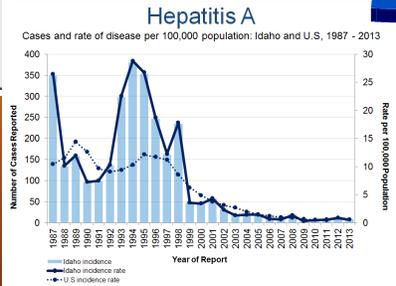
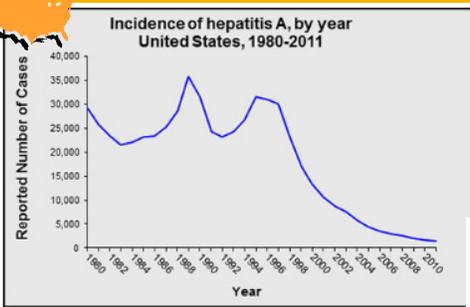


Why get vaccinated?

Hepatitis A



Exposure to hepatitis A continues to occur

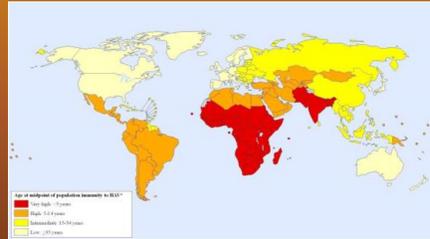
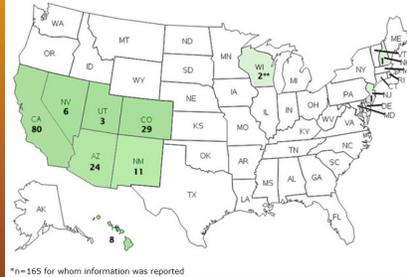
Multistate outbreak of hepatitis A virus infections linked to pomegranate seeds from Turkey (Final Update)

Posted September 15, 2014 12:00 PM ET

This particular outbreak appears to be over. However, *Viral Hepatitis* is still an important cause of human illness in the United States. More information about *Viral Hepatitis*, and steps people can take to reduce their risk of infection, can be found on the [CDC Viral Hepatitis website](#).

Current Case Count Map

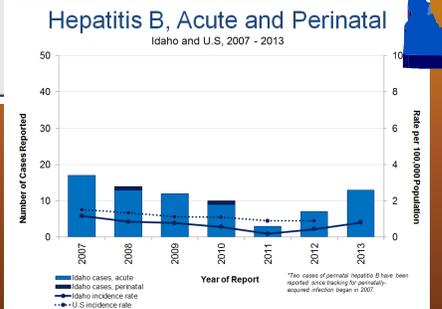
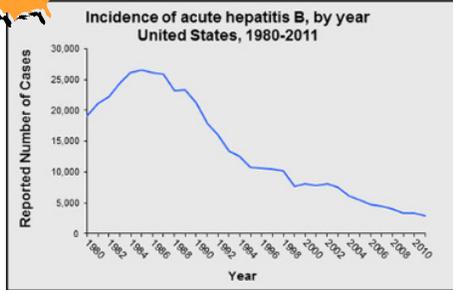
Persons Infected with Hepatitis A Virus, by State*



Source: CDC.
<http://www.cdc.gov/hepatitis/Outbreaks/2013/A1b-03-31/index.html>

Source: Int J Health Geogr
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3210090/>

Hepatitis B



Healthcare-Associated Hepatitis B and C Outbreaks¹ Reported to the Centers for Disease Control and Prevention (CDC) in 2008-2013

The tables below summarize healthcare-associated outbreaks of hepatitis B virus (HBV) and hepatitis C virus (HCV) infection reported in the United States during 2008-2013. Outbreaks previously reported in 1998-2008 can be found in [Thompson, et al](#) and [Redd, et al](#). Because of the long incubation period (up to 6 months) and typically asymptomatic course of acute hepatitis B and C infection, it is likely that only a fraction of such outbreaks that occurred have been detected, and reporting of outbreaks detected and investigated by state and local health departments is not required. Therefore, the numbers reported here may greatly underestimate the number of outbreak-associated cases and the number of at-risk persons notified for screening.

Practical guidance on detecting and investigating such outbreaks may be found [here](#).

Resources for prevention include updated [hepatitis B immunization guidelines](#), and [infection control guidelines and resources](#).

Summary

38 outbreaks of viral hepatitis related to healthcare reported to CDC during 2008-2013; of these, 36 (94%) occurred in non-hospital settings.

Hepatitis B (total 20 outbreaks, 162 outbreak-associated cases, >10,500 persons notified for screening):

- 15 outbreaks occurred in long-term care facilities, with at least 114 outbreak-associated cases of HBV and approximately 1,400 at-risk persons notified for screening
 - 87% (13/15) of the outbreaks were associated with infection control breaks during assisted monitoring of blood glucose (AMBG)
- 5 outbreaks occurred in other settings, one each at: a free dental clinic in school gymnasium, an outpatient oncology clinic, a hospital surgery service, and two at pain remediation clinics (one outbreak of HBV and one with both HBV and HCV), with 46 outbreak-associated cases of HBV and > 8,500 persons at-risk persons notified for screening

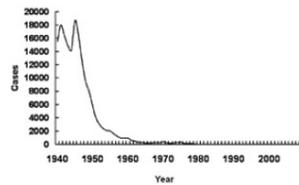
Hepatitis C (total 18 outbreaks, 228 outbreak-associated cases, >92,550 at-risk persons notified for screening):

- 9 outbreaks occurred in outpatient facilities (including the above mentioned outbreak of both HBV and HCV), with 87 outbreak-associated cases of HCV and >68,500 persons notified for screening
- 7 outbreaks occurred in hemodialysis settings, with 68 outbreak-associated cases of HCV and 1,319 persons notified for screening
- Two outbreaks occurred because of drug diversion by HCV-infected health care providers, with at least 71 outbreak-associated cases of HCV and >19,000 persons notified for screening

Source: CDC. <http://www.cdc.gov/hepatitis/Outbreaks/PDFs/HealthcareInvestigationTable.pdf>

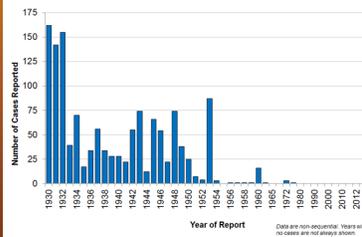
Diphtheria

Diphtheria - United States, 1940-2009



Diphtheria

Cases: Idaho, 1930 - 2013



Diphtheria continues to circulate

- During 1980--2001, a total of 53 cases of probable or confirmed respiratory diphtheria were reported to CDC
- In recent years, sporadic cases of respiratory diphtheria have continued to occur in the U.S., primarily among adults.

