



## Immunization and Immunity Testing Recommendations for California Healthcare Personnel and Health Science Students

### Background

It is important to ensure that current and future healthcare personnel (HCP) are immune to vaccine-preventable diseases – both for their own protection and to prevent them from infecting patients, staff, and visitors. In this document the term “HCP” refers to students/trainees and employees.

### Where do U.S. immunization recommendations come from?

The federal Advisory Committee on Immunization Practices (ACIP) makes recommendations for the administration of vaccines to children and adults, including HCP, in the civilian population of the U.S.

All ACIP recommendations are available at:  
<http://www.cdc.gov/vaccines/hcp/acip-recs/index.html>

For ACIP immunization recommendations for HCP, see:  
<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6007a1.htm>

### Are there federal, state or local requirements for Immunization of HCP?

There are no federal or state requirements that compel HCP to accept any vaccines.

The California OSHA Aerosol Transmissible Diseases (ATD) standard requires that employers provide the vaccinations listed below to susceptible (non-immune) HCP employees, who are covered by the standard. This includes any employee who may be exposed to diseases classified by the federal Healthcare Infection Control Advisory Committee (HICPAC) as either airborne or droplet transmissible. Immunity is required as per the CDC recommendations in this document. However, the employer cannot make participation in pre-vaccination serology a precondition to offering a vaccine unless CDC guidelines recommend that screening. Employees who choose not to be vaccinated must sign a declination form for the particular vaccine.

The California OSHA Bloodborne Pathogen (BBP) standard requires that employers make available hepatitis B vaccine to unvaccinated employees at risk of exposure. Employees may decline to be vaccinated with hepatitis B vaccine, but must sign a declination form.

Some California local health jurisdictions have mandated that HCP working in facilities in their jurisdictions receive influenza vaccine, unless they have a medical contraindication. HCP without a medical exemption who decline to receive influenza vaccine may be required to wear a surgical mask while at work during influenza season.

For a list of California local health jurisdictions that mandate influenza vaccination of HCP, see:

<http://www.cdph.ca.gov/programs/cclho/Pages/MandatoryofRecommendedInfluenzaVaccinationofHealthcareWorkers.aspx>

### Vaccines that are required to be offered, at no cost, to non-immune HCP employees per ATD/BBP standards

- Hepatitis B vaccine
- Influenza vaccine
- Measles, mumps, and rubella (MMR) vaccine
- Tetanus, diphtheria, and acellular pertussis (Tdap) vaccine
- Varicella vaccine (not zoster vaccine)

### Hepatitis B vaccine

All HCP who are at risk for occupational blood or body fluid exposure should have documentation of 3 doses of hepatitis B vaccine (or a signed declination form). HCP who have recently completed the 3-dose series, should undergo anti-HBs (immunity) testing. Anti-HBs testing should be performed 1–2 months after administration of the last dose of the vaccine series.

HCP with documentation of 3 doses of hepatitis B vaccine, but no documentation of immunity may undergo anti-HBs testing upon hire or matriculation. Qualitative testing is sufficient. This approach is most appropriate for settings with HCP-trainees and HCP in occupations with higher risk of exposure (e.g., surgeons), and when the prevalence of HBV is increased in the patient population served. Alternatively, employers may choose to perform anti-HBs testing only if such HCP later report a blood or body fluid exposure. All employees should receive training to recognize and report exposures.

For additional information or pre- and post-exposure testing and follow-up for hepatitis B, see:

<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6210a1.htm>

### Influenza vaccine

Influenza vaccine is recommended for all HCP and is given seasonally, usually starting in September or October each year. See above for information about influenza vaccine mandates for California HCP.

### Measles, mumps and rubella (MMR) vaccine

ACIP considers each of the following criteria to provide presumptive evidence of immunity to measles, mumps, and rubella\*:

- Laboratory evidence of immunity†; or
- Documentation of 2 doses of live MMR vaccine;‡ or
- Laboratory confirmation of disease; or
- Birth before 1957§.

- \* Only 1 documented dose of rubella-containing vaccine is required.
- † Measles, mumps, and rubella IgG in serum; equivocal results should be considered negative.
- ‡ The first dose of MMR vaccine should be administered at  $\geq 12$  months of age; the second dose of measles- or mumps-containing vaccine should be administered  $\geq 28$  days after the first dose.
- § Although birth before 1957 is acceptable evidence of immunity, healthcare facilities should consider vaccinating HCP who do not have other evidence of immunity to measles, mumps, or rubella. In addition, CDPH recommends that immunity be assessed if HCP born before 1957 are exposed to one of these diseases. During a measles or mumps outbreak, 2 doses of MMR vaccine are recommended for HCP born before 1957 who do not have serological evidence of immunity or documentation of 2 doses of measles- or mumps-containing vaccine.

