Immunization of Health Care Personnel

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Background

• Ensuring that health care personnel (HCP) are protected against vaccine-preventable diseases (VPDs) is essential to protect HCP, patients and visitors within health care facilities.

• It is far more cost-effective to prevent illness via immunization than to do exposure management and case follow-up.

• Mandating immunity to specific VPDs is more effective than voluntary programs in ensuring that susceptible people are vaccinated.
2015 ACIP recommended vaccines for adults based on medical and other indications, including HCP

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>INDICATION</th>
<th>Immuno-compromising conditions (excluding human immunodeficiency virus [HIV])</th>
<th>HIV infection CD4+ T lymphocyte count &lt;200 cells/μL</th>
<th>≥ 200 cells/μL</th>
<th>Men who have sex with men (MSM)</th>
<th>Kidney failure, end-stage renal disease, receipt of hemodialysis</th>
<th>Heart disease, chronic lung disease, chronic alcoholism</th>
<th>Asplenia (including elective splenectomy and persistent complement component deficiencies)</th>
<th>Chronic liver disease</th>
<th>Diabetes</th>
<th>Healthcare personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza</td>
<td></td>
<td>1 dose ILV annually</td>
<td>1 dose ILV or LV annually</td>
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<tr>
<td>Tetanus, diphtheria, pertussis (Td/Tdap)</td>
<td></td>
<td>Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs</td>
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<tr>
<td>Varicella</td>
<td></td>
<td>Contraindicated</td>
<td>2 doses</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV) Female</td>
<td></td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 26 yrs</td>
<td></td>
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<tr>
<td>Human papillomavirus (HPV) Male</td>
<td></td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 21 yrs</td>
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<td></td>
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<td></td>
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<tr>
<td>Zoster</td>
<td></td>
<td>Contraindicated</td>
<td>1 dose</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td></td>
<td>Contraindicated</td>
<td>1 or 2 doses</td>
<td></td>
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<tr>
<td>Pneumococcal 13-valent conjugate (PCV13)</td>
<td></td>
<td>1 dose</td>
<td>1 dose</td>
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<td></td>
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<tr>
<td>Pneumococcal polysaccharide (PPSV23)</td>
<td></td>
<td>1 or 2 doses</td>
<td>1 or 2 doses</td>
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<tr>
<td>Meningococcal</td>
<td></td>
<td>1 or more doses</td>
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<tr>
<td>Hepatitis A</td>
<td></td>
<td>2 doses</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Hepatitis B</td>
<td></td>
<td>3 doses</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemophilus influenza type b (Hib)</td>
<td></td>
<td>post-HSCT recipients only</td>
<td></td>
<td></td>
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</tbody>
</table>

These schedules indicate the recommended age groups and medical indications for which administration of currently licensed vaccines is commonly recommended for adults ages 19 years and older, as of February 1, 2015. 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/hcp/acip-recs/index.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.
Most recent ACIP recommendations, 2011

Definition of HCP

• All paid and unpaid persons working in health-care settings who have the potential for exposure to patients and/or infectious materials, including body substances, contaminated medical supplies and equipment, contaminated environmental surfaces, or contaminated air.
HCP definition (cont’d)

- HCP might include (but are not limited to) physicians, nurses, nursing assistants, therapists, technicians, emergency medical service personnel, dental personnel, pharmacists, laboratory personnel, autopsy personnel, students and trainees, contractual staff not employed by the health-care facility, ad persons (e.g., clerical, dietary, housekeeping, laundry, security, maintenance, administrative, billing, and volunteers) not directly involved in patient care but potentially exposed to infectious agents that can be transmitted to and from HCP and patients.
Other ACIP recommendations applicable to HCP

Recommendations for Use of Tetanus, Diphtheria, and Pertussis Vaccines, 2006 and 2011 update
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5517a1.htm
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6001a4.htm

http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5516a1.htm

CDC Guidance for Evaluating Health-Care Personnel for Hepatitis B Virus Protection and for Administering Postexposure Management, 2013
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6210a1.htm

Prevention and Control of Seasonal Influenza with Vaccines, 2015
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6430a3.htm

Influenza vaccination of Health-Care Personnel, 2006 (archived)
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5502a1.htm

Prevention of Measles, Rubella, Congenital Rubella Syndrome, and Mumps, 2013
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6204a1.htm

Prevention and Control of Meningococcal Disease, 2013
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6202a1.htm

Prevention of Varicella, 2007
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5604a1.htm
### Routinely recommended vaccines for health care personnel

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B</td>
<td>Three doses</td>
</tr>
<tr>
<td>Influenza</td>
<td>One dose annually</td>
</tr>
<tr>
<td>Measles</td>
<td>Two doses</td>
</tr>
<tr>
<td>Mumps</td>
<td>Two doses</td>
</tr>
<tr>
<td>Rubella</td>
<td>One dose</td>
</tr>
<tr>
<td>Varicella</td>
<td>Two doses</td>
</tr>
<tr>
<td>Tetanus, diphtheria, and acellular pertussis (Tdap)</td>
<td>One dose</td>
</tr>
</tbody>
</table>
Vaccines recommended in certain circumstances

- Meningococcal
- Typhoid
- Polio
Are there any federal or state requirements for immunization of HCP?

