Vaccination in Pregnancy, Vaccination of Health Care Providers and Vaccination in the Workplace

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Adult Immunization Webinar

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Vaccination During Pregnancy

- Live vaccines should not be administered to women known to be pregnant.
- In general, inactivated vaccines may be administered to pregnant women for whom they are indicated.
- There are exceptions for both of these general statements (live and inactivated)
- Some vaccines are specifically indicated because of pregnancy

Vaccination During Pregnancy

- **Inactivated vaccines**
  - Routine
    - Influenza – any trimester
    - Tdap – 27 to 36 weeks
  - Vaccinate if indicated (HepA, HepB, MenACWY)
  - Withhold (HPV)
  - Vaccinate if increased risk (all others except PCV13, Hib, MenB)

Exception to Live Vaccine Contraindications - Yellow Fever Vaccination in Pregnancy

- No evidence of harm to fetus from vaccination of mother
- Pregnant women who must travel to areas where the risk for yellow fever is high should receive the vaccine

Vaccination of Health Care Workers

Universally Recommended Vaccines: Adults

- Adult tetanus-toxoid, reduced diphtheria-toxoid, acellular pertussis vaccine (Tdap / Td)
- Human papillomavirus vaccine (HPV)
- Influenza vaccine (IIV)
- Pneumococcal conjugate vaccine (PCV13)
- Pneumococcal polysaccharide vaccine (PPSV23)
- Zoster vaccine (HZV)

Figures 1 and 2 should be read with the footnotes that contain important general information and considerations for special populations.

Figure 1. Recommended immunization schedule for adults aged 19 years or older by age group, United States, 2017

Vaccine	19–21 years	22–26 years	27–59 years	60–64 years	≥ 65 years
Influenza[1]	1 dose annually				
Td/Tdap[2]	Substitute Tdap for Td once, then Td booster every 10 yrs				
MMR[3]	1 or 2 doses depending on indication				
VAR[4]	2 doses				
HZV[5]				1 dose	
HPV–Female[6]	3 doses				
HPV–Male[6]	3 doses				
PCV13[7]	1 dose				
PPSV23[7]	1 or 2 doses depending on indication				1 dose
HepA[8]	2 or 3 doses depending on vaccine				
HepB[9]	3 doses				
MenACWY or MPSV4[10]	1 or more doses depending on indication				
MenB[10]	2 or 3 doses depending on vaccine				
Hib[11]	1 or 3 doses depending on indication				

Recommended for adults who meet the age requirement, lack documentation of vaccination, or lack evidence of past infection

