

Time	Patient Name	Age	Type	Notes
4:10 PM October	Moore, Tonya	21 F	WALK-IN	New patient

\*NOTE: This is not a real patient!

A 21-year-old nursing student presents to clinic for evaluation after testing positive on a home pregnancy test. Her last menstrual period was 7 weeks ago, and she has never before been pregnant. Besides experiencing some nausea in the mornings, she has been feeling well. As this is a planned pregnancy with her husband of one year, she has been supplementing with an over-the-counter prenatal vitamin and folic acid. She wishes to know what else she should do to ensure a healthy pregnancy.

**PMH:**

None known  
No hx of STI's

**Meds:**

Prenatal multivitamin  
Folic acid

**Soc Hx:**

Never smoker  
No alcohol  
No drugs  
Lives with husband  
Full-time student about to start clinical rotations in January.

**ROS:**

(-) weight loss  
(-) abdominal pain  
(+) AM nausea and emesis

**Exam:**

VS: T 37.2 HR 68 BP 102/65 RR 12 SpO<sub>2</sub> 100% (RA) BMI 22  
Gen: NAD  
CV: Normal S1S2, RRR, no M/R/G  
Chest: CTAB, no W/R/R, easy work of breathing  
GI: Abdomen soft, NT/ND, NABS

**Data:**

(+) urine pregnancy test, Rubella non-immune, RPR negative

What is the single MOST APPROPRIATE vaccine to administer at this visit?

- A. Tdap (tetanus, diphtheria, pertussis)
- B. MMR (measles, mumps, rubella)
- C. Intranasal influenza
- D. Intramuscular influenza
- E. Hepatitis B
- F. Meningococcal
- G. Pneumococcal polysaccharide
- H. None of the above. Vaccines are not safe to administer during pregnancy.

What other vaccines would be appropriate to administer during her pregnancy?

- A. Tdap (tetanus, diphtheria, pertussis)
- B. MMR (measles, mumps, rubella)
- C. Intranasal influenza
- D. Intramuscular influenza
- E. Hepatitis B
- F. Meningococcal
- G. Pneumococcal polysaccharide
- H. A and D
- I. A and E
- J. B and E
- K. D and F
- L. None of the above. Vaccines are not safe to administer during pregnancy.

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**Answers:**

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## Discussion Points:

1. **It is safe to administer toxoids, immune globulin preparations and inactivated virus vaccines** to pregnant women, Vaccines recommended for routine administration in pregnancy are the **intramuscular influenza vaccine (seasonal and H1N1), tetanus toxoid, diphtheria toxoid, and acellular pertussis (Tdap)**. It is preferable to delay administration of vaccines until the second trimester; however, if there is significant risk, as in flu season, these **can be given in the first trimester**. Tdap should be administered during **week 27-36 of each pregnancy**.
2. **Vaccines that include live attenuated virus should NOT be administered during pregnancy** unless the mother is at significant risk of natural infection. Infection with rubella during early pregnancy is associated with congenital rubella syndrome, as well as increased risk of miscarriage and fetal death. This patient is not immune to rubella; however, the MMR is a live-attenuated vaccine and should not be administered until after she has delivered. In patients who are not immune to rubella, the vaccine would ideally be administered before pregnancy, with the patient waiting at least four weeks before becoming pregnant. FluMist, varicella and zoster vaccines, which are also live-attenuated, are also contraindicated during pregnancy.
3. Hepatitis A & B, pneumococcal, and meningococcal vaccines are safe to administer but only need to be given if there is an indication. **This patient is studying to be a health care worker; therefore, the Hep B vaccine is indicated.** She does not have a chronic disease that makes pneumococcal vaccination necessary. She is not a first year college student nor does she have asplenia or complement disorder so meningococcal vaccine is unnecessary.

## Recommended Adult Immunization Schedule—United States • 2013

**Note:** These recommendations must be read with the footnotes that follow containing number of doses, intervals between doses, and other important information.

**Figure 2. Vaccines that might be indicated for adults based on medical and other indications<sup>1</sup>**

VACCINE ▼	INDICATION ►	Pregnancy	Immuno-compromising conditions (excluding human immunodeficiency virus [HIV]) <sup>14,17,18,19</sup>	HIV infection CD4+ T lymphocyte count <sup>4,6,7,10,14,15</sup>		Men who have sex with men (MSM)	Heart disease, chronic lung disease, chronic alcoholism	Asplenia (including elective splenectomy and persistent complement component deficiencies) <sup>10,14</sup>	Chronic liver disease	Kidney failure, end-stage renal disease, receipt of hemodialysis	Diabetes	Health care personnel
				<200 cells/μL	≥200 cells/μL							
Influenza <sup>2,*</sup>						1 dose IIV or LAIV annually						1 dose IIV or LAIV annually
Tetanus, diphtheria, pertussis (Td/Tdap) <sup>3,*</sup>		1 dose Tdap each pregnancy										
Varicella <sup>4,*</sup>			Contraindicated									2 doses
Human papillomavirus (HPV) Female <sup>5,*</sup>												3 doses through age 26 yrs
Human papillomavirus (HPV) Male <sup>5,*</sup>												3 doses through age 21 yrs
Zoster <sup>6</sup>			Contraindicated									1 dose
Measles, mumps, rubella (MMR) <sup>7,*</sup>			Contraindicated									1 or 2 doses
Pneumococcal polysaccharide (PPSV23) <sup>8,9</sup>												1 or 2 doses
Pneumococcal 13-valent conjugate (PCV13) <sup>10</sup>												1 dose
Meningococcal <sup>11,*</sup>												1 or more doses
Hepatitis A <sup>12,*</sup>												2 doses
Hepatitis B <sup>13,*</sup>												3 doses

\*Covered by the Vaccine Injury Compensation Program

- For all persons in this category who meet the age requirements and who lack documentation of vaccination or have no evidence of previous infection; Zoster vaccine recommended regardless of prior episode of zoster
- Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)
- No recommendation



**U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention**

These schedules indicate the recommended age groups and medical indications for which administration of currently licensed vaccines is commonly indicated for adults ages 19 years and older, as of January 1, 2013. For all vaccines being recommended on the Adult Immunization Schedule: a vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Licensed combination vaccines may be used whenever any components of the combination are indicated and when the vaccine's other components are not contraindicated. For detailed recommendations on all vaccines, including those used primarily for travelers or that are issued during the year, consult the manufacturers' package inserts and the complete statements from the Advisory Committee on Immunization Practices ([www.cdc.gov/vaccines/pubs/acip-list.htm](http://www.cdc.gov/vaccines/pubs/acip-list.htm)). Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.

The recommendations in this schedule were approved by the Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP), the American Academy of Family Physicians (AAFP), American College of Physicians (ACP), American College of Obstetricians and Gynecologists (ACOG), and American College of Nurse-Midwives (ACNM).

### Reference(s):

Advisory Committee on Immunization Practices. Recommended Adult Immunization Schedule: United States: 2013. *Ann Intern Med.* 2013 Feb; 158 (3): 191-199.  
Emory Pubmed link: <http://www.ncbi.nlm.nih.gov.proxy.library.emory.edu/pubmed/23358660>