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## Infection Prevention during Blood Glucose Monitoring and Insulin Administration

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### Summary

The Centers for Disease Control and Prevention (CDC) has become increasingly concerned about the risks for transmitting hepatitis B virus (HBV) and other infectious diseases during assisted blood glucose (blood sugar) monitoring and insulin administration.

CDC is alerting all persons who assist others with blood glucose monitoring and/or insulin administration of the following infection control requirements:

- Fingerstick devices should **never** be used for more than one person
- Whenever possible, blood glucose meters should **not** be shared. If they must be shared, the device should be cleaned and disinfected after every use, per manufacturer's instructions. If the manufacturer does not specify how the device should be cleaned and disinfected then it should not be shared.
- Insulin pens and other medication cartridges and syringes are for single-patient-use only and should **never** be used for more than one person

### Blood Glucose Monitoring and Insulin Administration

Monitoring of blood glucose levels is frequently performed to guide therapy for persons with diabetes. Blood glucose monitoring and insulin administration can be accomplished in two ways: *self-monitoring of blood glucose and insulin administration*, where the individual performs all steps of the testing and insulin administration themselves, and *assisted*

*monitoring of blood glucose and insulin administration*, where another person assists with or performs testing and insulin administration for an individual.

Examples of settings where *assisted monitoring of blood glucose and insulin administration* may occur include:

- Hospitals or clinics
- Long term care settings such as nursing homes and assisted living facilities
- Senior centers
- Health fairs
- Correctional facilities
- Schools or camps

## Unsafe Practices during Blood Glucose Monitoring and Insulin Administration

An underappreciated risk of blood glucose testing is the opportunity for exposure to bloodborne viruses (HBV, hepatitis C virus, and HIV) through contaminated equipment and supplies if devices used for testing and/or insulin administration (e.g., blood glucose meters, fingerstick devices, insulin pens) are shared.

Outbreaks of hepatitis B virus (HBV) infection associated with blood glucose monitoring have been identified with increasing regularity, particularly in long-term care settings, such as nursing homes and assisted living facilities, where residents often require assistance with monitoring of blood glucose levels and/or insulin administration. In the last 10 years, alone, there have been at least 15 outbreaks of HBV infection associated with providers failing to follow basic principles of infection control when assisting with blood glucose monitoring. Due to under-reporting and under recognition of acute infection, the number of outbreaks due to unsafe diabetes care practices identified to date are likely an underestimate.

Although the majority of these outbreaks have been reported in long-term care settings, the risk of infection is present in any setting where blood glucose monitoring equipment is shared or those assisting with blood glucose monitoring and/or insulin administration fail to follow basic principles of infection control. For example, at a health fair in New Mexico in 2010, dozens of attendees were potentially exposed to bloodborne viruses when fingerstick devices were inappropriately reused for multiple persons to conduct diabetes screening. Additionally, at a hospital in Texas in 2009, more than 2,000 persons were notified and recommended to undergo testing for bloodborne viruses after individual insulin pens were used for multiple persons.

Unsafe practices during assisted monitoring of blood glucose and insulin administration that have contributed to transmission of HBV or have put persons at risk for infection include:

- Using fingerstick devices for more than one person
- Using a blood glucose meter for more than one person without cleaning and disinfecting it in between uses
- Using insulin pens for more than one person
- Failing to change gloves and perform hand hygiene between fingerstick procedures

## Best Practices for Assisted Blood Glucose Monitoring and Insulin Administration

The following are infection control recommendations that anyone who performs or assists with blood glucose monitoring and /or insulin administration should review to assure they are not placing themselves or persons in their care at risk.

These recommendations apply not only to licensed healthcare facilities but also to any setting where fingerstick procedures are performed and/or insulin is administered, including assisted living or residential care facilities, clinics, health fairs, shelters, detention facilities, schools, and camps. Protection from bloodborne viruses and other infections is a basic requirement and expectation anywhere healthcare is provided.



Reusable fingerstick device\*

## Fingerstick Devices

Fingerstick devices, also called lancing devices, are devices that are used to prick the skin and obtain drops of blood for testing. There are two main types of fingerstick devices: those that are designed for reuse on a single person and those that are disposable and for single-use.

- **Reusable Devices:** These devices often resemble a pen and have the means to remove and replace the lancet after each use, allowing the device to be used more than once. Some of these devices have been previously approved and marketed for multi-patient use, and require the lancet and disposable components (platforms or endcaps) to be changed between each patient. However, due to failures to change the disposable components, difficulties with cleaning and disinfection after use, and their link to multiple HBV infection outbreaks, CDC recommends that these devices **never** be used for more than one person. If these devices are used, it should only be by individual persons using these devices for self-monitoring of blood glucose.



- **Single-use, auto-disabling fingerstick devices:** These are devices that are disposable and prevent reuse through an auto-disabling feature. In settings where assisted monitoring of blood glucose is performed, single-use, auto-disabling fingerstick devices should be used.

A simple rule for safe care:  
Fingerstick devices should **never** be used for more than one person.

## Blood Glucose Meters



Blood Glucose Meter\*

Blood glucose meters are devices that measure blood glucose levels.