Recommended for adults with additional medical conditions or other indications

No recommendation

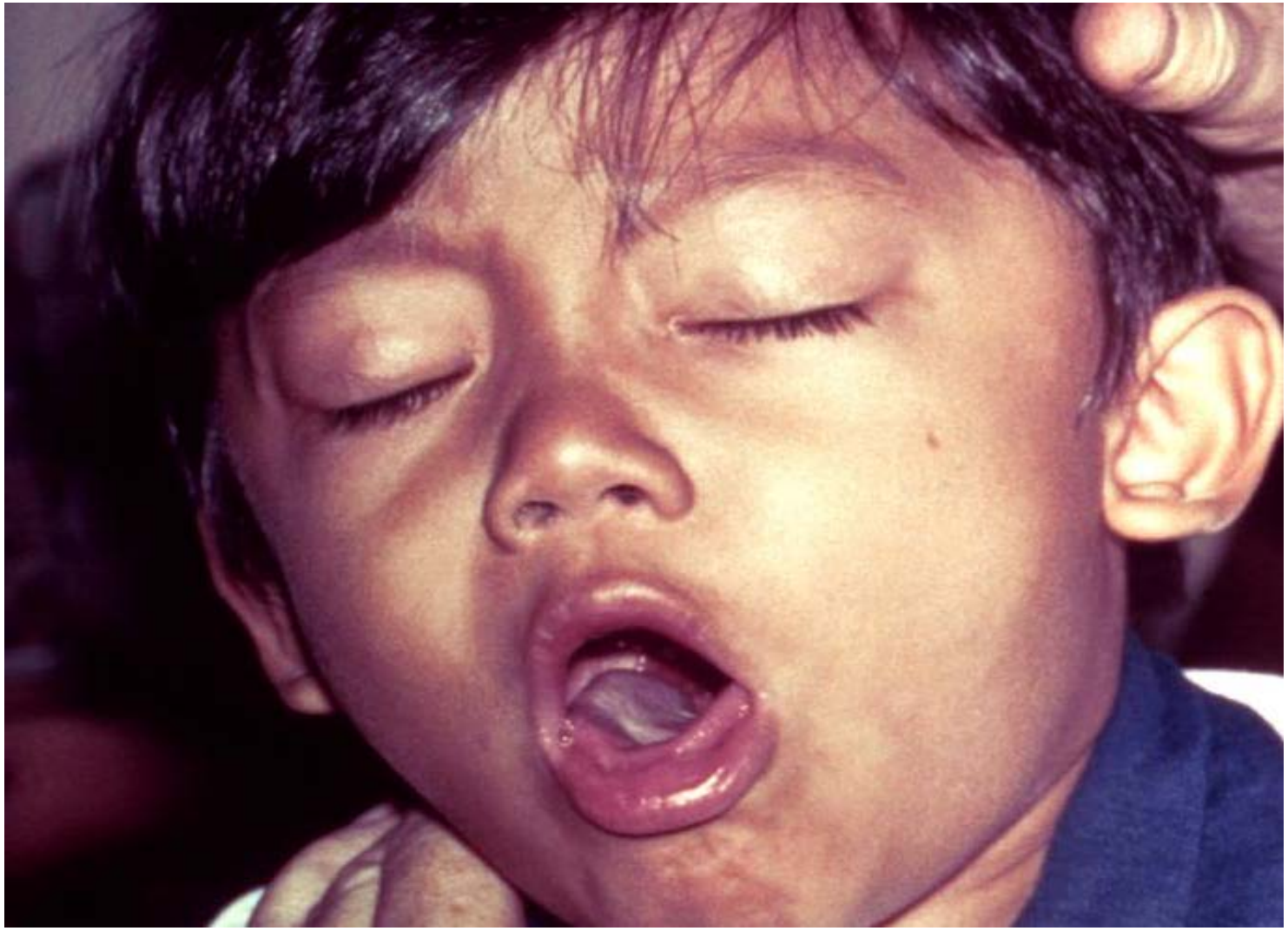
Universal Vaccines: Adults

- Special considerations for clinicians and other health care providers

Universally Recommended Vaccines: Special HCP Recommendations

- Adult tetanus-toxoid, reduced diphtheria-toxoid, acellular pertussis vaccine (Tdap sub. Td)
- Influenza vaccine (IIV)
- Varicella (Var) or Zoster vaccine (Zos)
- Measles-mumps-rubella vaccine (MMR)
- Hepatitis B vaccine (HepB)

Pertussis



Pertussis

Uncontrolled vaccine-preventable disease

Respiratory transmission

Can be fatal in infancy

Evidence of transmission in a health care setting

www.cdc.gov/mmwr/preview/mmwrhtml/mm5722a2.htm

Tdap and Health Care Personnel (HCP)*

- HCP, regardless of age, should receive a single dose of Tdap as soon as feasible if they have not previously received Tdap and regardless of the time since last Td dose

- Hospitals and ambulatory-care facilities should provide Tdap for HCP and use approaches that maximize vaccination rates (e.g., education about the benefits of vaccination, convenient access, and the provision of Tdap at no charge)

- ACIP recommends single dose of Tdap to health care providers https://www.cdc.gov/vaccines/vpd/pertussis/tdap-revac-hcp.html

Health Care Personnel and Post-exposure Prophylaxis in Vaccinated HCP

- Data on the need for postexposure antimicrobial prophylaxis in Tdap-vaccinated HCP are inconclusive. Some vaccinated HCP are still at risk for *B. pertussis*. Tdap may not preclude the need for postexposure antimicrobial prophylaxis.

