Section 5 – Bloodborne Pathogens

(S-1) Title Slide

(S-2 & 3) Objectives

- 1. Define bloodborne pathogens and describe three examples of bloodborne pathogens Hepatitis B virus, Hepatitis C virus, and Human immunodeficiency virus.
- 2. Describe the role of the Occupational Safety and Health Administration (OSHA) and the Centers for Disease Control and Prevention (CDC) in infection prevention in the adult care home.
- 3. Relate the concept of the chain of infection with bloodborne pathogens.
- 4. Describe the prevention of bloodborne pathogen transmission during blood glucose (sugar) monitoring and administration of insulin to residents in adult care homes.
- 5. List guidelines for point of care testing regarding blood glucose (sugar) testing.

Content	Notes	
TEACHING TIP #12: Blood Glucose Testing and Insulin		
Administration Devices		
Research the types of diabetic blood glucose testing devices (fingerstick devices, lancets, and meters) and insulin administration devices used at the adult care home where your students work. Add this information to the content when appropriate to individualize the instruction for each unique adult care home. It would also be helpful to actually show devices, if available.		
(S-4) Bloodborne Pathogens		
 Harmful germs found in human blood that can cause infection and disease Three most common bloodborne pathogens are Hepatitis B virus (HBV), Hepatitis C virus (HCV), and the Human immunodeficiency 		
virus (HIV)		
Pathogen is another name for a germ or microorganism that can cause infection		
(S-5) Bloodborne Pathogens		
 Resident can get an infection from bloodborne pathogens by Sharing contaminated needles Sharing contaminated fingerstick devices Direct contact with blood from infected person 		
(S-6) Bloodborne Pathogens		
Staff can get an infection from bloodborne pathogens by		
o Accidental puncture wounds (jabs) from contaminated sharps		
Direct contact with blood from an infected person		
(S-7) Recall		
Recall that sharps are devices that have corners, edges, or		
projections that can cut or pierce skin		

Section 5 – Bloodborne Pathogens		
Sharps often used in adult care homes include syringe needles,		
fingerstick devices, and razors		
(S-8) OSHA (Occupational Safety and Health Administration)		
OSHA is an agency of the U.S. federal government and responsible		
for the safety of workers		
 Makes and enforces rules that protect workers from dangers while working 		
Provides training on workplace safety		
 Sets standards for use of equipment and activities in the 		
workplace, including Bloodborne Pathogen Standard;		
Bloodborne Pathogen Standard requires employers in		
healthcare to protect employees from bloodborne pathogen		
contact		
Facility's infection control plan has steps to protect both health care		
workers and residents of adult care homes		
(S- 9) Hepatitis		
A disease of the liver often caused by viruses		
, and the second		
(S-10) Hepatitis B		
A contagious liver disease caused by the HBV		
HBV usually spreads when blood, semen, or another body fluid from		
a person infected with HBV enters the body of someone who is not		
infected		
Can happen through sexual contact with an infected person or Sharing peoples, suringes, or other days injection againment.		
 Sharing needles, syringes, or other drug-injection equipment 		
(S-11) HBV		
In adult care homes, HBV often spread by sharing		
o Infected needles		
o Syringes		
o Fingerstick devices or		
o Blood glucose monitors		
Among residents during diabetes care		
(S-12) HBV		
HBV can live outside the body on equipment and on surfaces like table tops or blood glucose meters for seven days		
Can infect others during that time		
can intest others during that time		
(S-13) Seven Days		
I repeat, Hepatitis B virus can live outside the body on equipment		
and on surfaces like table tops or blood glucose meters for seven		
days		
Can infect others during that time		

Section 5 – Bloodborne Pathogens		
(S-14) HBV		
Causes Hepatitis B, a disease of the liver		
About one third of persons infected with HBV do not show		
symptoms		
Even though they do not show symptoms, can still infect you		
Recall the picture of the iceberg discussed earlier		
Most adults infected will have some symptoms, which can include		
fever, extreme tiredness, stomach pain, nausea, dark-colored urine,		
and yellowing of the skin and eyes		
Infection with HBV can — but does not always — lead to chronic		
infection		
Chronic Hepatitis B infection is a long-term illness that occurs when		
HBV remains in a person's body		
Chronic Hepatitis B is a serious disease that can result in long-term		
health problems, and even death		
Recall that HBV can live outside body on equipment and on surfaces		
like table tops or blood glucose meters for seven (7) days; can infect		
others during that time		
-15) Hepatitis B Vaccine		
Great news		
There is a vaccine available to prevent getting Hepatitis B		
Best way to prevent Hepatitis B is by getting Hepatitis B vaccine		
o Is safe and effective		
Usually given as 3-4 shots over a 6-month period		
-16) Other Bloodborne Pathogens		
Hepatitis C		
 A contagious liver disease caused by HCV; HCV is also spread by 		
blood or body fluids		
HCV is usually spread when blood from an infected person		
enters the body of someone not infected		
Hepatitis C ranges in severity from a mild illness lasting a few		
weeks to a serious, lifelong illness that attacks the liver		
HIV		
o Is the virus that can cause AIDS (acquired immune deficiency		
syndrome)		
HIV attacks the immune system and limits body's ability to fight		
infection		
Are no vaccines available to protect against HCV and HIV infections		
-17) The Chain of Infection		
Recall the Chain of Infection		
What do the links of the Chain of Infection include for bloodborne		
pathogens?		

