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Hepatitis B, Hepatitis C, and Human Immunodeficiency Virus Infections in Obstetrician–Gynecologists

ABSTRACT: To prevent transmission of bloodborne pathogens, it is important that health care providers adhere to standard precautions, follow fundamental infection-control principles, and use appropriate procedural techniques. All obstetrician–gynecologists who provide clinical care should receive the hepatitis B virus vaccine series. The Society for Healthcare Epidemiology of America has established guidelines for the management of health care providers who are infected with hepatitis B virus, hepatitis C virus, or human immunodeficiency virus (HIV). The guidelines categorize representative obstetric and gynecologic procedures according to level of risk of bloodborne pathogen transmission and include recommendations for health care provider clinical activities, based on these categories and viral burden. It is important to note that when no restrictions are recommended, careful supervision should be carried out as highlighted. These recommendations provide a framework within which to consider such cases; however, each case should be independently considered in context by the expert review panel.

Recommendations

Based on the following information, the American College of Obstetricians and Gynecologists makes these recommendations:

- To prevent transmission of bloodborne pathogens, it is important that obstetrician–gynecologists and other health care providers adhere to standard precautions, follow fundamental infection control principles, and use appropriate procedural techniques.
- The expert review panel counsels infected health care providers about continued practice, advising them under what circumstances, if any, they may continue to perform procedures.
- All obstetrician–gynecologists who provide clinical care should receive the hepatitis B virus vaccine series.
- Obstetrician–gynecologists who test positive for the hepatitis B surface antigen also should know their hepatitis B e antigen status, which indicates the presence of high-viral concentrations.
- Routine hepatitis C virus (HCV) testing is not recommended for obstetrician–gynecologists or other health care providers. However, after an occupational exposure, such as a needle stick, the exposed health care worker, as well as the source patient, should be tested for the antibody to the HCV.
- Postexposure prophylaxis against HCV is not effective and not recommended. However, early antiviral therapy of the infected individual may be effective in reducing the risk of progression to chronic HCV infection.
- Regarding human immunodeficiency virus (HIV), the same general recommendations apply regarding infection-control measures, supervision, and periodic testing.

Experts agree that the risk of transmission of the hepatitis B virus (HBV), HCV, and HIV from an infected health care provider to a patient during the provision of routine health care that does not involve invasive procedures, and with the institution of universal precautions,

is negligible (1). With invasive procedures, these risks remain quite small, but are clearly greater when compared with routine patient care activities. Therefore, clinical activities of infected obstetrician–gynecologists and other health care providers should include risk assessment based on these factors. To prevent transmission of bloodborne pathogens, it is important that obstetrician–gynecologists and other health care providers adhere to standard precautions, follow fundamental infection control principles, and use appropriate procedural techniques. The Society for Healthcare Epidemiology of America has established guidelines for the management of health care providers who are infected with HBV, HCV, or HIV (1). This Committee Opinion focuses on these recommendations as they may relate to the practicing obstetrician–gynecologist. Categorization of representative obstetric and gynecologic procedures according to level of risk of bloodborne pathogen transmission is shown in [Box 1](#). Recommendations for health care provider clinical activities, based on these categories and viral burden, are summarized in [Table 1](#). It is important to note that when no restrictions are recommended, careful supervision should be carried out as highlighted in the footnoted section of [Table 1](#). These recommendations provide a framework within which to consider such cases; however, each case should be independently considered in context by the expert review panel.

Expert Review Panel

The creation of an expert review panel is an important component of the Society for Healthcare Epidemiology of America’s recommendations (1). The expert review panel counsels infected health care providers about continued practice, advising them under what circumstances, if any, they may continue to perform procedures. According to the Society for Healthcare Epidemiology of America’s guidelines, the expert review panel should be a locally convened panel of experts that represents a variety of perspectives and may include the following: the obstetrician–gynecologist’s personal physician, an infectious disease specialist with expertise in disease transmission, a health care professional with expertise in the procedures performed by the obstetrician–gynecologist, state or local public health official(s), and a hospital epidemiologist or other member of the infection-control committee of the hospital (1). The panel follows up on the health care provider’s clinical status through sanctioned communication with his or her personal physician and outlines the health care provider’s responsibilities in a contract or letter that is to be signed by the health care provider (1). See [Box 2](#) for additional information on the establishment and functions of the expert review panel.

Hepatitis B Virus

All obstetrician–gynecologists who provide clinical care should receive the HBV vaccine series. The U.S. Centers for Disease Control and Prevention recommends post-

vaccination testing for the antibody to hepatitis B surface antigen 1–2 months after completing the vaccine series (2). Individuals who do not respond to the primary vaccine series (anti-hepatitis B surface antigen titers of less than 10 mIU/mL) should complete a second three-dose series or be evaluated to determine if they test positive for the hepatitis B surface antigen. Revaccinated individuals should be retested at the completion of the second vaccine series (3). Referral to a specialist may be necessary in cases involving individuals who do not respond serologically after completing a second series of HBV vaccination.

