

Rare Patient-to-Patient HBV Transmission (6/07)

Redd JT, Baumbach J, Kohn W, Nainan O, Khristova M, Williams I. Patient-to-patient transmission of hepatitis B virus associated with oral surgery. *J Infect Dis* 2007;195:1311–1314.

The authors used molecular epidemiologic techniques to document patient-to-patient transmission of hepatitis B virus (HBV) between two outpatient oral surgery patients operated on 161 minutes apart. Serological testing of 25 (93%) of 27 patients operated on after the source patient revealed that 19 (76%) of 25 were previously immune to HBV; no additional cases were identified. The authors found no deficiencies in infection-control practices. Transmission may have been limited by the high prevalence (64%) of patients vaccinated against HBV. The authors stated that according to their knowledge, this is the first documented case of patient-to-patient transmission of a bloodborne pathogen in a dental setting in the United States.

DECS Comment: HBV is a well-recognized occupational risk for health-care personnel (HCP). HBV is occupationally transmitted by percutaneous or mucosal exposure to blood or body fluids of a person with either acute or chronic HBV infection. Since the early 1980s, occupational infections among HCP have declined because of the use of the hepatitis B vaccine and adherence to standard precautions. Likewise, transmission of HBV from dentist to patient has not been reported since 1987 because of vaccination of dental health-care personnel and adherence to standard infection control practices (e.g., glove use, implementing the OSHA bloodborne pathogens standard, standard precautions).

HBV

The source patient had chronic HBV infection with a high viral load at the time of oral surgery. The index patient in this case had never received the hepatitis B vaccination, was not sexually active, did not use intravenous drugs, had not had blood or blood product transfusions, had not had household contact with someone with hepatitis B, and she did not have a history of hemodialysis. No evidence of HBV infection was found in any dental office staff members and the author's investigation did not reveal any breaches in infection control. The oral surgery practice heat sterilized their instruments, including the handpieces. Additionally, standard precautions were followed including surgical hand antisepsis, appropriate wear and use of personal protective equipment, use of plastic barrier covers on environmental surfaces and cleaning and disinfection of uncovered surfaces with an intermediate-level disinfectant. Aseptic techniques were used when handling parenteral medications. This is significant because hepatitis C virus and HBV have been transmitted due to contamination of multidose medication vials.

The authors did speculate about the mechanism of transmission-cross-contamination from an environmental surface is one possibility. Theoretically, many surfaces in the treatment area could have been contaminated with blood and even with good standard operating procedures some areas could have been missed during clean-up resulting in subsequent cross-contamination. The potential for HBV transmission through contact with environmental surfaces has been demonstrated in investigations of HBV outbreaks among patients and HCP in hemodialysis units and HBV has been demonstrated to survive in dried blood at room temperature on environmental surfaces for one week or more. Despite this, hepatitis B infection is not an indication for dental infection-control measures beyond standard precautions.



This is the first published article describing HBV transmission between two patients at a dental office in the United States. There was no evidence of a breakdown in infection-control practices. This case emphasizes the importance of applying standard precautions for all patients in the dental health-care setting and not just for those patients with a known disease. This case also reinforces the value of universal hepatitis B childhood vaccination which has been recommended in the United States since 1991.