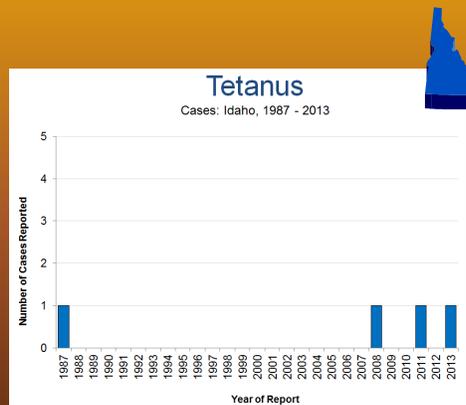
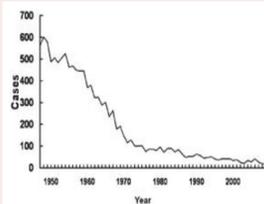
The screenshot shows the top portion of a CDC MMWR article. The header includes the CDC logo, 'MMWR Weekly', and the date 'January 9, 2004 / (52)(3); 1205-1208'. Below the header, there is a disclaimer: 'The content, links, and pdfs are no longer maintained and might be outdated.' followed by a note: 'The content on this page is being archived for historic and reference purposes only.' and a link to 'For current, updated information see the MMWR archive.' The main title of the article is 'Fatal Respiratory Diphtheria in a U.S. Traveler to Haiti --- Pennsylvania, 2003'. The introductory text states: 'Respiratory diphtheria can be severe or fatal in unvaccinated persons, even with appropriate treatment. 75-10% of patients with diphtheria die (1). For >50 years, vaccination against diphtheria has been recommended for children and adults in the United States. Persons who are unvaccinated or vaccinated inadequately can contract diphtheria during travel to areas where the disease is endemic, visiting family and their close contacts at risk for severe illness. This report describes fatal respiratory diphtheria in an unvaccinated Pennsylvania resident who had visited Haiti, a country where the disease is endemic. The case highlights the need for all international travelers to be up-to-date with all recommended vaccinations, including a primary series of diphtheria-tetanus-containing vaccine.' The article begins with: 'In October 2003, the Pennsylvania Department of Health and CDC were notified of a suspected case of respiratory diphtheria in a previously healthy Pennsylvania man aged 63 years who reported that he had never been vaccinated against diphtheria. He and seven other men from New York, Pennsylvania, and West Virginia had returned from a week-long trip to rural Haiti, where they helped build a church. One day before leaving Haiti, the patient had a sore throat. Two days after his return to Pennsylvania, he visited a local emergency department (ED) complaining of a persistent sore throat and difficulty swallowing. A rapid test for group A streptococcal antigens and a test for heterophile agglutinins were negative; he received oral amoxicillin and clindamycin penicillins.'

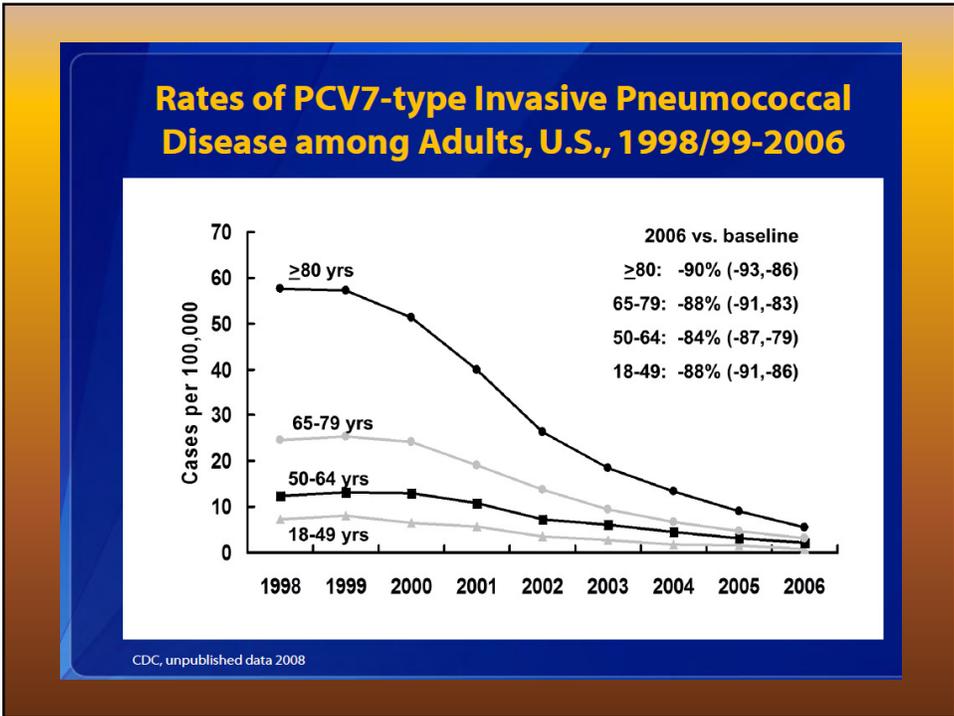
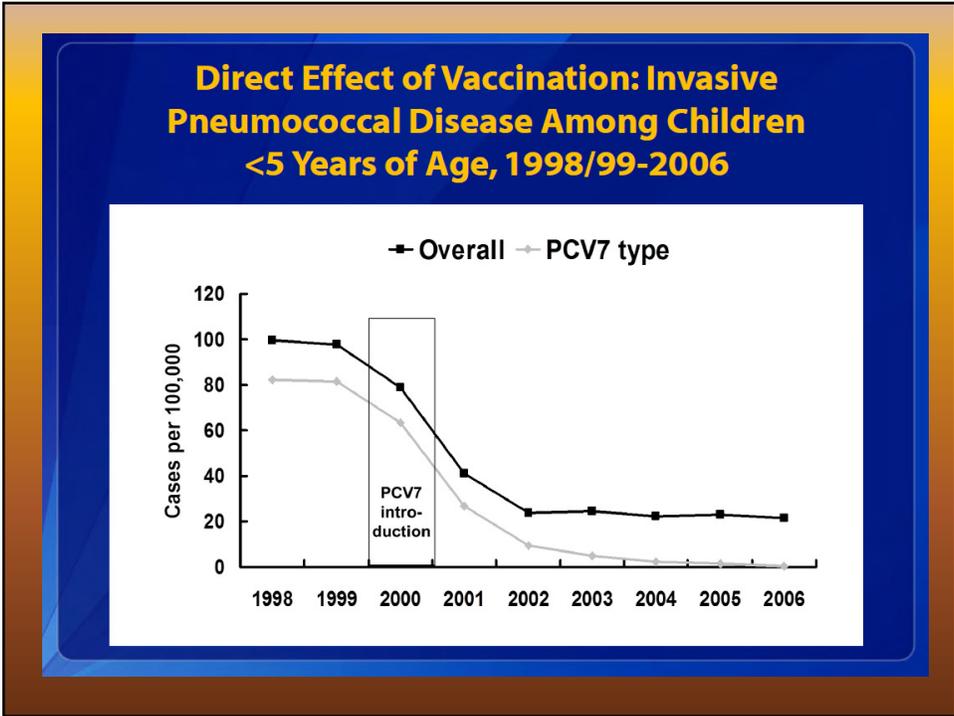
Source: CDC.
<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5253a3.htm>