Obstetrician–gynecologists who test positive for the hepatitis B surface antigen also should know their hepatitis B e antigen status, which indicates the presence of high-viral concentrations. If this latter test result is negative, viral load DNA testing should be done to establish the viral genome equivalents per milliliter of blood. Because high-viral load concentrations have been associated with an increased risk of transmission, obstetrician–gynecologists whose test results are positive for Hepatitis B e antigen or who have a circulating Hepatitis B viral load of at least 10^4 genome equivalents per milliliter of blood should not perform procedures with a high risk of bloodborne pathogen transmission until they have sought counsel from an expert review panel (see “Expert Review Panel”) and have been advised under what circumstances, if any, they may continue to perform these procedures (see [Box 1](#) and [Table 1](#)) (1).

Recent advances have been made in the development of treatment strategies that offer some hope of reducing viral load in patients chronically infected with HBV (4). There are now a number of antiviral agents that are approved by the U.S. Food and Drug Administration or are under investigation for such interventions. Of patients receiving monotherapy for 1 year, it can be anticipated that between 14% and 30% will have a negative test result for hepatitis B e antigen, and 21–67% will have undetectable viral DNA levels (4). The use of combination therapies may be even more beneficial. However, despite these advances, the role of therapy, its effect on transmission, and its place in modifying practice restrictions have not been adequately investigated to make a recommendation (1).

Hepatitis C Virus

Although there is currently no vaccine available to prevent infection with HCV, the risk of acquiring HCV infection appears lower than the risk of acquiring HBV infection (an average of 1.8% after a percutaneous exposure to a source patient who is infected with HCV compared with 20–60% after percutaneous exposure to a source patient who is infected with HBV and is hepatitis B e antigen positive) (3). This is presumably because most individuals chronically infected with HCV have circulating viral loads that are an order of magnitude lower than those of HBV carriers. Routine HCV testing is not recommended for health care providers. However, after an occupational

Box 1. Categorization of Obstetric–Gynecologic Procedures According to Level of Risk of Bloodborne Pathogen Transmission ←

Category I: Procedures with negligible (de minimis) risk of bloodborne virus transmission

- Regular history taking and physical examinations
- Routine rectal or vaginal examination
- Minor surface suturing
- Elective peripheral phlebotomy*
- Lower gastrointestinal tract endoscopic examinations and procedures, such as sigmoidoscopy
- Hands-off supervision during surgical procedures and computer-aided remote or robotic surgical procedures

Category II: Procedures for which bloodborne virus transmission is theoretically possible but unlikely

- Minor local procedures (eg, skin excision, abscess drainage, biopsy, and use of laser) under local anesthesia (often under bloodless conditions)
- Insertion and maintenance of epidural and spinal anesthesia lines
- Minor gynecologic procedures (eg, dilation and curettage, suction abortion, colposcopy, insertion and removal of contraceptive devices, and collection of ova)
- Minor vascular procedures (eg, vein stripping)
- Minimum-exposure plastic surgical procedures (eg, liposuction and minor skin resection for reshaping)
- Assistance with an anticipated uncomplicated vaginal delivery[†]
- Laparoscopic procedures[‡]
- Insertion of, maintenance of, and drug administration into arterial and central venous lines
- Endotracheal intubation and use of laryngeal mask
- Obtainment and use of venous and arterial access devices that occur under complete antiseptic technique, using universal precautions, no-sharp technique, and newly gloved hands

Category III: Procedures for which there is a definite risk of bloodborne virus transmission or that have been classified as exposure prone

- Nonelective procedures performed in the emergency department, including open resuscitation efforts and deep suturing to arrest hemorrhage
- Obstetric–gynecologic surgery, including cesarean delivery, hysterectomy, forceps delivery, episiotomy, cone biopsy, and ovarian cyst removal, and other transvaginal obstetric and gynecologic procedures involving hand-guided sharps
- Extensive plastic surgery, including extensive cosmetic procedures (eg, abdominoplasty)
- Interactions with patients in situations during which the risk of the patient biting the physician is significant (eg, interactions with violent patients or patients experiencing an epileptic seizure)
- Any open surgical procedures with a duration of more than 3 hours, probably necessitating glove change

*If done emergently (eg, during acute trauma or resuscitation efforts), peripheral phlebotomy is classified as category III.

[†]Making and suturing an episiotomy is classified as category III.

[‡]If unexpected circumstances require moving to an open procedure (eg, laparotomy), some of these procedures will be classified as category III.