- There are no federal requirements that HCP be immune to (or receive immunization for) any VPD; there might be state or local requirements.
- New Jersey Department of Health regulations for licensed health care entities require testing/documentation of immune status for certain VPDs (measles, rubella) and offering of vaccine depending on the health care setting but do not require vaccination or immunity.
- Some health care entities require immunity/immunization for specific VPDs as a condition of employment (most often measles, rubella, and varicella).
Occupational Safety and Health Administration (OSHA) requirement

- Per OSHA, employers are required to offer hepatitis B vaccine to susceptible employees who may be exposed to blood or other potentially infectious materials as part of their job duties (the vaccine is not required).
- If the vaccine is declined, a declination form must be signed.
Impact of VPDs on healthcare facilities - Arizona measles outbreak, 2008

- In February 2008, an infected Swiss traveler sparked a measles outbreak in Arizona.
- 14 cases, 7 infected in healthcare facilities; measles was not suspected until after the index patient had been hospitalized, unisolated, for 2 days.
- Of the 11 secondary cases who accessed healthcare, 10 didn’t receive a prompt measles diagnosis after rash onset and only 1 was masked and isolated promptly.
- Response at 2 impacted healthcare facilities was evaluated.

Overall estimated cost for both hospitals was $799,136.

Serologic testing performed for 1583 (89%) of 1776 HCPs without documented immunity

56% of cost due to HCP furloughs.
The NJ experience

2013 – 3 cases of measles in Somerset county including 1 HCP exposed to Case #1. Large scale public notification.

- Case #1
  - 88 hospital employees
  - 20 patients and visitors

- Case #2 (HCP)
  - 78 hospital employees
  - 28 patients and visitors

- Case #3
  - 400 health care employees
  - >400 patients and visitors
HCP infected with measles in California

- Since 2011, 11 HCP have been infected via patient exposure in California
  - 4 (36%) had two or more documented doses of measles-containing vaccine
  - 1 (9%) had one documented dose
  - 2 (18%) had been IgG positive for measles
  - 2 (18%) were IgG negative
  - 2 (18%) had unknown status

- Exposure setting/type:
  - ERs, clinics, urgent care centers, inpatient units
  - 8 had face-to-face contact with infectious patients

https://www.cdph.ca.gov/programs/immunize/Pages/HealthProfessionals.aspx
Focus on flu:
Strategies to improve vaccination rates

- Program should be multifaceted
- Use campaigns to promote vaccination
- Educate HCP
- Offer influenza vaccine annually to all eligible HCP
- Use modest incentives
- Use vaccination rates as a patient safety measure
- Give feedback on vaccination rates
- Use organizational leaders as role models
- Obtain signed declinations
- Provide free vaccine at the work site:
  - Use vaccination clinics
  - Use mobile carts
  - Ensure access to vaccination during all work shifts

http://www.jointcommission.org/assets/1/18/Strategies_-_Improving_Health_Care_Personnel_Influenza_Vaccination_Rates.pdf
Focus on flu: Support for mandatory flu vaccination

- American Academy of Family Physicians
- American Academy of Pediatrics
- American College of Physicians
- American Hospital Association
- American Medical Directors Association
- American Pharmacists Association
- American Public Health Association
- Association for Professionals in Infection Control and Epi
- Infectious Disease Society of America
- National Association of County and City Health Officials
- National Business Group on Health
- National Foundation for Infectious Diseases
- National Patient Safety Foundation
- Society for Healthcare Epi of America

http://www.immunize.org/honor-roll/influenza-mandates/
National Healthcare Safety Network (NHSN) Overview

- CDC’s healthcare-associated infection (HAI) tracking system
- Provides data to states, regions and facilities to identify problem areas, measure progress, and eliminate HAIs
  - Serves over 14,500 medical facilities tracking HAIs
  - Acute care, long-term care acute care, psychiatric and rehabilitation hospitals, outpatient dialysis centers, ambulatory care centers, nursing homes
- Tracks
  - Blood Safety Errors
  - Infection Control Adherence Rates
  - Healthcare personnel (HCP) influenza vaccine status
NHSN Overview HCP influenza vaccination reporting

- Enrolled facilities required to report employee vaccination data for:
  - Employees - those receiving direct paycheck
  - Licensed independent practitioners - physicians, advance practice nurses, and physician assistants affiliated with the facility
  - Adult students/trainees and volunteers
- Contract personnel reporting is optional
- Data reported at summary level
- The following data is for acute care hospitals
NJ ranks 51st among all states and DC in HCP vaccination.

Colorado is highest at 97.1% vaccinated

Source: NHSN Healthcare Personnel Influenza Vaccination Summary Data Tables by State, Acute Care Hospitals
Mission: Develop strategies to improve HCP vaccination rates within NJ