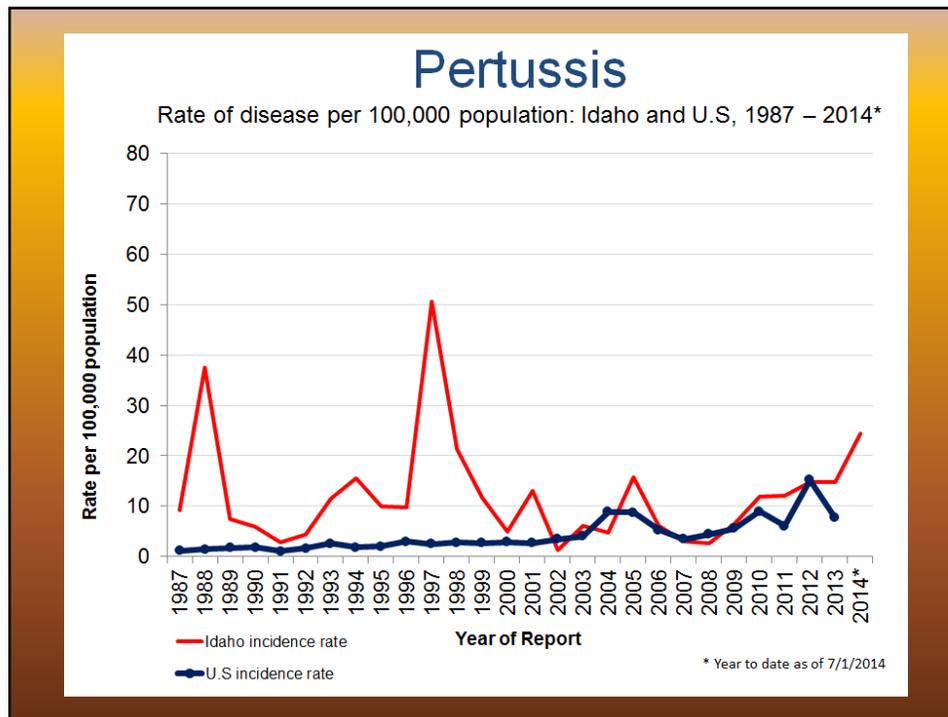
Tetanus



Tetanus - United States, 1947-2009

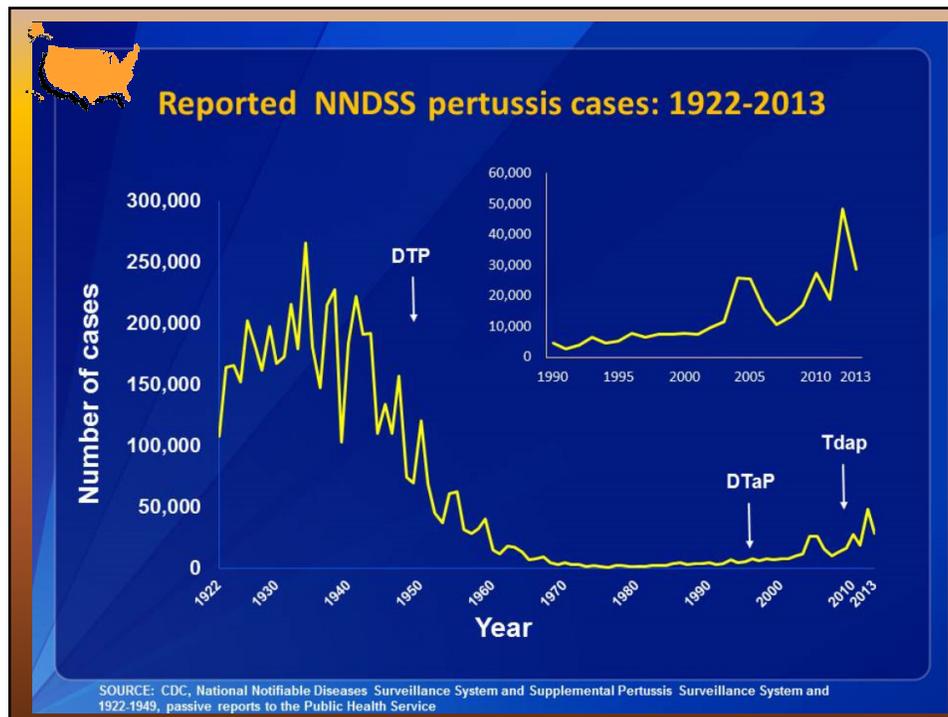






Pertussis: a growing problem

- ❑ Unlike measles and diphtheria, vaccination programs have NOT been able to eliminate transmission of pertussis in the U.S.
- ❑ Nonetheless, the vaccine is effective, especially in the short term, but wears off over time.
- ❑ This phenomenon is thought to be related to the switch to acellular pertussis vaccines in the 1990s



Pertussis vaccine recommendations can be confusing

- ❑ Dtap is only licensed for children under 7 years of age, at which time Tdap must be used.
- ❑ Tdap is only licensed for one-time use; after Tdap is given once, Td must be used for tetanus and diphtheria protection
- ❑ However, CDC recommendations are for women to be vaccinated with Tdap during pregnancy, even if they have already received Tdap
- ❑ Pertussis vaccine is only available linked to Td, so every time someone is vaccinated for pertussis they are also receiving a dose of tetanus and diphtheria vaccine
- ❑ However, it's possible to vaccinate with Td and not include pertussis component

Current Pertussis Schedules

Figure 1. Recommended immunization schedule for persons aged 0 through 18 years - United States, 2014. (FOR THOSE WHO FALL BEHIND OR START LATE, SEE THE CATCH-UP SCHEDULE [FIGURE 2]). These recommendations must be read with the footnotes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars in Figure 1. To determine minimum intervals between doses, see the catch-up schedule (Figure 2). School entry and adolescent vaccine age groups are in bold.

Vaccine	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19-23 mos	2-3 yrs	4-6 yrs	7-10 yrs	11-12 yrs	13-15 yrs	16-18 yrs
Hepatitis B ¹ (HepB)	1 st dose	2 nd dose			3 rd dose											
Rotavirus ² (RV) RV1 (2-dose series); RVS (3-dose series)			1 st dose	2 nd dose	See footnote 2											
Diphtheria, tetanus, & acellular pertussis ³ (DTaP: <7 yrs)			1 st dose	2 nd dose	3 rd dose	4 th dose			5 th dose							
Tetanus, diphtheria, & acellular pertussis ³ (Tdap: ≥7 yrs)													Tdap			

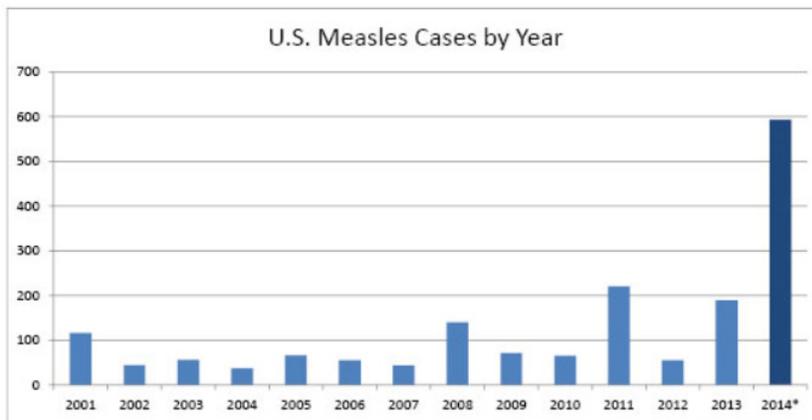


2014 Recommended Immunizations for Adults by Age

Talk to your healthcare professional about these vaccines:	If you are this age,					
	19-21 years	22-26 years	27-49 years	50-59 years	60-64 years	65+ years
Influenza (Flu) ¹	Get a flu vaccine every year					
Tetanus, diphtheria, pertussis (Td/Tdap) ²	Get a Tdap vaccine once, then a Td booster vaccine every 10 years					

Footnote to adult schedule: "Pregnant women are recommended to get Tdap vaccine with each pregnancy in the third trimester to increase protection for infants who are too young for vaccination, but at highest risk for severe illness and death from pertussis."