- Whenever possible, blood glucose meters should be assigned to an individual person and not be shared.
- If blood glucose meters must be shared, the device should be cleaned and disinfected after every use, per manufacturer's instructions, to prevent carry-over of blood and infectious agents. If the manufacturer does not specify how the device should be cleaned and disinfected then it should not be shared.

A simple rule for safe care:

If shared, blood glucose meters should be cleaned and disinfected after every use.

## Insulin Administration

Insulin can be administered using an insulin pen that is designed for reuse on a single patient. It can also be administered using a needle and syringe after drawing up contents from an insulin vial.



- **Insulin Pens:** Insulin pens are pen-shaped injector devices for insulin that are intended for use by a single person. The pens have an insulin reservoir, or an insulin cartridge, that usually contains enough insulin for an individual to self-administer several doses (injections) of insulin before the reservoir or cartridge is empty. The individual changes the needle before each insulin injection. Insulin pens are designed to be safe for a single person to use a single pen multiple times, with a new needle for each injection.
  - Insulin pens should be assigned to individual persons and labeled appropriately. They should **never** be used for more than one person.
- **Insulin Vials:** Multi-dose vials of insulin should be dedicated to a single person whenever possible. If the vial must be used for more than one person it should be stored and prepared in a dedicated medication preparation area outside of the patient care environment and away from potentially contaminated equipment. Insulin vials should always be entered with a new needle and new syringe. Needles and syringes should **never** be used to administer insulin to more than one person and should be disposed of immediately after use in an approved sharps container.

A simple rule for safe care:

Injection equipment (e.g., insulin pens, needles and syringes) should never be used for more than one person

Recommended Practices for Preventing Bloodborne Pathogen Transmission during Blood Glucose Monitoring and Insulin Administration in Healthcare Settings

Blood Glucose Monitoring

## Fingerstick Devices

- Restrict use of fingerstick devices to individual persons. They should never be used for more than one person. Select single-use lancets that permanently retract upon puncture. This adds an extra layer of safety for the patient and the provider.
- Dispose of used lancets at the point of use in an approved sharps container. Never reuse lancets.

## Blood Glucose Meters

- Whenever possible, blood glucose meters should be assigned to an individual person and not be shared.
  - If blood glucose meters must be shared, the device should be cleaned and disinfected after every use, per manufacturer's instructions, to prevent carry-over of blood and infectious agents. If the manufacturer does not specify how the device should be cleaned and disinfected then it should not be shared.

## General

- Unused supplies and medications should be maintained in clean areas separate from used supplies and equipment (e.g., glucose meters). Do not carry supplies and medications in pockets.

## Insulin Administration

- Insulin pens should be assigned to individual persons and labeled appropriately. They should never be used for more than one person.
- Multiple-dose vials of insulin should be dedicated to a single person whenever possible.
  - If the vial must be used for more than one person it should be stored and prepared in a dedicated medication preparation area outside of the patient care environment and away from potentially contaminated equipment
  - Medication vials should always be entered with a new needle and new syringe
  - Dispose of used injection equipment at point of use in an approved sharps container. Never reuse needles or syringes.

## Hand Hygiene (Hand washing with soap and water or use of an alcohol-based hand rub)

- Wear gloves during blood glucose monitoring and during any other procedure that involves potential exposure to blood or body fluids.
- Change gloves between patient contacts. Change gloves that have touched potentially blood-contaminated objects or fingerstick wounds before touching clean surfaces. Discard gloves in appropriate receptacles.
- Perform hand hygiene immediately after removal of gloves and before touching other medical supplies intended for use on other persons.







## Training and Oversight

- Review regularly individual schedules for persons requiring assistance with blood glucose monitoring and/or insulin administration.
- Provide a full hepatitis B vaccination series to all previously unvaccinated staff persons whose activities involve contact with blood or body fluids.
- Establish responsibility for oversight of infection control activities. Provide staff members who assume responsibilities for fingersticks and injections with infection control training.
- Assess adherence to infection control recommendations for blood glucose monitoring and insulin administration by periodically observing staff who perform or assist with these procedures and tracking use of supplies.
- Report to public health authorities any suspected instances of a newly acquired bloodborne infection, such as hepatitis B, in a patient, facility resident, or staff member.
- Check with state authorities for specific state and federal regulations regarding

laboratory testing.

## Additional Information

For additional information on assuring safe care during blood glucose monitoring and insulin administration, consult the following resources.

- [CDCs Diabetes and Viral Hepatitis: Important Information on Glucose Monitoring](#)
- [FDA: Information for Healthcare Professionals: Risk of Transmission of Blood-borne Pathogens from Shared Use of Insulin Pens](#) 
- [FDA Communication: Guidance for Industry and Food and Drug Administration Staff - Blood Lancet Labeling](#)  
- [FDA Communication: Letter for Manufacturers of Blood Glucose Monitoring Systems Listed with the FDA](#) 
- [FDA Communication: Use of Fingerstick Devices on More than One Person Poses Risk for Transmitting Bloodborne Pathogens](#) 
- [FDA Patient Safety News: Preventing Bloodborne Infections When Using Fingerstick Device \(YouTube Video\)](#) 

## References

For more information regarding bloodborne pathogen transmission associated with unsafe practices during assisted monitoring of blood glucose, consult the following resources.

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