Health-care Personnel and Post-exposure Prophylaxis

- Postexposure antimicrobial prophylaxis is recommended for all HCP who have unprotected exposure to pertussis and are likely to expose a patient at risk for severe pertussis (e.g., hospitalized neonates and pregnant women).

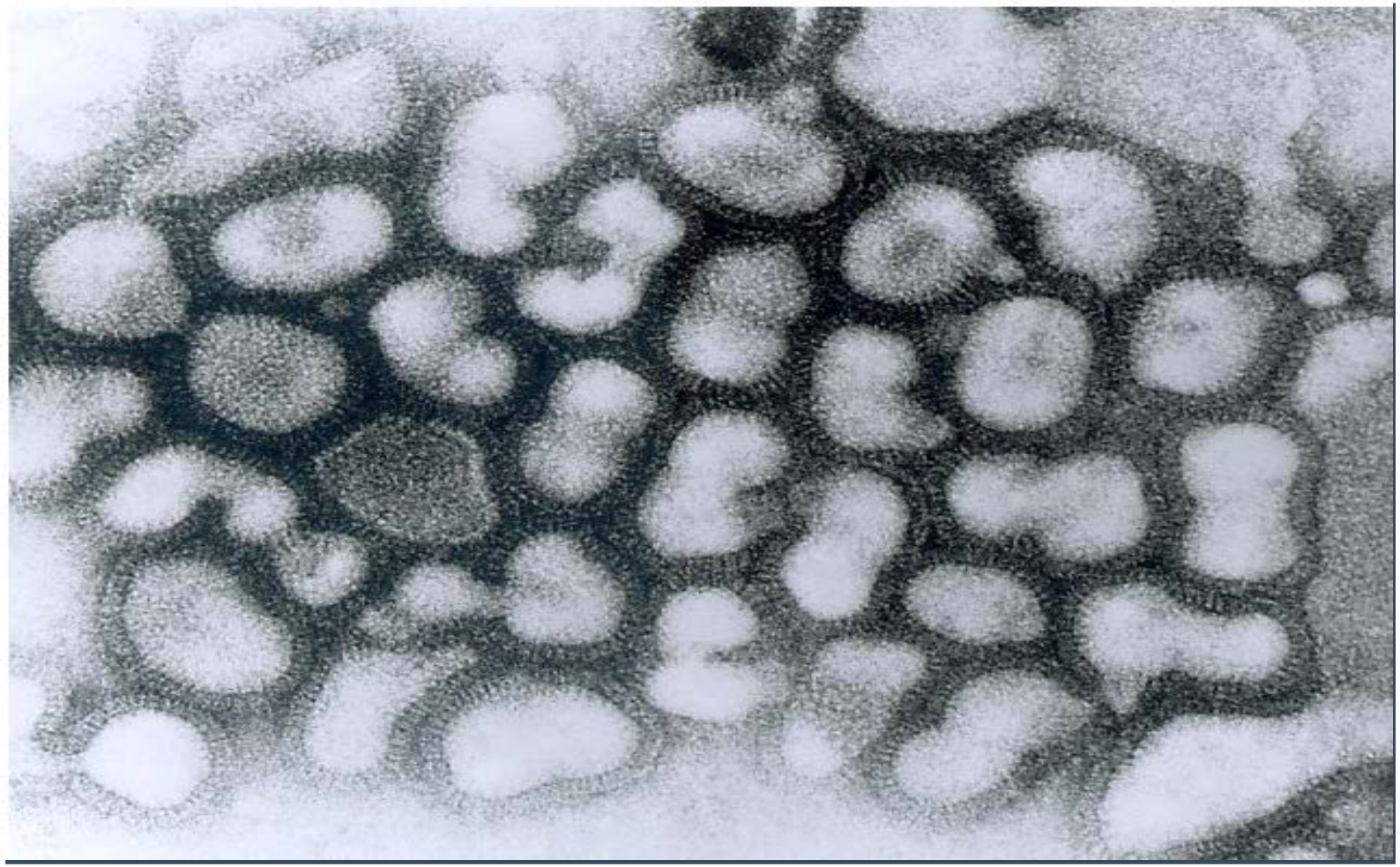
- Other HCP should either receive postexposure antimicrobial prophylaxis or be monitored daily for 21 days after pertussis exposure and treated at the onset of signs and symptoms of pertussis