U.S. Measles Cases by Year



*Provisional data reported to CDC's National Center for Immunization and Respiratory Diseases
 †Updated once a month



*As of 8/29/2014. Most cases were reported from Ohio (138), California (60), and New York City (26).

TABLE. Countries associated with imported measles cases, by World Health Organization (WHO) region, number of cases (N = 45), and genotype – United States, January 1–May 23, 2014

WHO region	No. of cases	Country	No. of cases	Genotype*
African	0	—	—	
Eastern Mediterranean	1	Pakistan	1	B3
European	4	Dubai/Germany/England	1 [†]	B3
		France/Belgium	1 [†]	D8
		Netherlands	1	
		Republic of Georgia	1	B3
Americas	3	Brazil	1	B3
		Chile	1	D8
		Canada	1	D8
South-East Asia	8	India	6	D8
		Indonesia	1	
		Thailand/South Korea	1 [†]	
Western Pacific	29	China	2	H1
		Micronesia	1	B3
		Philippines	22	B3, D9
		Saipan	1	B3
		Singapore	1	D8
		South-East Asia/Philippines	1 [†]	
		Vietnam	1	D8

* Genotype was determined based on methodology described in the WHO measles virus nomenclature 2012 update: Wkly Epidemiol Rec 2012;87:73–80. Genotypes listed are those identified in a sample from the imported case or from a case that is epidemiologically linked to that importation.

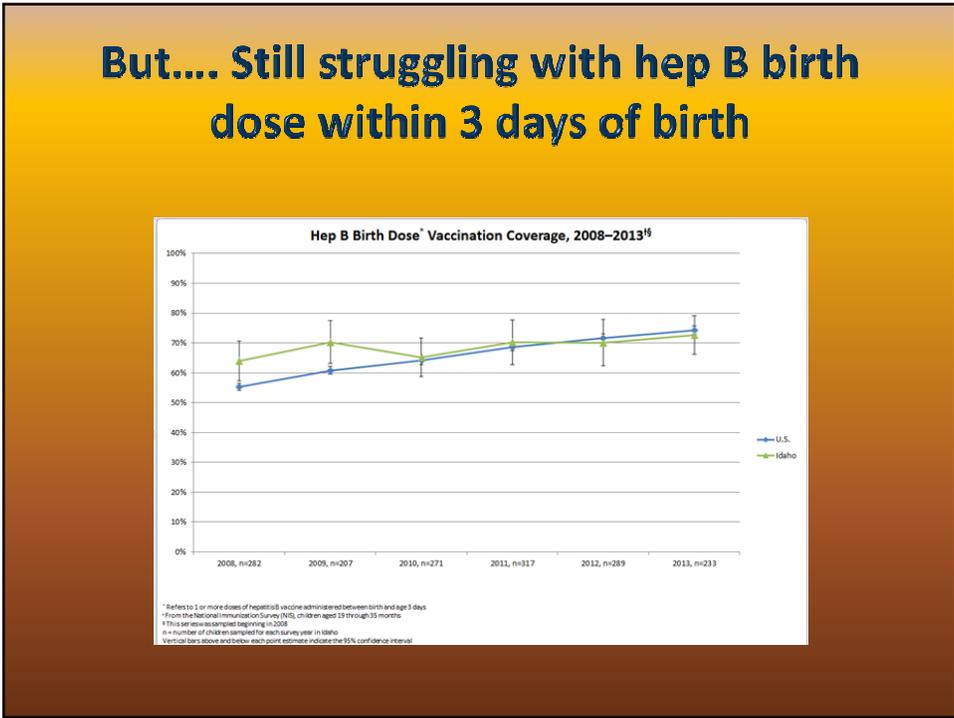
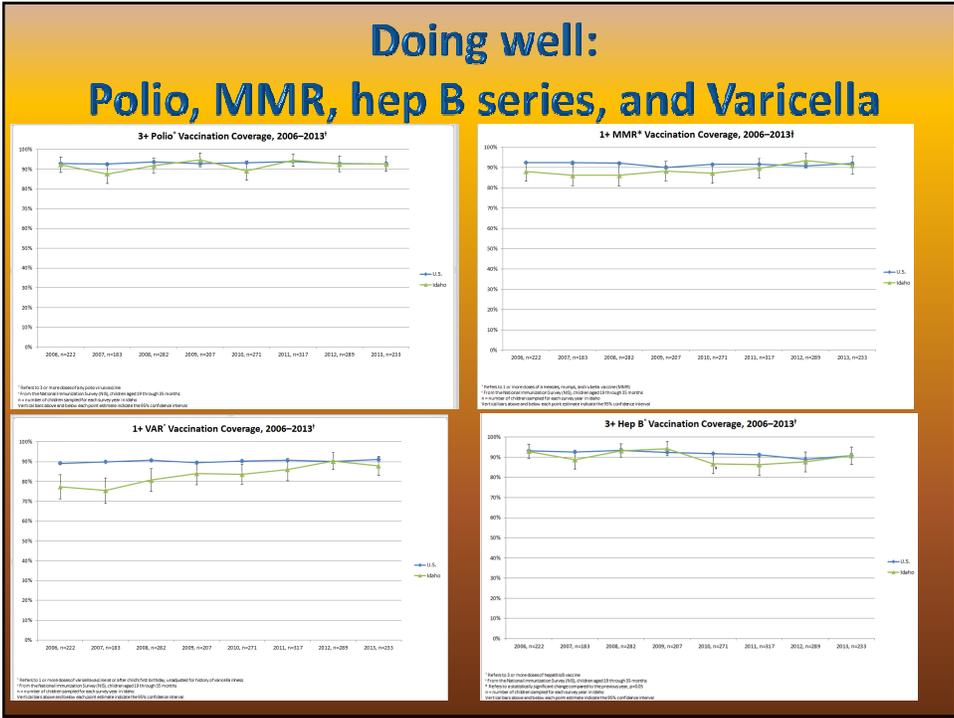
† Patient had visited more than one country where measles is endemic during the incubation period, and exposure could have occurred in any of the countries and regions listed.

