



Hepatitis B Outbreaks in Home Healthcare

MARY McGOLDRICK, MS, RN, CRNI

The monitoring of a patient's blood glucose level is an important component of routine diabetes care. In home care and hospice patients, capillary blood is typically sampled using a fingerstick device and tested with a portable blood glucose meter. During this procedure, the Hepatitis B virus (HBV) can be easily transmitted if infection prevention and

control procedures are not meticulously adhered to. The first reported outbreak of HBV associated with the use of a fingerstick device in the United States was in 1990 (Centers for Disease Control and Prevention [CDC], 1990). Since that time, long-term care facilities have been found to be a common setting for the transmission of HBV. To prevent outbreaks of HBV infections

associated with blood glucose monitoring, the CDC and the Food and Drug Administration (FDA) have recommended that fingerstick devices be restricted to individual use (CDC, 2011; FDA, 2010). Even as such, 87% of the HBV outbreaks reported in the United States between 2008 and 2013 were associated with infection control breaches during assisted monitoring of

Table 1. Hepatitis B Virus (HBV) Outbreaks in Patients Receiving Care From a Home Healthcare Agency

Year	State	Setting	Outbreak-Associated Infections	Mode of Transmission (Known or Suspected)
2010	TX	ALF ($n = 10$) in the same metropolitan area served by the same home healthcare agency for diabetic care (Zheteyeva et al., 2014).	<ul style="list-style-type: none"> • 23 patients in an ALF, plus 1 family member of an infected facility resident who experienced a needlestick injury while assisting with the resident's blood glucose monitoring • 1 patient at home • All patients received care by the same home healthcare agency 	<ul style="list-style-type: none"> • Unsafe practices related to assisted blood glucose monitoring (i.e., sharing of fingerstick devices or contaminated glucometer)
2009	FL	ALF ($n = 2$). Blood glucose monitoring activities at both assisted-living facilities were provided by same home healthcare agency (Forero, Alvarez, & Doyle, 2010).	<ul style="list-style-type: none"> • 9 patients in an ALF 	<ul style="list-style-type: none"> • Crosscontamination of clean supplies with contaminated blood glucose monitoring equipment used by the home healthcare agency • Visible traces of blood present on some of the blood glucose meters and one reusable fingerstick device • Home healthcare agency glucose monitoring policies and procedures did not address decontamination of environmental surfaces, or the cleaning and disinfecting procedures for glucometers, if they had to be reused for another patient
2010	CA	ALF (Bancroft & Hathaway, 2010).	<ul style="list-style-type: none"> • 3 diabetic patients, newly diagnosed with Hepatitis B • All 3 patients received assisted blood glucose monitoring from the same home healthcare agency during the incubation period of the acute Hepatitis B case 	<ul style="list-style-type: none"> • Unsafe practices related to assisted blood glucose monitoring; although a clear infection prevention breach was not identified at the time of the investigation • The home healthcare agency lacked written policies on infection control relating to blood glucose monitoring
Total			35 patients residing in an ALF and 1 patient residing at his or her personal residence	

Note. ALF = assisted living facilities.

* Outbreak-associated HBV infections are defined as those with epidemiologic evidence supporting healthcare-related transmission and include patients identified with acute infection, or previously undiagnosed chronic infections with epidemiologic evidence indicating that these were likely outbreak-related incident cases that progressed from acute to chronic. Patients identified as likely (previously infected) sources for transmission are not included. In the outbreak investigation setting case definitions are based on laboratory profile and clinical evidence rather than the Centers for Disease Control and Prevention surveillance case definitions, which may omit asymptomatic cases.

Source: Adapted from: Healthcare-Associated Hepatitis B and C Outbreaks Reported to the Centers for Disease Control and Prevention (CDC) in 2008-2013. <http://www.cdc.gov/hepatitis/outbreaks/healthcarehepoutbreaktable.htm>. Accessed May 6, 2014.

blood glucose. The majority of the healthcare-associated HBV outbreaks reported occurred in nonhospital settings with:

- 15 outbreaks of HPV infections occurring in long-term care facilities, which includes patients cared for by home healthcare agencies;
- at least 114 outbreak-associated cases; and
- approximately 1400 at-risk persons notified for screening (CDC, 2014).

Table 1 summarizes the healthcare-associated outbreaks of HBV with two or more outbreak-related infections detected in the United States during 2008–2013 in patients receiving care by a home healthcare agency. All modes of transmission were patient-to-patient unless otherwise indicated. Because of the long incubation period (up to 6 months) and typically asymptomatic course of acute HBV infection, it is likely that only a fraction of such outbreaks that occurred have been detected, and reporting of outbreaks detected and investigated by state and local health departments is not required. Therefore, the numbers reported may greatly underestimate the number of outbreak-associated cases and the number of at-risk persons notified for screening (CDC, 2014).