Use of Antibiotics and Repeat Exposures

- After completion of a 5-day course of azithromycin (or a course of another macrolide, or trimethoprim-sulfamethoxazole), adequate blood levels of the drug should persist for another 5 days.

- Thus persons who finished treatment 2 days prior to another direct exposure should still be protected.

Influenza



Influenza Vaccine Recommendations

- On February 24, 2010, ACIP unanimously approved a revision for the 2010-2011 influenza season
- Influenza vaccination recommendations for adults were expanded to include all adults without contraindications

Influenza Vaccine Recommendations

- In the event of a shortage, health care providers are targeted to receive vaccine

- Risk of transmission to/from patients

Health Care Personnel

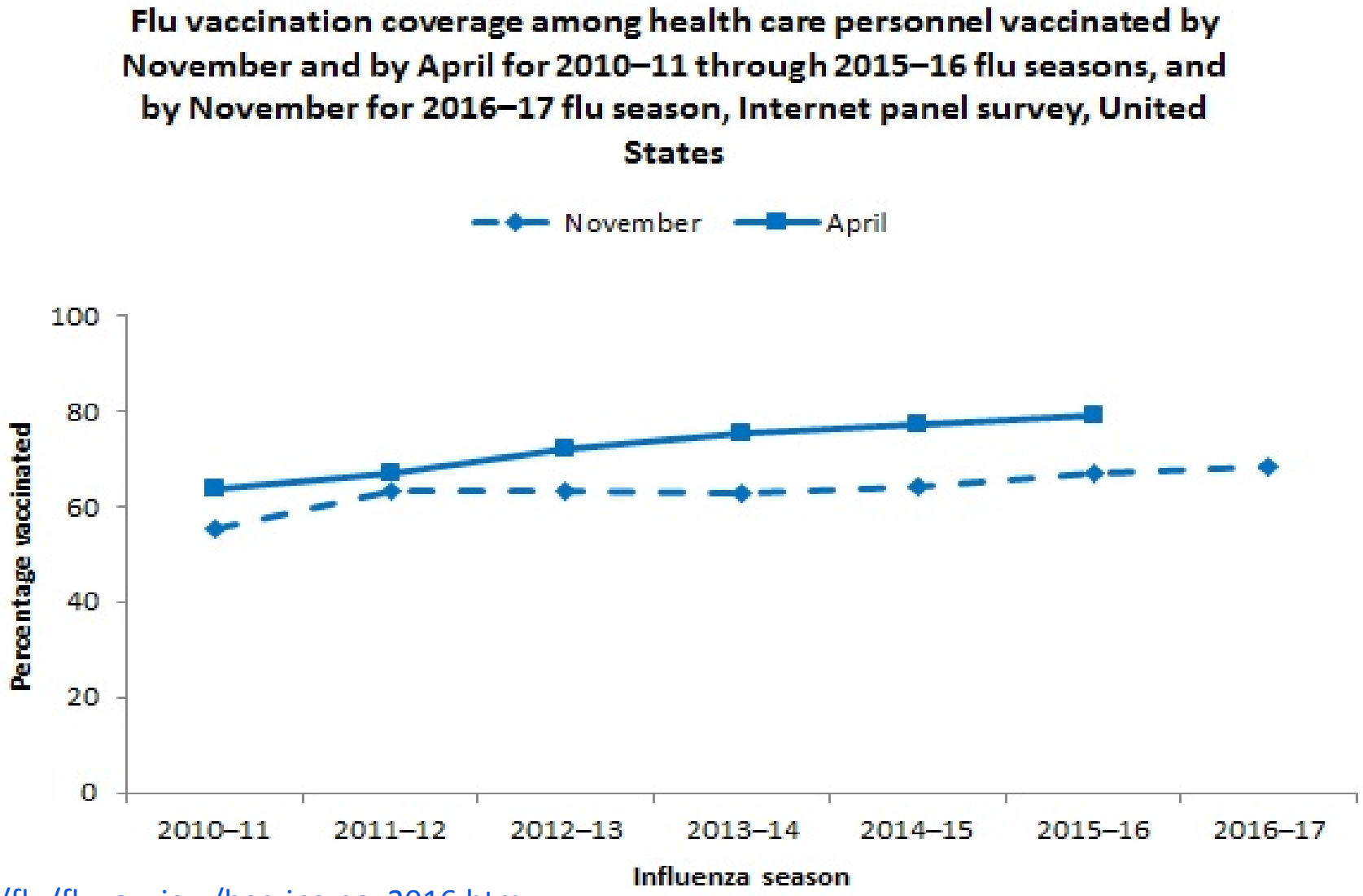
- INCLUDING BUT NOT LIMITED TO:
- People: physicians, nurses, nursing assistants, therapists, technicians, EMS, dental, pharmacists, laboratory staff, maintenance, volunteers
- Places: hospitals, nursing homes, skilled nursing facilities, physician’s offices, urgent care centers, outpatient clinics, home health care, EMS