Source: CDC. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6322a4.htm?s_cid=mm6322a4_w

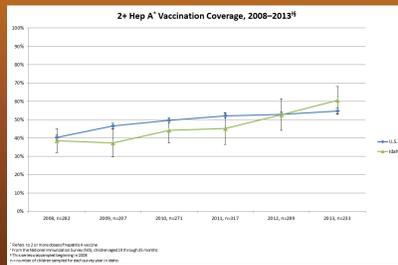
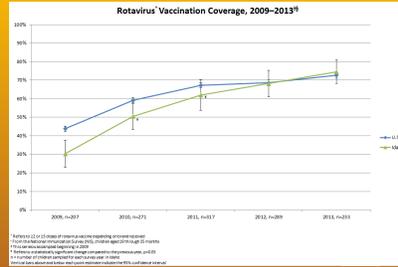
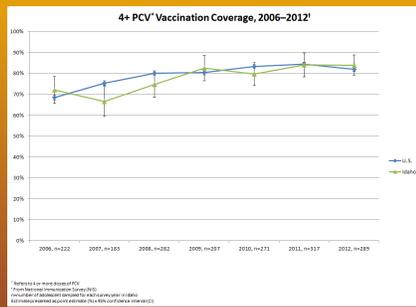


2013 National Immunization Survey (NIS)
 Published August 28, 2014

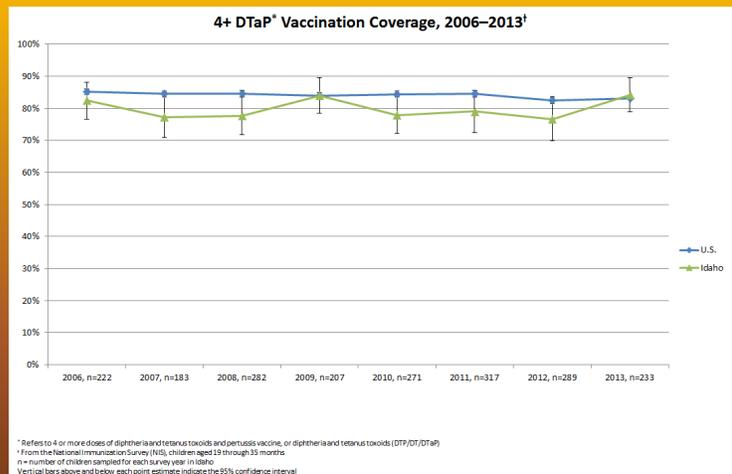
Our nation's report card for children 19-35 months of age



Improving but not near 90%: PCV, rotavirus, and hep A



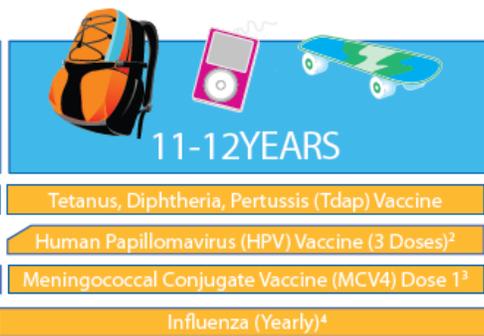
Not Quite there: DTaP full series



Bottom line: infant immunizations

- ▣ Idaho is improving in many measures, and has risen in the national rankings (now 23rd compared to other states) but much work remains
- ▣ Particular challenges include:
 - Birth dose of hepatitis B
 - 4th dose of DTaP
 - Hib series
 - Hepatitis A series
 - Rotavirus

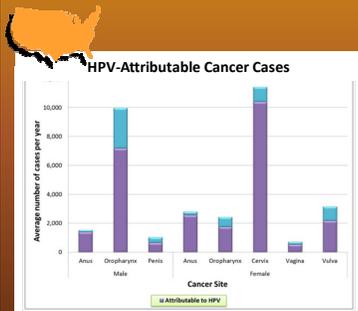
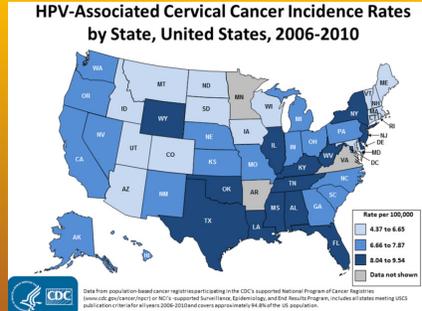
Teens



A graphic titled "Teens" for "11-12 YEARS" showing icons of a backpack, a pink MP3 player, and a skateboard. Below the icons is a list of vaccines in yellow boxes: Tetanus, Diphtheria, Pertussis (Tdap) Vaccine; Human Papillomavirus (HPV) Vaccine (3 Doses)²; Meningococcal Conjugate Vaccine (MCV4) Dose 1³; and Influenza (Yearly)⁴. A red arrow points to the left side of the graphic.

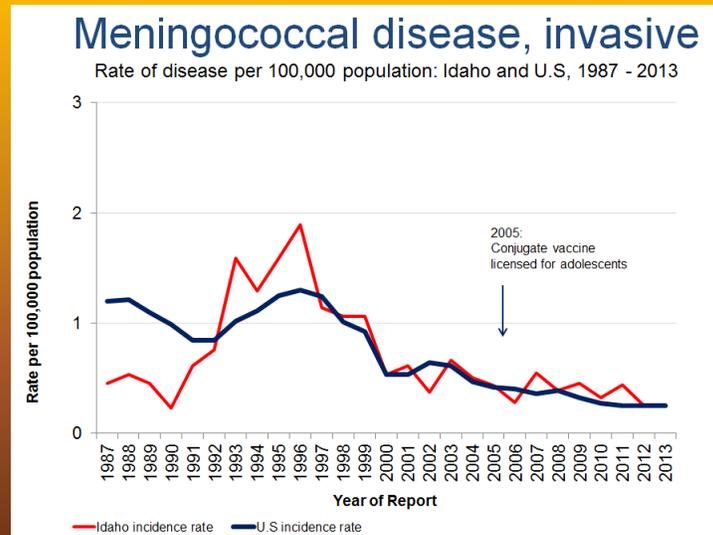
11-12 YEARS
Tetanus, Diphtheria, Pertussis (Tdap) Vaccine
Human Papillomavirus (HPV) Vaccine (3 Doses) ²
Meningococcal Conjugate Vaccine (MCV4) Dose 1 ³
Influenza (Yearly) ⁴

HPV-related diseases prevented by teen vaccination

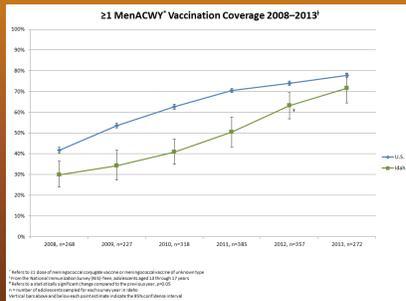
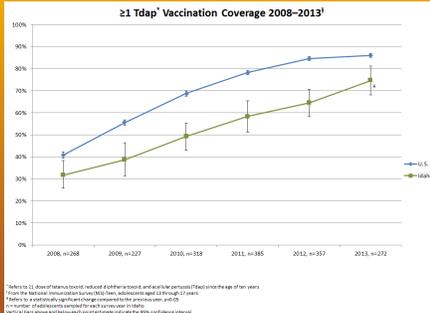


- HPV infection is the most common STD in U.S. youth.
- 54% of females have HPV infection within 4 years of first sexual intercourse.
- 29.3% of ninth-grade girls report prior sexual activity; 62.4 percent by 12th grade.
- About 1% of sexually active adults in the U.S. have genital warts at any given time.

