Every job requires specific consideration to ensure the safety of the workers performing their duties. On construction sites, workers wear hard hats, steel-toe shoes and heavy gloves. These measures are specific to the risks inherent in the jobs. For dental healthcare personnel (DHCP) transmission of infectious diseases is an identified occupational risk. Dental clinicians also have an obligation to protect their patients from unnecessary exposure to vaccine-preventable diseases. As members of the dental team, we need to be aware of current vaccine recommendations and our own status relative to these recommendations. Work restrictions associated with specific diseases and screening for individuals working in certain settings provide additional levels of protection.

**Recommended vaccinations**

The Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP) issues vaccine recommendations for healthcare workers and the public. Since not all healthcare workers need to receive every vaccine available, the recommendations identify vaccine-preventable diseases and divide those into three basic categories.

- **Category A:** Strongly recommended because of special risks for DHCP. These diseases include hepatitis B, influenza, measles, mumps, rubella (German measles), and varicella (chickenpox).
- **Category B:** Recommended only under certain circumstances. Generally, it will not be necessary for dental workers to receive vaccinations for tuberculosis, hepatitis A, meningococcal disease, pertussis (whooping cough), typhoid and vaccinia (smallpox).
- **Category C:** Recommended for all adults. These diseases include tetanus, diphtheria and pneumococcal disease (for certain populations).

The FDA recently cleared a new vaccine for pertussis on the heels of a 63% rise in cases of the disease between 2003 and 2004. This is the first pertussis vaccine that is safe and effective for individuals over the age of seven. Expect new recommendations from ACIP regarding re-immunization of adolescents and adults in the near future.

Employers should maintain an immunization record for employees involved in the delivery of patient care. Although the Occupational Safety and Health Administration (OSHA) only requires the hepatitis B vaccine history, to be comprehensive this record should include the complete immunization history of the worker and any vaccines provided during their employment.

**Screening for tuberculosis (TB)**

Although there is no evidence that dental procedures generate droplet nuclei containing *Mycobacterium tuberculosis*, infection control policies in dental offices should reflect the community risk and may include the screening of workers.
Immunizations, Screenings and Work Restrictions

continued from front cover

workers. The CDC draft TB guidelines for healthcare settings indicate a need for TB screening even in low risk outpatient settings upon hire of new healthcare workers. An exposure to a patient with active TB infection indicates a need for re-testing.

Testing for immunity to hepatitis B

There is no need to screen dental workers before vaccination for hepatitis B. A hepatitis B surface antibody (anti-HBs) test performed on the vaccinated individual 1-2 months after the final injection will verify immunity. If the anti-HBs test is negative, the dental worker needs to discuss the alternatives with their personal physician. Once a dental worker determines that he or she is immune to hepatitis B, there is no need for routine screening, revaccination, or booster.

Work restrictions

Dental workers infected with certain transmissible diseases pose an unacceptable risk to patients and should refrain from patient contact until no longer contagious. In general, dental workers should be restricted from duty if actively infected with: diphtheria (active and asymptomatic carriers), hepatitis A (for 7 days after onset of jaundice), measles, mumps, pertussis, rubella and varicella.

The CDC recommends work restrictions for unprotected (unvaccinated or not previously infected) healthcare workers after exposure to certain diseases. Examples include:

- Varicella – from the 10th day after exposure to the disease through the 21st day.
- Rubella – from the 7th day after exposure through 21st day.
- Mumps – from the 5th day after exposure through the 26th day.
- Measles – from the 5th day after exposure through the 21st day.
- Diphtheria – same as for active diphtheria.

The issue of work restrictions for hepatitis B carriers is a bit more complex. The CDC recommends that workers who perform invasive procedures (i.e., procedures where hands or fingers are in a body cavity at the same time as sharp instruments) should determine if they are hepatitis B e-antigen (HBeAg) positive. The "e" antigen is an indicator that the virus is actively replicating in the patient’s liver and is associated with a higher risk of transmission of the disease to others. Individuals who test positive for HBeAg should consult with an expert review panel before performing exposure-prone procedures. At a minimum, the panel should include an infectious disease specialist, a public health official, an infection control expert and someone who can describe the procedures the DHCP performs.

Dental offices that need more information should contact their state or county public health department.