CDC-ACIP-HICPAC Recommendations

- Offer influenza vaccine annually to all HCP (IA)
- Educate HCP about the benefits of influenza vaccination (IB)
- Provide influenza vaccine at the work site (IB)
- Monitor influenza vaccine coverage and declination (IB)
- Obtain a signed declination form (II)
- Use level of coverage as a measure of patient safety quality (II)

- www.cdc.gov/mmwr/preview/mmwrhtml/rr5502a1.htm

Influenza Vaccine Coverage — Health Care Personnel



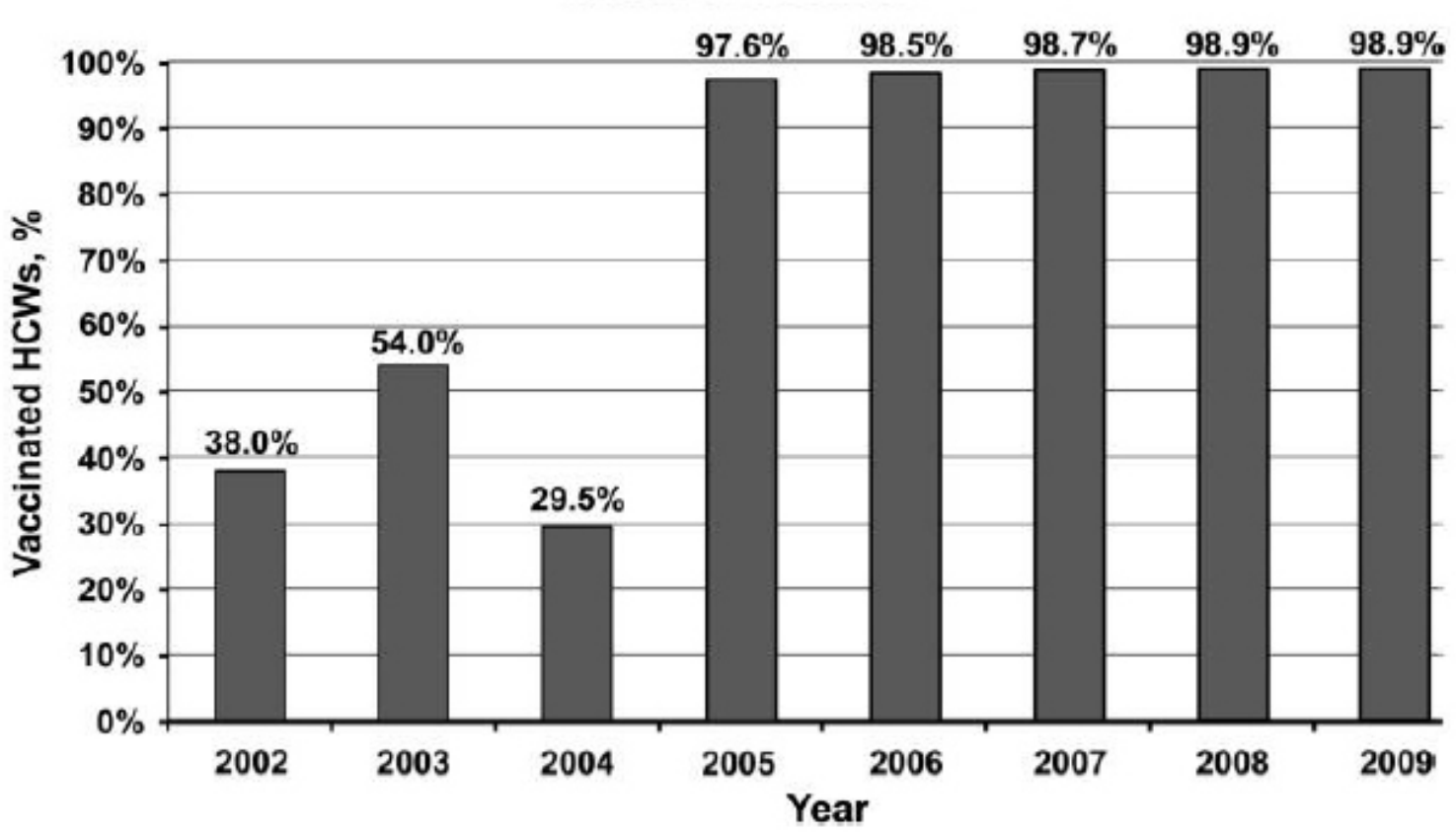
www.cdc.gov/flu/fluvaxview/hcp-ips-nov2016.htm

www.healthypeople.gov/2020/topics-objectives/topic/immunization-and-infectious-diseases/objectives

Reasons HCP Do Not Receive Influenza Vaccine

- Concern about vaccine adverse events
- Perception of a low personal risk of influenza virus infection
- Insufficient time or inconvenience
- Reliance on homeopathic medications
- Avoidance of all medications
- Fear of needles

Impact of Mandatory HCP Influenza Vaccination Requirement – Virginia Mason Medical Center



Organizations Currently Endorsing Mandatory HCP Influenza Vaccination Policy

- Department of Defense
- Infectious Diseases Society of America
- Association of Professionals in Infection Control and Epidemiology
- National Patient Safety Foundation
- Society for Healthcare Epidemiology of America (SHEA)
- American Academy of Pediatrics

Varicella Vaccine (VAR) and Zoster Vaccine (HZV)

VAR Vaccine Recommendations

- Universally recommended for susceptible persons
- Two dose schedule 12 months, 4-6 years
- Recommended for susceptible adults

VAR Vaccine Criteria of Immunity

- Documentation of age-appropriate vaccination
- Laboratory evidence of immunity or laboratory confirmation of disease
- Born in U.S. before 1980
- Health care provider diagnosis of varicella
- Health care provider diagnosis of zoster

Special Considerations for Health Care Providers

- Do not use birth in U.S. before 1980 as criteria of immunity

VAR Special Considerations: Rationale

- Varicella highly communicable
- Disease severe in persons with altered immunocompetence
- Birth before 1980 only presumptive evidence of immunity