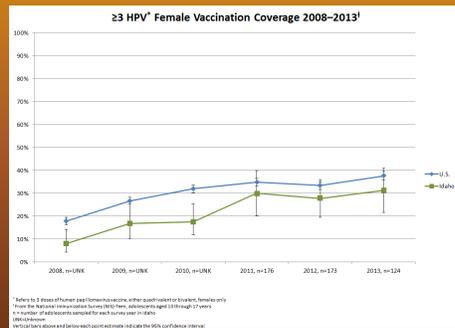
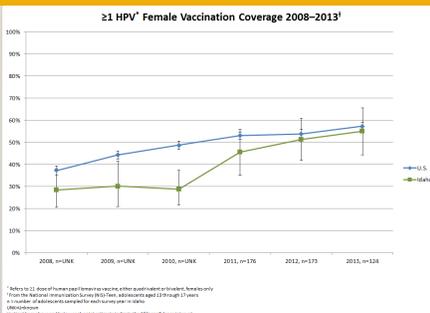
Additional diseases prevented by teen vaccination



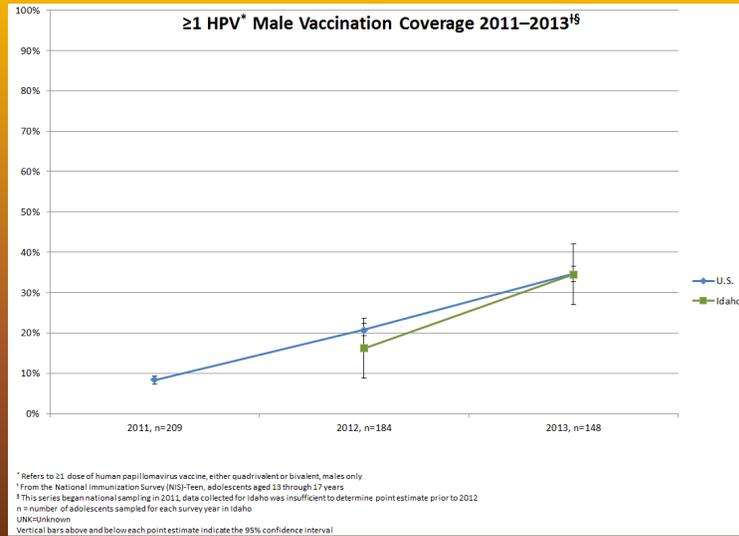
Teens Pertussis, Tetanus, Diphtheria (Tdap) and Meningococcal Disease



Teens— female Human Papillomavirus



Teens— male Human Papillomavirus



Adults

Talk to your healthcare professional about these vaccines:	2014 Recommended Immunizations for Adults by Age					
	19-21 years	22-26 years	27-49 years	50-59 years	60-64 years	65+ years
Influenza (Flu) ¹	Get a flu vaccine every year					
Tetanus, diphtheria, pertussis (Td/Tdap) ²	Get a Tdap vaccine once, then a Td booster vaccine every 10 years					
Varicella (Chickenpox) ³	2 doses					
HPV Vaccine for Women ^{4,4}	3 doses					
HPV Vaccine for Men ^{4,4}	3 doses	3 doses				
Zoster (Shingles) ⁵					1 dose	
Measles, mumps, rubella (MMR) ³	1 or 2 doses					
Pneumococcal (PCV13) ⁷	1 dose					
Pneumococcal (PPSV23) ⁷	1 or 2 doses					
Meningococcal	1 or more doses					
Hepatitis A ³	2 doses					
Hepatitis B ³	3 doses					
Haemophilus influenzae type b (Hib)	1 or 3 doses					

Boxes this color show that the vaccine is recommended for all adults who have not been vaccinated, unless your healthcare professional tells you that you cannot safely receive the vaccine or that you do not need it.

Boxes this color show when the vaccine is recommended for adults with certain risks related to their health, job or lifestyle that put them at higher risk for serious diseases. Talk to your healthcare professional to see if you are at higher risk.

No recommendation

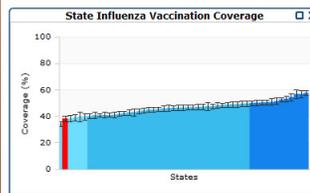
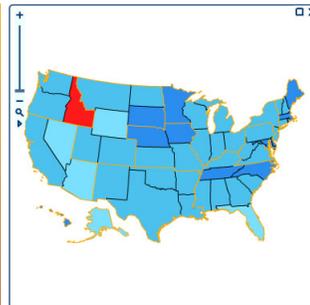
Adults

Vaccine	Risk Group	Immunization Rate
Tetanus (Td or Tdap)	19-49	64.2
	50-64	63.5
	≥65	55.1
Pneumococcal	19-64, high-risk	20.0
	≥65	59.9
Herpes Zoster	≥60	20.1
Tdap	All adults ≥19	14.2

Source: CDC 2012 National Health Interview Survey
<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6305a4.htm#Tab1>

Influenza

Influenza vaccination coverage estimates by State, HHS Region, and the United States, National Immunization Survey (NIS) and Behavioral Risk Factor Surveillance System (BRFSS), 2010-11 through 2012-13 influenza seasons



Idaho: 37.8%

Before you vaccinate adults, consider their “H-A-L-O”!

What is H-A-L-O? As shown below, it's an easy-to-use chart that can help you make an initial decision about vaccinating a patient based on four factors—the patient's Health condition, Age, Lifestyle, and Occupation. In some situations, though, you can vaccinate a patient without considering these factors. For example, all adults need a dose of Tdap as well as annual vaccination against influenza, and any adult who wants protection against hepatitis A or hepatitis B can be vaccinated. Note that not all patients who mention one or more H-A-L-O factors will need to be vaccinated. Before you make a definitive decision about vaccinating your patient, it's important that you refer to the more detailed information found in the Immunization Action Coalition's "Summary

of Recommendations for Adult Immunization," located at www.immunize.org/catg.d/p2011.pdf or the complete vaccine recommendations of the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices (ACIP) at www.cdc.gov/vaccines/pubs/ACIP-1st.htm.

How do I use H-A-L-O? Though some H-A-L-O factors can be easily determined (e.g., age, pregnancy), you will need to ask your patient about the presence or absence of others. Once you determine which of the factors apply, scan down each column of the chart to see at a glance which vaccinations are possibly indicated (they are shown with a check mark).