Regulatory and ethical issues

Regulatory requirements for immunizations and work restrictions in healthcare settings are limited in most jurisdictions. The dental team however, has an obligation to provide an environment that minimizes the risk of exposure to infectious diseases. Immunizations, reasonable work restrictions and certain health screenings can help minimize the risk that our patients, loved ones or selves will acquire a preventable infectious disease in the dental office.

— OSAP
**Compliance Corner**

**OSHA**

**Hepatitis B Vaccination**

“Hepatitis B vaccination shall be made available after the employee has received the training required ... and within 10 working days of initial assignment to all employees who have occupational exposure unless the employee has previously received the complete hepatitis B vaccination series, antibody testing has revealed that the employee is immune, or the vaccine is contraindicated for medical reasons. The employer shall not make participation in a prescreening program a prerequisite for receiving hepatitis B vaccination. If the employee initially declines hepatitis B vaccination but at a later date while still covered under the standard decides to accept the vaccination, the employer shall make available hepatitis B vaccination at that time. The employer shall assure that employees who decline to accept hepatitis B vaccination offered by the employer sign the statement in Appendix A. If a routine booster dose(s) of hepatitis B vaccine is recommended by the U.S. Public Health Service at a future date, such booster dose(s) shall be made available.”


**CDC**

“DHCP are at risk for exposure to, and possible infection with, infectious organisms. Immunizations substantially reduce both the number of DHCP susceptible to these diseases and the potential for disease transmission to other DHCP and patients. Thus, immunizations are an essential part of prevention and infection-control programs for DHCP, and a comprehensive immunization policy should be implemented for all dental health-care facilities.”

CDC. Guidelines for Infection Control in Dental Health-Care Settings – 2003

MMWR, December 19, 2003:52(RR-17)

**In Practice**

Infection Control In Practice is a resource prepared for clinicians by the Organization for Safety & Asepsis Procedures with the assistance and expertise of its member-contributors. OSAP is a nonprofit, independent organization providing information and education on infection control and occupational health and safety to dental care settings worldwide.

Information in this issue has been brought to you with the help of the following individuals:

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**Glossary**

**Anaphylactic reaction**: Hypersensitivity (as to foreign proteins or drugs) resulting from sensitization following prior contact with the causative agent.

**Anti-HBs**: Vaccine-induced antibodies to the hepatitis B virus (HBV). May be due to vaccination or prior infection.

**Booster vaccination**: A supplementary dose of an immunizing agent.

**HBsAg**: Surface antigen to HBV. Indicates either active or chronic infection with HBV.

**Immunity**: A condition of being able to resist a particular disease especially through preventing development of a pathogenic microorganism.

**Immunoprophylaxis**: Preventing the spread of disease by providing physiological immunity. May be accomplished by vaccination or by providing supplemental antibodies after exposure (e.g., Hepatitis B Immune Globulin).

**Vaccination**: The process of administering a killed or weakened form of a disease causing organism to patients as a means giving them immunity to a more serious form of the disease. Also called **Immunization**.
An important requirement of the OSHA Bloodborne Pathogens Rule is maintaining a medical record for employees at risk of exposure to blood and other potentially infectious materials (OPIM). Additionally, CDC recommends dental offices develop immunization policies consistent with Public Health Service Guidelines. Simplify your office protocol by incorporating the OSHA requirements and CDC guidelines into a single, comprehensive program. Copy and complete this form for each employee who may have occupational exposure to blood or OPIM and maintain it along with all exposure incident information in the employee’s confidential medical record.

**Putting It All Together**

**Q**: I am a dental assistant and I completed my hepatitis B vaccine about two years ago but did not get my antibodies tested. Should I get the test done now?

**A**: Because all dental workers should know their status relative to the hepatitis B vaccine, you should complete the anti-HBs test as soon as possible. If you have detectible antibodies, you are immune to HBV. If the test reveals your antibodies are undetectable it is important to discuss these results with your physician. It may be possible that you initially responded to the vaccine but over time your antibodies waned to a point where they are now no longer detectable. In this scenario, you are immune. However, if you never developed antibodies following the initial vaccine series, you may be susceptible to infection with HBV and need to either receive a booster dose of vaccine or repeat the entire series. Another reason for not responding to the vaccine is the possibility of active or chronic infection, or past infection with the virus.

**Q**: Our office recently hired a dental hygienist who refuses vaccination against HBV. Is it permissible to require that she receive the vaccine?

