discharge from the hospital

- COVID-19 vaccination if not previously vaccinated or due for covid-19 #2
- TDAP if declined during pregnancy (and if the woman is due for vaccination- e.g. no tetanus vaccination in the last 10 yrs, or if she has never received Tdap)
    - Postpartum Tdap administration only provides protection to the mother — it does not provide immunity to the infant. It takes about 2 weeks after Tdap receipt for the mother to have protection against pertussis.
- Influenza if declined during pregnancy
- Varivax: if varicella non-immune status (**and she has NOT already received 2 doses of varivax- check her outpatient record**)
- MMR if rubella non-immune status
- **Of note, it is best to give live vaccines on the SAME DAY**
  From the CDC website: “The immune response to an injected or intranasal live-virus vaccine (such as MMR, varicella, yellow fever, or live attenuated influenza vaccines) might be impaired if administered within 28 days of another live-virus vaccine (within 30 days for yellow fever vaccine). Whenever possible, injected

live-virus vaccines administered on different days should be given ≥28 days apart"

SIX WEEKS POSTPARTUM AND BEYOND

- Second varicella vaccine, if varicella non-immune and received 1st dose during postpartum period at BMC (can give 4-6 wks after the first dose)
- Offer HPV vaccine if < 26 years old and have not yet completed 3-dose vaccine series: 0, 3, 6 months

RHOGAM- no need to delay vaccines

https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6002a1.htm

Although passively acquired antibodies can interfere with the response to rubella vaccine, the low dose of anti-Rho(D) globulin administered to postpartum women has not been demonstrated to reduce the response to the RA27/3 strain rubella vaccine. Because of the importance of rubella and varicella immunity among women of child-bearing age, **the postpartum vaccination of women without evidence of immunity to rubella or varicella with MMR, varicella, or MMRV vaccines should not be delayed because of receipt of anti-Rho(D) globulin or any other blood product during the last trimester of pregnancy or at delivery. These women should be vaccinated immediately after giving birth and, if possible, tested >/= 3 months later to ensure immunity to rubella and, if appropriate, to measles.**

Treatment/Management

- If a patient with rubella non-immune or varicella non-immune status has had contact with infected individual during pregnancy or presents with active infection contact MFM immediately (617-414-7296) for appropriate management and follow up.
- Patients with signs of influenza should be assessed on labor and delivery triage and offered treatment.

Logistical Practice for BMC and CHC providers

- RN will document all vaccinations in EPIC. Vaccine history can be located under the "Immunizations" tab.
- During pregnancy update the "supervision of pregnancy" smartphrase with date of TDAP vaccination and any recommendations for postpartum vaccinations.

Patient Education/Patient Education Materials

- **CDC for Patients: Immunization & Pregnancy**
  http://www.cdc.gov/vaccines/pubs/downloads/f_preg.pdf
- **ACNM Share with Women: Vaccines and Pregnancy**
  http://onlinelibrary.wiley.com/store/10.1111/jmwh.12237/asset/jmwh12237.pdf?v=1&t=ioadnddm&s=905a7d2fb82a742c3dc2a7f95b38e0bc2e6de1c6

- **Covid vaccine Shared decision making tool:**
  - **English https://hub.bmc.org/sites/default/files/docs/2020-12/COVIDVaccineSharedDecisionMakingInformationfor%20PregnantWoman.pdf**

- **Spanish https://hub.bmc.org/sites/default/files/docs/2021-03/VaccineInfoPregnantPeopleUpdated12.28.2020-Spanish-2.pdf**
- **Haitian Creole https://hub.bmc.org/sites/default/files/docs/2021-03/Vaccine-Info-for-Pregnant-People-Updated-12-28-Haitian-Creole.pdf**
- **Portugese https://hub.bmc.org/sites/default/files/docs/2021-03/Vaccine-Info-for-Pregnant-People-Updated-12-28-2020-Portuguese%20%281%29.pdf**

Appendix

Vaccine		General Recommendation for Use in Pregnant Women	For More Information See text
Routine	Hepatitis A	Recommended if otherwise indicated.	See Hepatitis A text
	Hepatitis B	Recommended in some circumstances.	See Hepatitis B text
	Human Papillomavirus (HPV)	Not recommended.	See HPV text
	Influenza (Inactivated)	Recommended.	See Influenza text
	Influenza (LAIV)	Contraindicated.	See Influenza(LAIV) text
	MMR	Contraindicated.	See MMR text
	Meningococcal	May be used if otherwise indicated.	See Meningococcal text
	PCV13	Inadequate data for specific recommendation.	See Pneumococcal Conjugate text
	PPSV23	Inadequate data for specific recommendation.	See Pneumococcal Polysaccharide text
	Polio	May be used if needed.	See Polio text
	Td	Should be used if otherwise indicated.	See Tetanus and Diphtheria text
	Tdap	Recommended.	See Tetanus, Diphtheria, and Pertussis text
	Varicella	Contraindicated.	See Varicella text
	Zoster	Contraindicated.	See Zoster text
Travel & Other	Anthrax	Low risk of exposure – not recommended. High risk of exposure – may be used.	See Anthrax text
	BCG	Contraindicated.	See BCG text
	Japanese Encephalitis	Inadequate data for specific recommendation.	See Japanese Encephalitis text
	Rabies	May be used if otherwise indicated.	See Rabies text
	Typhoid	Inadequate data for specific recommendation.	See Typhoid text
	Smallpox	Pre-exposure – contraindicated. Post-exposure – recommended.	See Smallpox text
	Yellow Fever	May be used if benefit outweighs risk.	See Yellow Fever text

CDC. 2014. http://www.cdc.gov/vaccines/pubs/preg-guide.htm

References

ACNM. Position Statement: Immunization in pregnancy and postpartum. 2014. http://www.midwife.org/ACNM/files/ACNMLibraryData/UPLOADFILENAME/000000000289/Immunization-in-Pregnancy-and-Postpartum-May-2014.pdf

Advisory Committee on Immunization Practices. Prevention of pertussis, tetanus, and diphtheria among pregnant and postpartum women and their infants. MMWR. 2008;57(04):1-47;51. http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5704a1.htm

CDC. Guidelines for Vaccinating Pregnant Women. 2014. http://www.cdc.gov/vaccines/pubs/preg-guide.html