### Healthcare personnel born before 1957

Although persons born in the U.S. before 1957 are generally presumed to be immune to measles, mumps, and rubella because most will have had natural disease, not all people born before 1957 will be immune. Therefore, healthcare facilities and educational institutions may wish to consider testing HCP who do not have documentation of 2 doses of MMR vaccine for immunity or recommending that they receive 2 doses of MMR vaccine. In the event of an exposure to one of these diseases, having testing results available will minimize necessary follow-up.

### Measles, mumps, and rubella immunity testing

- IgG testing for serologic evidence of immunity to measles, mumps, or rubella for HCP who have 2 documented doses of MMR vaccine or other acceptable evidence of immunity is not recommended by ACIP. Educational institutions and healthcare facilities should not require such testing for HCP who have documentation of appropriate immunization.
- When testing immunity, please ensure that only IgG testing is requested. Do not select a panel that includes IgM testing; IgM testing is for acute disease and falsely positive IgM results are common when healthy people are tested.
- Qualitative IgG results (positive/negative/equivocal) are sufficient, a numeric value result is not necessary.
- In a setting of routine testing (not testing related to an exposure), if HCP who have 2 documented doses of measles- or mumps- containing vaccine are inadvertently tested and have negative or equivocal titer results for measles or mumps, it is not recommended that they receive an additional dose of MMR vaccine. Such persons should be considered to have acceptable evidence of measles and mumps immunity and retesting is not necessary. Similarly, if HCP (except for women of childbearing age) who have one documented dose of rubella-containing vaccine are tested serologically and have negative or equivocal titer results for rubella, it is not recommended that they receive an additional dose of MMR vaccine. Such persons should be considered to have acceptable evidence of rubella immunity.

- HCP who can provide documentation of IgG positivity for measles, mumps, or rubella do not need to be retested for that disease. Female HCP may have documented evidence of rubella immunity from prenatal testing.

### Meningococcal vaccine

Microbiologists routinely exposed to *N. meningitidis* isolates are recommended to receive a single dose of quadrivalent (serogroup A, C, Y, W) meningococcal conjugate vaccine (Menveo® or Menactra®) and the serogroup B vaccine series of Bexsero® (2 doses) or Trumenba® (3 doses). A booster dose of quadrivalent vaccine should be administered every 5 years if exposure is ongoing. Microbiologists who were previously vaccinated with meningococcal conjugate vaccine should receive conjugate vaccine for booster doses even if  $>55$  years. At this time, ACIP has not made a recommendation for a booster dose of serogroup B meningococcal vaccine.

In addition, HCP with known HIV infection are likely at increased risk for meningococcal disease and may elect vaccination. If vaccinated, these HCP should receive a 2-dose vaccine series of the quadrivalent vaccine. See: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6202a1.htm>

### Polio vaccine

Neither polio vaccine nor testing for immunity to polio is recommended for U.S. HCP.

### Tetanus, diphtheria, and acellular pertussis vaccine

At this time, only 1 dose of Tdap is recommended and there is no recommendation for booster doses of pertussis containing vaccine, including for HCP, or laboratory testing for immunity. However, Tdap can be used for the decennial Td booster and tetanus prophylaxis for wounds.

### Varicella vaccine

ACIP considers the each of the following criteria to provide presumptive evidence of immunity to varicella:

- Documentation of 2 doses of varicella vaccine.
- Laboratory evidence of varicella immunity (IgG)|| or laboratory confirmation of disease.
- Healthcare provider diagnosis or verification of history of varicella disease or herpes zoster (shingles). If HCP state they've had varicella or herpes zoster in the past, a healthcare provider can interview them to determine if their history is compatible with one of these diagnoses; if so, this is considered evidence of immunity.

Institutions may also elect to perform varicella immunity (IgG) testing for all HCP who state a history of disease because a small proportion of persons with a positive disease history might be susceptible.

ACIP does not recommend serologic testing for immunity for persons who have received 2 doses of varicella vaccine because available commercial assays are not sensitive enough to reliably detect antibody.

||A qualitative ELISA test rather than a latex agglutinin (LA) test should be considered for varicella IgG testing of HCP because ELISA tests are less likely to be falsely IgG positive than LA tests.