**A**: Understanding that employment laws vary from state to state, in general it is not permissible to fire a person based on their refusal of vaccination. Be sure to have her complete the OSHA-required declination form. You may download the form from OSHA at: http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10052. In most states, you can make the Hepatitis B vaccine a prerequisite for employment. By doing so, you eliminate the problems that may arise when someone refuses the vaccine after hire.

— OSAP

Do you have an inquiry about infection control, occupational health, or practice safety? Ask OSAP. Send your questions to office@OSAP.org
## OSAP Chart & Checklist

**Dental Healthcare Personnel Vaccinations***

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Schedule</th>
<th>Indications</th>
<th>Precautions/ Contraindications</th>
<th>Special Considerations</th>
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</thead>
<tbody>
<tr>
<td>Hepatitis B recombinant vaccine</td>
<td>Three-dose schedule administered intramuscularly at 0, 1, and 6 months.</td>
<td>Health-care personnel (HCP) at risk for exposure to blood and body fluids</td>
<td>History of anaphylactic reaction to common baker's yeast. Pregnancy is not a contraindication.</td>
<td>HCP who have ongoing contact with patients or blood should be tested 1-2 months after completing the vaccination series to determine serologic response.</td>
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<td>Influenza vaccine (inactivated)</td>
<td>Annual single-dose vaccination IM with current vaccine</td>
<td>HCP who have contact with patients at high risk or who work in chronic-care facilities.</td>
<td>History of anaphylactic hypersensitivity to eggs or other components of the vaccine.</td>
<td>Recommended for women who will be in the second or third trimesters of pregnancy during the influenza season and women in any stage of pregnancy who have chronic medical conditions that are associated with an increased risk of influenza.</td>
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<td>Measles live-virus vaccine</td>
<td>One dose administered subcutaneously (SC); second dose 4 weeks later.</td>
<td>HCP who were born during or after 1957 without documentation of 1) receipt of 2 doses of live vaccine on or after their first birthday, 2) physician-diagnosed measles, or 3) laboratory evidence of immunity.</td>
<td>Pregnancy; immunocompromised state, history of anaphylactic reactions after gelatin ingestion or receipt of neomycin; or recent receipt of antibody-containing blood products.</td>
<td>Measles, mumps, rubella (MMR) is the recommended vaccine.</td>
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<tr>
<td>Mumps live-virus vaccine</td>
<td>One dose SC; no booster</td>
<td>HCP believed susceptible can be vaccinated; adults born before 1957 can be considered immune.</td>
<td>Pregnancy; immunocompromised state, history of anaphylactic reaction after gelatin ingestion or receipt of neomycin.</td>
<td>MMR is the recommended vaccine.</td>
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<td>Rubella live-virus vaccine</td>
<td>One dose SC; no booster</td>
<td>HCP, both male and female, who lack documentation of receipt of live vaccine on or after their first birthday, or lack of laboratory evidence of immunity, can be vaccinated.</td>
<td>Same as for Mumps.</td>
<td>Women pregnant when vaccinated or who become pregnant within 4 weeks of vaccination should be counseled regarding theoretic risks to the fetus. MMR is the recommended vaccine.</td>
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<tr>
<td>Varicella-zoster live-virus vaccine</td>
<td>Two doses SC 4-8 weeks apart if aged 13 yrs or older</td>
<td>HCP without reliable history of varicella or laboratory evidence or varicella immunity.</td>
<td>Pregnancy immunocompromised state; history of anaphylactic reaction after receipt of neomycin or gelatin; recent receipt of antibody-containing blood products; salicylate use should be avoided for 6 weeks after vaccination.</td>
<td>Because 71%-93% of U.S.-born persons without a history of varicella are immune, serologic testing before vaccination might be cost-effective.</td>
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Visit the *infection control news* section of the OSAP website often to get infection control updates that will help you respond to patient questions.

*Adapted from: CDC. Guidelines for Infection Control in Dental Health-Care Settings — 2003. MMWR (52) RR-17*
To help practices stay on track, OSAP provides this calendar listing typical schedules for periodic maintenance, record-keeping, and infection control activities. This schedule is intended only to serve as a guide. Proper practices, procedures, and maintenance schedules can vary according to the kinds of products used, the practice type, and patient volume. Always follow the device or equipment manufacturer’s instructions for maintenance and infection control.

