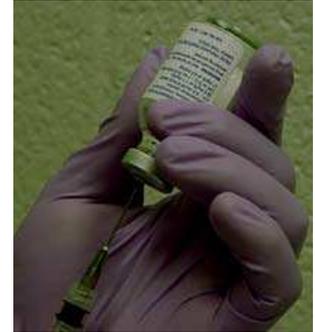


Hepatitis B Outbreak (2/06)

Samandari T, Malakmadze N, Balter S, Perz JF, Khristova M, Swetnam L, Bornschlegel K, Phillips MS, Poshni IA, Nautiyal P, Nainan OV, Bell BP, Williams IT. A large outbreak of hepatitis B virus infections associated with frequent injections at a physician's office. *Infect Control Hosp Epidemiol* 2005;26:745–750.

This investigation was performed to determine whether hepatitis B virus (HBV) transmission occurred among patients visiting a physician's office and to evaluate potential routes of transmission. The authors identified 38 patients with acute HBV infection occurring between February 2000 and February 2002. The cohort study, limited to the 10 months before outbreak detection, included 91 patients with serologic test results and available charts representing 18 case-patients and 73 susceptible patients. Overall, 67 patients (74%) received at least one injection during the observation period. Case-patients received a median of 14 injections (range, 2–25) versus 2 injections (range, 0–17) for susceptible patients ($P < .001$). Acute infections occurred among 18 (27%) of 67 who received at least one injection versus none of 24 who received no injections (RR, 13.6; CI95, 2.4–undefined). Risk of infection increased 5.2-fold (CI95, 0.6–47.3) for those with 3 to 6 injections and 20.0-fold (CI95, 2.8–143.5) for those with more than 6 injections. Typically, injections consisted of doses of atropine, dexamethasone, vitamin B12, or a combination of these mixed in one syringe. HBV DNA genetic sequences of 24 patients with acute infection and 4 patients with chronic infection were identical in the 1,500-bp region of the HBV genome examined. Medical staff were seronegative for HBV infection markers. The same surface was used for storing multidose vials, preparing injections, and dismantling used injection equipment. **Administration of unnecessary injections combined with failure to separate clean from contaminated areas and follow safe injection practices likely resulted in patient-to-patient HBV transmission in a private physician's office.**



DECS Comment: The authors note that patient-to-patient transmission of HBV in health-care settings is rarely reported and has been primarily recognized in the context of outbreaks. When identified, most of these outbreaks have been associated with breaks in standard infection-control practices by health-care workers, resulting in the contamination of equipment or medications. Although these transmissions occurred in an outpatient medical clinic setting, it is possible for this to occur in a dental setting where multiple-dose medication vials are used for conscious sedation. These outbreaks could have likely been prevented by adherence to basic principles of aseptic technique for the preparation and administration of the parenteral medications. Written policies and procedures to prevent patient-to-patient transmission of bloodborne pathogens should be established, and practices should be periodically evaluated and monitored.

Infection-control and safe injection practices to prevent patient-to-patient transmission of bloodborne pathogens include:

1. Use a sterile, single-use, disposable needle and syringe for each injection and discard intact in an appropriate sharps container after use.
2. Use single-use medication vials, prefilled syringes, and ampules when possible. Do not administer medications from single-dose vials to multiple patients or combine leftover contents for later use.
3. If multiple-dose vials are used:
 - a. Cleanse the access diaphragm with 70% alcohol and allow to air dry before inserting a device into the vial.
 - b. Use a sterile device to access a multiple-dose vial and avoid touching the access diaphragm. Both the needle and syringe used to access the multidose vial should be sterile. Do not reuse a syringe even if the needle is changed.
 - c. Keep multidose vials away from the immediate patient treatment area to prevent inadvertent contamination by spray or spatter.
 - d. Discard the multidose vial if sterility is compromised.
 - e. Follow manufacturer guidelines for storage, use, and disposal of pharmaceuticals or MTF policies if more stringent.
4. Do not use bags or bottles of intravenous solution as a common source or supply for multiple patients.
5. Use aseptic technique to avoid contamination of sterile injection equipment and medications.

References

- Centers for Disease Control and Prevention. Guidelines for the Prevention of Intravascular Catheter-Related Infections. *MMWR* 2002;51(No. RR-10):1–32.
- CDC. Guidelines for infection control in dental health-care settings – 2003. *MMWR* 2003; 52(No. RR-17):1–66.
- USAF Guidelines for Infection Control in Dentistry, September 2004.