H-A-L-O checklist of factors that indicate a possible need for adult vaccination

Vaccine	Health factors								Age factors	Lifestyle factors						Occupational or other factors						
	Pregnant	Certain chronic diseases	Immunosuppressed (including HIV)	History of STD	Asplenia	Cochlear implant candidate/receiver	Organ transplant (or stem cell transplant or immunosuppressant)	CSF leaks		Alcoholism	Born outside the U.S.	Men who have sex with men	Not in a long-term, mutually monogamous relationship	User of injecting or non-injecting drugs	International traveler	Close contact of intravenous drug users	Cigarette smoker	College students	Parent or caregiver of a young child	Healthcare worker	Certain lab workers	Adults in institutional settings (e.g., chronic care, correctional)
HepA		✓									✓		✓	✓	✓						✓	
HepB		✓									✓	✓	✓	✓	✓						✓	✓
Hib		✓	✓		✓																	
HPV (females)									Through 26 yrs													
HPV (males)			✓						Routine through 21 yrs; risk-based 22–26 yrs		✓											
IPV														✓								✓
Influenza	Annual vaccination is recommended for all adults.....>																					
Meningococcal		✓			✓										✓			✓				✓
MMR			?						Routine 1 dose if born after 1956; 2nd dose for some									✓				
PCV13		✓	✓		✓	✓	✓	✓														
PPSV23		✓	✓		✓	✓	✓	✓		65 yrs & older						✓						✓
Tdap	A single dose is recommended for all adults; pregnant women should receive Tdap during each pregnancy.....>																					
Varicella	Completion of a 2-dose series is recommended for non-pregnant adults through age 59 years who do not have evidence of immunity to varicella.....>																					
Zoster										60 yrs & older												

? = Vaccination may be indicated depending on degree of immunosuppression.

IMMUNIZATION ACTION COALITION 1573 Selby Avenue • St. Paul, MN 55104 • 651-647-9009 • www.immunize.org • www.vaccineinformation.org

Technical content reviewed by the Centers for Disease Control and Prevention www.immunize.org/catg.d/p3070.pdf • Item #P3070 (1/1/13)

Hospitalized Patients: opportunities

- Pneumococcal vaccine
- Influenza vaccine
- Pertussis vaccine
- Birth dose of hepatitis B

Pneumococcal vaccine news

- ▣ The CDC's Advisory Committee on Immunization Practices (ACIP) held a special meeting Aug. 13 that culminated in a vote to recommend routine immunization with 13-valent pneumococcal conjugate vaccine (PCV13) for adults 65 or older.
- ▣ The ACIP also recommended that a dose of 23-valent pneumococcal polysaccharide vaccine be administered to these patients six to 12 months after PCV13 vaccination.
- ▣ Currently, Medicare only pays for one dose of pneumococcal vaccine for patients older than 65.
- ▣ ACIP will re-evaluate the PCV13 vaccination recommendation in 2018.

Influenza: 2014-15 season

1. All persons aged ≥ 6 months should receive influenza vaccine annually.
2. When immediately available, LAIV should be used for healthy children aged 2 through 8 years who have no contraindications or precautions. If LAIV is not immediately available, IIV should be used.
3. LAIV should not be used in [note: no change]:
 1. Persons aged < 2 years or > 49 years;
 2. Those with contraindications listed in the package insert:
 1. Children aged 2 through 17 years who are receiving aspirin or aspirin-containing products;
 2. Persons who have experienced severe allergic reactions to the vaccine or any of its components, or to a previous dose of any influenza vaccine;
 3. Pregnant women;
 4. Immunosuppressed persons;
 5. Persons with a history of egg allergy;
 6. Children aged 2 through 4 years who have asthma or who have had a wheezing episode noted in the medical record within the past 12 months, or for whom parents report that a health care provider stated that they had wheezing or asthma within the last 12 months
 7. Persons who have taken influenza antiviral medications within the previous 48 hours.
 8. In addition to the groups for whom LAIV is not recommended above, see the "Warnings and Precautions" section of the LAIV package insert for further precautions on other chronic conditions.
 9. Persons who care for severely immunosuppressed persons who require a protective environment (unless they can avoid the person for 7 days after receipt).

Hospital efforts to improve postpartum pertussis vaccination

Am J Obstet Gynecol 2014 Mar; Epub 2013 Oct 2.

Effectiveness of hospital-based postpartum procedures on pertussis vaccination among postpartum women.

The intervention and comparison hospitals are private community facilities, each with 2000-6000 births/year. At the intervention hospital, physician opt-in orders for tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine (Tdap) before discharge were implemented in November 2009, followed by standing orders in February 2010. The comparison hospital maintained standard practice.

RESULTS:

- Tdap postpartum vaccination was 0% at both hospitals at baseline. In the intervention hospital, the introduction of the opt-in order was followed by an increase in postpartum vaccination to 18%. The introduction of the standing order approach was followed by a further increase to 69% (P < .0001). No postpartum Tdap vaccinations were documented in the comparison hospital. Postpartum Tdap vaccination in the intervention hospital did not differ by demographic characteristics.
- **CONCLUSION:**
- In-hospital ordering procedures substantially increased Tdap vaccination coverage in women after delivery.
- Opt-in orders increased coverage that increased substantially with standing orders

Immunization of HCP

TABLE 3. Immunizing agents and immunization schedules for health-care personnel (HCP)^a