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If you wish to obtain one (1) hour of continuing-education (CE) credit, complete the following test and fax or mail it to the OSAP Central Office for grading. Please include a check or credit card to cover handling charges. Pending satisfactory results (at least seven out of ten), you will be issued a letter for one (1) CE credit hour through the Academy of General Dentistry and the Dental Assisting National Board. AGD Approved National Sponsor, FAGD/MAGD credit, 10/23/93 to 12/31/05. OSAP also is an ADA CERP Recognized Provider. For more information, call OSAP at 800-298-6727 (410-571-0003).

1. Healthcare workers should receive:
   a) all vaccines available  
   b) vaccines for diseases identified as posing increased risk  
   c) childhood vaccinations only  
   d) only vaccinations recommended for adults

2. Perform TB screening for most dental workers:
   a) annually  
   b) never  
   c) at hire and when exposed to active TB  
   d) bi-annually

3. TB testing of dental workers should be done in:
   a) high-risk settings  
   b) low-risk settings  
   c) all patient-care settings  
   d) never

4. Which screening test is appropriate before receiving the hepatitis B vaccine?
   a) anti-HBs  
   b) HBsAg  
   c) HBeAg  
   d) testing is not recommended

5. Dental workers infected with Hepatitis A should refrain from patient care for:
   a) 7 days  
   b) 10 days  
   c) 12 days  
   d) 14 days

6. Workers who are not immune to varicella (chicken pox) should refrain from patient contact for how long after exposure to someone with the disease?
   a) 5-12 days  
   b) 7-14 days  
   c) 10-21 days  
   d) 12-26 days

7. OSHA requires employees with occupational exposure to blood be offered the hepatitis B vaccine within ____ days of employment.
   a) 5  
   b) 10  
   c) 15  
   d) 20

8. The CDC recommends development of a comprehensive immunization policy for:
   a) all dental facilities  
   b) high-risk dental facilities  
   c) dental facilities in economically depressed areas  
   d) no dental facilities

9. Upon completion of the Hepatitis B vaccine series, the CDC recommends testing for antibodies (anti-HBs) performed ______ after the third and final injection.
   a) 1-2 weeks  
   b) 1-2 months  
   c) 6-9 months  
   d) 12-18 months

10. OSAP, CDC and ADA all recommend the biological monitoring of all dental office sterilizers at least:
    a) daily  
    b) weekly  
    c) biweekly  
    d) monthly

Mail or Fax completed test to receive (1) hour of continuing-education credit or visit www.OSAP.org/training/online/ to test online.

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MAIL TO: OSAP CE • P.O. Box 6297 • Annapolis, MD 21401 • USA FAX TO: 410.571.0028
Understanding why, when and how to biologically monitor your FDA-approved sterilizer is an important aspect of infection control. To verify proper sterilization of instruments and materials, OSAP and leading health care organizations have established biological monitoring recommendations that in some states have become law.

Why? Since microorganisms are invisible to the naked eye, the major difficulty is determining when an item is actually sterile. Biological indicators (spore tests) offer the highest level of sterility assurance because they actually test the sterilizer’s ability to kill specific strains of highly resistant organisms. For steam and chemical vapor processes, this is *Geobacillus stearothermophilus* and for dry heat, it is *Bacillus atrophaeus*.

When? The CDC recommends biologically monitoring tabletop sterilizers weekly and every load that contains an implant. The American Dental Association and OSAP support this recommendation, which in many states is now mandatory. While it is not critical which day of the week you test your sterilizer, it is important to record and maintain the test results as part of a formal infection control program.

How? Both in-office and outside laboratory biological monitoring are available to dental practices. In-office systems are comprised of a preset incubator, record notebook and biological indicator (BI) vials for steam and EO gas sterilizers, or BI strips and culture media for chemical vapor and dry heat units. Place the BI in the middle of a normal load, complete the sterilization cycle and incubate the BI for 1-7 days depending on the manufacturer’s instructions. A change in the culture media indicates sterilizer failure. For third party testing, the BI is included in a regular load of the sterilizer, then sent to a laboratory specializing in sterilization results testing. The dental office should receive lab results within 1-7 days.

**In the next issue...**

**Ergonomics and Musculoskeletal Disorders in Dentistry**