Data from Henderson DK, Dembry L, Fishman NO, Grady C, Lundstrom T, Palmore TN, et al. SHEA guideline for management of health care workers who are infected with hepatitis B virus, hepatitis C virus, and/or human immunodeficiency virus. Society for Healthcare Epidemiology of America. *Infect Control Hosp Epidemiol* 2010;31:203–32.

exposure, such as a needle stick, the exposed health care worker, as well as the source patient, should be tested for the antibody to HCV. Postexposure prophylaxis against HCV is not effective and not recommended. However, early antiviral therapy of the infected individual may be effective in reducing the risk of progression to chronic HCV infection (5, 6). Individuals who

are chronically infected and have detectable levels of HCV RNA in their serum should be offered therapy, assuming there are no contraindications to such antiviral therapeutic intervention. As with HBV-infected individuals, obstetrician–gynecologists and other health care providers with circulating HCV viral loads of at least 10⁴ genome equivalents per milliliter should routinely use

Table 1. Summary Recommendations for Managing Obstetrician–Gynecologists and Other Health Care Providers Infected With Hepatitis B Virus, Hepatitis C Virus, or Human Immunodeficiency Virus* ←

Circulating Viral Burden	Categories of Clinical Activities	Recommendations	Testing
HBV			
Less than 10 ⁴ GE/mL	Categories I, II, and III	No restrictions [†]	Twice per year
Greater than or equal to 10 ⁴ GE/mL	Categories I and II	No restrictions [†]	NA
Greater than or equal to 10 ⁴ GE/mL	Category III	Restricted [‡]	NA
HCV			
Less than 10 ⁴ GE/mL	Categories I, II, and III	No restrictions [†]	Twice per year
Greater than or equal to 10 ⁴ GE/mL	Categories I and II	No restrictions [†]	NA
Greater than or equal to 10 ⁴ GE/mL	Category III	Restricted [‡]	NA
HIV			
Less than 5 x 10 ² GE/mL	Categories I, II, and III	No restrictions [†]	Twice per year
Greater than or equal to 5 x 10 ² GE/mL	Categories I and II	No restrictions [†]	NA
Greater than or equal to 5 x 10 ² GE/mL	Category III	Restricted [§]	NA

Abbreviations: HBV, hepatitis B virus; HCV, hepatitis C virus; HIV, human immunodeficiency virus; GE, genome equivalents; NA, not applicable.

*Note these recommendations provide a framework within which to consider such cases; however, each case should be independently considered in context by the expert review panel.

[†]No restrictions recommended, so long as the infected health care provider 1) is not detected as having transmitted infection to patients; 2) obtains advice from an expert review panel about continued practice; 3) undergoes routine follow up by occupational medicine staff (or an appropriate public health official), who tests the health care provider twice per year to demonstrate the maintenance of a viral burden of less than the recommended threshold; 4) also receives follow-up by a personal physician who has expertise in the management of the health care provider’s infection and who is allowed by the health care provider to communicate with the expert review panel about the health care provider’s clinical status; 5) consults with an expert about optimal infection control procedures (and strictly adheres to the recommended procedures, including the routine use of double-gloving for category II and category III procedures and frequent glove changes during procedures, particularly if performing technical tasks known to compromise glove integrity, and 6) agrees to the information and signs a contract or letter from the expert review panel that characterizes her or his responsibilities.

[‡]These procedures are permissible only when the viral burden is less than 10⁴ GE/mL.

[§]These procedures are permissible only when the viral burden is less than 5 x 10² GE/mL.

Data from Henderson DK, Dembry L, Fishman NO, Grady C, Lundstrom T, Palmore TN, et al. SHEA guideline for management of health care workers who are infected with hepatitis B virus, hepatitis C virus, and/or human immunodeficiency virus. *Society for Healthcare Epidemiology of America. Infect Control Hosp Epidemiol* 2010;31:203–32.

double gloving for all invasive procedures, for all contact with mucous membranes or nonintact skin, and for all instances in patient care in which gloving is routinely recommended (1) (see Box 1). As noted in Table 1, these infected individuals should not perform any category III activities.

Human Immunodeficiency Virus

Since the original publication in 1991 of guidelines for the management of HIV-infected health care providers, much progress has been made in HIV detection, monitoring, and drug prophylaxis and treatment (7). The American College of Obstetricians and Gynecologists has a more detailed Committee Opinion on general issues pertaining to the approach to the HIV-infected patient and health care provider (8). The Society for Healthcare Epidemiology of America’s guidelines recommend specific viral load cutoffs to determine health care provider practice activity (Table 1). These viral load parameters are different from those for HBV and HCV. The same general recommendations apply regarding infection-control measures, supervision, and periodic testing.

Box 2. Additional Information on the Establishment and Functions of the Expert Review Panel ←

- The panel can be established at a state, regional, county, city, or institutional level, dependent on the individual health care provider’s circumstances and state and local laws.
- If the health care provider works only from an office, the functions on the panel should be fulfilled by the city, county, or state health department.
- The entity chartering the panel should indemnify panel members against any legal risk, costs, or both.
- The panel develops and executes a signed contract between the infected health care provider and the panel, institution, or both.
- If the contract between the infected health care provider and the panel, institution, or both is breached, the panel notifies Risk Management and the appropriate licensure board (if required by state regulations).

Data from Henderson DK, Dembry L, Fishman NO, Grady C, Lundstrom T, Palmore TN, et al. SHEA guideline for management of health care workers who are infected with hepatitis B virus, hepatitis C virus, and/or human immunodeficiency virus. *Society for Healthcare Epidemiology of America. Infect Control Hosp Epidemiol* 2010;31:203–32.

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