The risk for patient-to-patient transmission of HBV infection can be reduced when home healthcare and hospice staff implement specific infection prevention measures when testing a patient's blood sugar using a glucose meter. Table 2 contains the top 10 best practices for preventing patient-to-patient transmission of the HBV virus in

Table 2. Best Practices for Preventing Patient-to-Patient Transmission of Hepatitis B Virus (HBV) in Home Healthcare and Hospice

1. Use a single-use, autodisable fingerstick device.
2. Never use any fingerstick device on more than one person.
3. Dispose of the used lancet at the point of use in a sharps container.
4. Whenever possible, use the patient-owned glucometer (if available and only if staff deemed competent using the *exact* make and model glucometer [to meet clinical laboratory improvement amendment requirements]).
5. Clean and disinfect the organization-owned glucometer after every use per manufacturer's instructions or use an intermediate level of disinfection (e.g., with a chlorine-containing wipe).
6. Store unused lancets separate from the blood glucose meter.
7. Store the blood glucose meter in a separate storage container inside the nursing bag.
8. Wear gloves during the blood glucose monitoring procedure.
9. Remove the gloves before touching other surfaces and discard the used gloves.
10. Perform hand hygiene immediately after discarding the gloves.

Source: McGoldrick, M. (2014). Infection prevention and diabetes care: Occupational health program. In: M. McGoldrick, ed. *Home Care Infection Prevention and Control Program* (p. 34). Saint Simons Island, GA: Home Health Systems, Inc.

home healthcare and hospice. It is unfortunate that these outbreaks have been linked to care from home healthcare agency staff, but through a continued focus on staff education, adherence to standard precautions, and demonstration of competence, especially with specific infection prevention and control strategies, there will never be another outbreak. ■

Mary McGoldrick, MS, RN, CRNI, is a Home Care and Hospice Consultant, Home Health Systems, Inc., Saint Simons Island, Georgia.

The author declares no conflicts of interest.

Address for correspondence: Mary McGoldrick, MS, RN, CRNI, P.O. Box 21704, Saint Simons Island, GA 31522 (mary@homecareandhospice.com).

DOI:10.1097/NHH.000000000000133

REFERENCES

- Bancroft, E., & Hathaway, S. (2010). *Hepatitis B outbreak in an assisted living facility. Acute Communicable Diseases Program, Special Studies Report 2010, Los Angeles County Department of Public Health*. Retrieved from <http://www.cdc.gov/hepatitis/Outbreaks/PDFs/HealthcareInvestigationTable.pdf>. Accessed May 30, 2014.
- Centers for Disease Control and Prevention. (1990). Transmission of Hepatitis B virus among persons. Nosocomial transmission of Hepatitis B virus associated with a spring-loaded fingerstick device—California. (1990). *Morbidity and Mortality*

Weekly Report, 9, 610-613. Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/00001743.htm>.

Centers for Disease Control and Prevention. (February 9, 2011). *Injection safety. CDC clinical reminder: Use of fingerstick devices on more than one person poses risk for transmitting bloodborne pathogens*. Retrieved from <http://www.cdc.gov/injectionsafety/Fingerstick-DevicesBGM.html>.

Centers for Disease Control and Prevention. (April 2, 2014). *Healthcare-associated Hepatitis B and C outbreaks reported to the Centers for Disease Control and Prevention (CDC) in 2008-2013*. Retrieved from <http://www.cdc.gov/hepatitis/Statistics/HealthcareOutbreakTable.htm>.

Food and Drug Administration. (2010). *Use of fingerstick devices on more than one person poses risk for transmitting bloodborne pathogens: initial communication: update 11/29/2010*. Retrieved from <http://www.fda.gov/medicaldevices/safety/alertsandnotices/ucm224025.htm>.

Forero, S., Alvarez, J., & Doyle, T. (2010, October). Hepatitis B outbreak associated with home health care in South Florida. *Epi Update*. Retrieved from <http://edocs.dlis.state.fl.us/fidocs/doh/epi/epiupdate/2010/10-2010.pdf>. Accessed May 30, 2014.

McGoldrick, M. (2014). Infection prevention and diabetes care: Occupational health program. In: M. McGoldrick, ed. *Home Care Infection Prevention and Control Program* (p. 34). Saint Simons Island, GA: Home Health Systems, Inc.

Zheteyeva, Y. A., Tosh, P., Patel, P. R., Martinez, D., Kilborn, C., Awosika-Olumo, D., ..., Guh, A. Y. (2014). Hepatitis B outbreak associated with a home health care agency serving multiple assisted living facilities in Texas, 2008-2010. *American Journal of Infection Control*, 42(1), 77-81.