VAR Special Considerations for Health-care Providers

- Susceptible HCP that are 60 years old or older
- Zoster vaccine recommended
- Screening not necessary
- If screening is performed could erroneous lead to Var vaccination

Measles-Mumps-Rubella

Measles-Mumps-Rubella

- Viral exanthem
- High rate of complications
  - measles: pneumonia, encephalitis, otitis media, subacute sclerosis panencephalitis
  - mumps: orchitis, oophoritis, aseptic meningitis, pancreatitis, deafness
  - rubella: arthralgia, arthritis, TTP, orchitis, neuritis, panencephalitis

Measles: Health-care Providers

- Very communicable
- Disease severe in altered immunocompetence

Measles-Mumps-Rubella Vaccine

- Recommended universally for adults born after 1956
- Consider for HCP born 1956 or earlier
- Recommend for HCP born 1956 or earlier if an outbreak is in hospital/community

MMR Vaccine

- An outbreak may be microbe-specific (or serology may reveal specific risks)
- For HCP born 1956 or earlier:
  - Rubella: one dose
  - Measles/mumps: two doses
- For HCP born 1957 or later: two doses

MMR Vaccine

- DO NOT PERFORM A SEROLOGY IF SOMEONE HAS DOCUMENTED AGE-APPROPRIATE MMR VACCINATION

Hepatitis B

Adult Recommendations for Hepatitis B Vaccine

- Diabetes 18-49 years of age
- Hepatitis B surface antigen positive (HBsAg) sexual partner
- Men who have sex with men
- Multiple sexual partners (more than one in past 6 months)
- History of treatment for STD
- **Health-care providers**
- Current or recent injection drug users
- Residents and staff of facilities for the developmentally disabled
- HBsAg positive household contact
- Dialysis
- Travelers
- HIV infection
- Chronic liver disease
- Anyone who wants vaccine

Hepatitis B: Health Care Providers

- Recommendation is for health care providers with exposure to blood
- 3 dose series (0,1,6 mos)

Hepatitis B

- Post-vaccination serology recommended 1-2 months after third dose of vaccine
- Antibody wanes, but protection remains

Hepatitis B Serology

- Need to give all three doses prior to serology
- Positive serology not definitive of long-term immunity
- Even with positive anti-HBs, finish all three doses

HBV Serology

- If serology testing occurs more than 2 months after 3rd dose negative anti-HBs likely
- Immunity likely remains due to ability to mount an anamnestic response

HBV Serology

- If negative after three doses
- Use Table 2 of 2013 CDC Guidelines
- www.cdc.gov/mmwr/pdf/rr/rr6210. pdf

Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Recommendations and Reports / Vol. 62 / No. 10
December 20, 2013

CDC Guidance for Evaluating Health-Care Personnel for Hepatitis B Virus Protection and for Administering Postexposure Management

Universally Recommended Vaccines: Special HCP Recommendations

- Adult tetanus-toxoid, reduced diphtheria-toxoid, acellular pertussis vaccine (Tdap sub. Td)
- Influenza vaccine (IIV)
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- Measles-mumps-rubella vaccine (MMR)
- Hepatitis B vaccine (HepB)

Workplace Recommendations for Vaccination

- Food service preparers (at discretion of public health)
  - HepA vaccine
- Microbiologists handling specimens
  - Meningococcal Conjugate Vaccine
  - Anthrax Vaccine
  - Smallpox Vaccine
- Institutions for the Developmentally Disabled
  - HepB vaccine
- Daycare/Schools
  - Haemophilus influenzae type b vaccine (post-exposure antibiotic recommendations limited to unvaccinated of partially vaccinated contacts of children younger than 4 years)
  - Tdap – prioritized, but no additional recommendation beyond universal recommendation
  - Var vaccine – prioritized, but no additional recommendations beyond universal recommendation for susceptible adult

Skills Checklist for Vaccinators

- Available at Immunization Action Coalition web page

- www.immunize.org/catg.d/p7010.pdf