Generic name	Primary schedule and booster(s)	Indications	Major precautions and contraindications	Special considerations
Immunizing agents recommended for all HCP				
Hepatitis B (HB) recombinant vaccine	1 dose 4 weeks after third dose 5 months after second booster does not necessary; all doses should be administered IM in the deltoid	Preexposure: HCP at risk for exposure to blood or body fluids; postexposure (see Table 4)	On the basis of limited data, no risk for adverse effects to developing fetuses is apparent. Pregnancy should not be considered a contraindication to vaccination of women. Previous anaphylactic reaction to common latex is not a contraindication to vaccination.	The vaccine produces neither therapeutic nor adverse effects in HBV-infected persons. Pre-vaccination serologic testing is not indicated for persons being vaccinated because of occupational risk, but might be indicated for HCP in certain high-risk occupations. HCP at high risk for occupational contact with blood or body fluids should be tested 1-2 months after vaccination to determine serologic response.
Hepatitis B immune globulin (HBIG)	0.06 mL/kg IM as soon as possible after exposure, if indicated	Postexposure prophylaxis (see Table 4)	See package insert ^b	
Influenza vaccine (TV and LAVV)	Annual vaccination with current seasonal vaccine. TV is available in IM and ID formulations; administered intranasally.	All HCP	History of severe (e.g., anaphylactic) hypersensitivity to eggs; prior severe allergic reaction to influenza vaccine	No evidence exists of risk to mother or fetus when the vaccine is administered to a pregnant woman with an underlying high-risk condition. Influenza vaccination is recommended for women who are or will be pregnant during influenza season because of increased risk for hospitalization and death. LAVV is recommended only for healthy, non-pregnant persons aged 2-49 years. Intradermal vaccine is indicated for persons aged 50-64 years. HCP who care for severely immunosuppressed persons who require a protective environment should receive TV rather than LAVV.
Measles live-virus vaccine	2 doses SC; ≥28 days apart	Vaccination should be recommended for all HCP who lack presumptive evidence of immunity. ^c Vaccination should be considered for those born before 1957.	Pregnancy; immunocompromised persons; ¹⁴ including HIV-infected persons who have evidence of severe immunosuppression; anaphylaxis to gelatin or gelatin-containing products; anaphylaxis to neomycin; and recent administration of immune globulin.	HCP vaccinated during 1963-1967 with a killed measles vaccine alone, killed vaccine followed by live vaccine, or a vaccine of unknown type should be re-vaccinated with 2 doses of live measles virus vaccine.
Mumps live-virus vaccine	2 doses SC; ≥28 days apart	Vaccination should be recommended for all HCP who lack presumptive evidence of immunity. ^c Vaccination should be considered for those born before 1957.	Pregnancy; immunocompromised persons; ¹⁴ including HIV-infected persons who have evidence of severe immunosuppression; anaphylaxis to gelatin or gelatin-containing products; anaphylaxis to neomycin	HCP vaccinated before 1978 with either killed mumps vaccine or mumps vaccine of unknown type should consider re-vaccination with 2 doses of MMR vaccine.
Rubella live-virus vaccine	1 dose SC. (However, due to the 2-dose requirements for measles and mumps vaccines, the use of MMR vaccine will result in most HCP receiving 2 doses of rubella-containing vaccine.)	Vaccination should be recommended for all HCP who lack presumptive evidence of immunity. ¹¹	Pregnancy; immunocompromised persons; ¹⁴ including HIV-infected persons who have evidence of severe immunosuppression; anaphylaxis to gelatin or gelatin-containing products; anaphylaxis to neomycin	The risk for rubella vaccine-associated malformation in the offspring of women pregnant when vaccinated or who become pregnant within 1 month after vaccination is negligible. ¹⁶ Such women should be counseled regarding the theoretical basis of concern for the fetus.

Source: CDC. <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6007a1.htm>

Immunization of HCP

TABLE 2. (Continued) Immunizing agents and immunization schedules for health-care personnel (HCP)^a

Generic name	Primary schedule and booster(s)	Indications	Major precautions and contraindications	Special considerations
Tetanus and diphtheria (toxoids) and acellular pertussis (Tdap)	1 dose IM as soon as feasible if Tdap not already received and regardless of interval from last Td. After receipt of Tdap, receive Td for routine booster every 10 years.	All HCP, regardless of age.	History of serious allergic reaction (i.e., anaphylaxis) to any component of Tdap. Because of the importance of tetanus vaccination, persons with history of anaphylaxis to components in Tdap or Td should be referred to an allergist to determine whether they have a specific allergy to tetanus toxoid and can safely receive tetanus toxoid (TT) vaccine. Persons with history of encephalopathy (e.g., coma or prolonged seizures) not attributable to an identifiable cause within 7 days of administration of a vaccine with pertussis components should receive Td instead of Tdap.	Tetanus prophylaxis in wound management if not yet received Tdap***
Varicella vaccine (varicella zoster virus livevirus vaccine)	2 doses SC 4–8 weeks apart if aged ≥13 years.	All HCP who do not have evidence of immunity defined as: written documentation of vaccination with 2 doses of varicella vaccine; laboratory evidence of immunity ^{††} or laboratory confirmation of disease; diagnosis or verification of a history of varicella disease by a health-care provider ^{§§§} ; or diagnosis or verification of a history of herpes zoster by a health-care provider.	Pregnancy; immunocompromised persons ^{††} ; history of anaphylactic reaction after receipt of gelatin or neomycin. Varicella vaccination may be considered for HIV-infected adolescents and adults with CD4+ T-lymphocyte count >200 cells/μL. Avoid salicylate use for 6 weeks after vaccination.	Because 71%–93% of adults without a history of varicella are immune, serologic testing before vaccination is likely to be cost-effective.
Varicella-zoster immune globulin	125U/10 kg IM (minimum dose, 125U; maximum dose, 625U)	Persons without evidence of immunity who have contraindications for varicella vaccination and who are at risk for severe disease and complications ^{†††} known or likely to be susceptible who have direct, nontransient exposure to an infectious hospital staff worker or patient		Serologic testing may help in assessing whether to administer varicella-zoster immune globulin. If use of varicella-zoster immune globulin prevents varicella disease, patient should be vaccinated subsequently. The varicella-zoster immune globulin product currently used in the United States (VarIZIG) (Cangene Corp., Winnipeg, Canada) can be obtained 24 hours a day from the sole authorized U.S. distributor (PR Enterprises, Temecula, California) at 1-800-843-7477 or http://www.pfizer.com .

<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6007a1.htm>

Immunization of HCP

Other immunobiologics that might be indicated in certain circumstances for HCP

Quadrivalent meningococcal conjugate vaccine (tetraivalent (A,C,Y,W) for HCP ages 19–54 years, Quadrivalent meningococcal polysaccharide vaccine for HCP age >55 years	1 dose; booster dose in 5 years if person remains at increased risk	Clinical and research microbiologists who might routinely be exposed to isolates of <i>Neisseria meningitidis</i>	The safety of the vaccine in pregnant women has not been evaluated; it should not be administered during pregnancy unless the risk for infection is high.	
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TABLE 2. (Continued) Immunizing agents and immunization schedules for health-care personnel (HCP)^a

Generic name	Primary schedule and booster(s)	Indications	Major precautions and contraindications	Special considerations
Typhoid vaccine IM, and oral	IM vaccine: 1 dose, booster every 2 years. Oral vaccine: 4 doses on alternate days. Manufacturer recommends revaccination with the entire 4-dose series every 5 years.	Workers in microbiology laboratories who frequently work with <i>Salmonella typhi</i> .	Severe local or systemic reaction to a previous dose. Ty21a (oral) vaccine should not be administered to immunocompromised persons ^{**} or to persons receiving antimicrobial agents.	Vaccination should not be considered an alternative to the use of proper procedures when handling specimens and cultures in the laboratory.
Inactivated poliovirus vaccine (IPV)	For unvaccinated adults, 2 doses should be administered at intervals of 4–8 weeks; a third dose should be administered 6–12 months after the second dose.	Vaccination is recommended for adults at increased risk for exposure to polioviruses including health-care personnel who have close contact with patients who might be excreting polioviruses. Adults who have previously received a complete course of poliovirus vaccine may receive one lifetime booster if they remain at increased risk for exposure.	Hypersensitivity or anaphylactic reactions to IPV or antibiotics contained in IPV. IPV contains trace amounts of streptomycin, polymyxin B, and neomycin.	

Source: CDC. <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6007a1.htm>

Wrap-up

- ▣ Although some vaccine-preventable diseases are very rare in Idaho now, others continue to be present-- and some are currently increasing
- ▣ Gains are being made in children's immunization rates, but challenges remain
- ▣ Adult immunization is generally low in all areas, including influenza vaccination
- ▣ Opportunities to vaccinate in healthcare settings is increasing; health system pharmacists can play a large role in ensuring appropriate immunization of health care workers and patients