Section 5 – Bloodborne Pathogens

(S-18) Bloodborne Pathogens – 1st Link and 2nd Link

- The 1ST LINK
 - o Is the infectious agent or harmful germ that causes an infection
 - For bloodborne pathogens, the harmful germs are the HBV, HCV, and HIV
- The 2ND LINK
 - o Is the reservoir or where harmful germs live, grow, and increase in numbers
 - o The reservoir for HBV, HCV, and HIV is the person who is infected, specifically in the blood of the person
 - Remember, you cannot look at a person and always tell if that person is infected with Hepatitis B virus, Hepatitis C virus, and HIV

(S-19) Bloodborne Pathogens – 3rd and 4th Link

- The 3RD LINK
 - o Is the portal of exit
 - Any opening on an infected person's body that lets harmful germs escape from the reservoir where they have been living
 - Portals of exit for HBV, HCV, and HIV include cuts, open sores, or any equipment that pierces the skin and comes into contact with blood, like needles or lancets
- The 4TH LINK
 - Is the mode of transmission or how harmful germs travel or "get around" from place to place
 - o HBV, HCV, and HIV travel by way of blood
 - One way to get infected with bloodborne pathogen is to come into direct contact with (or touch) blood or other body fluids from a person who is infected with HBV, HCV, and HIV
 - Another way to get infected with HBV, HCV, and HIV is by indirect contact; indirect contact is when blood from infected person touches something (like needles, syringes, blood glucose meters, or staff's hands) and then is carried to an uninfected person

(S-20) Bloodborne Pathogens – 5th and 6th Link

- The 5TH LINK
 - Portal of entry or any body opening on a person who does not have an infection that allows harmful germs to enter into the body
 - o Portals of entry include any breaks in skin or mucus membranes
 - Portals of entry for HBV, HCV, and HIV include open sores or wounds and puncture sites from injections and fingerstick devices

	Section E - Bloodhorne Bethogens		
	Section 5 – Bloodborne Pathogens		
•	 The 6TH LINK A susceptible host or a person who does not have an infection now, but is at risk for becoming the next person to get infected, from harmful germs Susceptible hosts are residents in adult care homes and care workers who do not practice correct Standard Precautions Recall – people become more susceptible when their bodies' ability to fight infection is not good; also recall reasons why a person's body is not good at fighting infection include age, 		
	stress, fatigue, poor nutrition, and poor handwashing		
(S-	21) High Risk Resident Resident in an adult care home is at a higher risk for contracting or getting Hepatitis B, Hepatitis C, and HIV if the resident receives injections and/or is tested using fingerstick devices Who are the residents likely to be tested using fingerstick devices and receiving injections? Resident with diabetes mellitus		
(S-	22) Diabetes Mellitus		
•	A disease that many people have in our country Or simply diabetes is sometimes called sugar diabetes According to the American Diabetic Association, in the United States, for people aged 65-years and older, 26.9% have diabetes In 2010, North Carolina ranked 13 th in incidence of diabetes among all the other states (NC DPH) Is a disease caused by the body's inability to use glucose (sugar) for energy Reason body cannot use glucose for energy is because of a total lack of or not enough of insulin in the body Insulin is needed to help the body use glucose in the blood for energy Some residents with diabetes take pills everyday and others take injections with insulin Residents who are diabetic usually need their blood checked for glucose (sugar) regularly Some residents receive an injection of insulin based on the blood glucose (sugar) level		
	23) Blood Glucose Monitoring and Insulin ministration Blood glucose monitoring and insulin administration is often done in adult care homes		

Section 5 – Bloodborne Pathogens Assisted monitoring of blood glucose and insulin administration, when care providers assist with or perform blood glucose testing and insulin administration for residents, if ordered by the doctor or by Self-monitoring of blood glucose and insulin administration, when residents perform all steps of blood glucose testing and then administer insulin to themselves, if ordered by the doctor (S-24) Blood Glucose Monitoring Is used by residents with diabetes to check the level of sugar in the blood Resident pricks the skin with a lancet and places a drop of blood on a test strip Test strip is placed in the machine and then blood glucose (sugar) level shows up on the little screen Depending on doctor's orders and the blood glucose (sugar) level, the resident may need an injection of insulin (S-25) Point of Care Testing (POCT) Point of care testing (POCT) is common practice in health care settings Includes portable devices that allow care workers to monitor (keep a check on) a resident's health and response to medical care, at the bedside POCT is quick, easy to use, and provides helpful information about the resident A point of care test often done in adult care homes is the testing of a resident's blood for glucose (sugar) (S-26) Blood Glucose Meters Blood glucose meters are devices used to test a resident's blood for glucose (sugar) Should be assigned to a single resident and not be shared with other residents Are used daily by millions of people with diabetes These devices are smaller, faster, and more accurate now than ever before and are very important to a diabetic resident's health Any time a point of care test device is shared with residents, such as a blood glucose meter, there is a risk of passing a bloodborne pathogen from resident, to resident, to resident Clean and disinfect per manufacturer's instructions

	Section 5 – Bloodborne Pathogens		
(S-	S-27) Blood Glucose Meters		
•	HBV, HCV, and HIV can get onto blood glucose meters even if you don't see any blood		
•	These harmful germs can survive on the blood glucose meters and can then be spread to other residents who are not infected		
•	After that, the harmful germs can enter the bodies of the uninfected residents when their fingers are pricked to check their blood sugars		
•	Blood glucose meters should be assigned to an individual person and not be shared		
•	If blood glucose meters must be shared, the device must be cleaned and disinfected after every use, based on manufacturer's instructions to prevent the passing of blood and bloodborne pathogens, from one resident, to the next resident, using the device (If the manufacturer does not state how the blood glucose meter should be disinfected, then it should not be shared)		
•	Any agent used to clean or disinfect the device must be approved and used exactly per instructions, i.e., leave on device for 5 minutes		
(S-	S-28) Blood Glucose Meters		
•	HBV, HCV, and HIV can get onto blood glucose meters even if you don't see any blood		
	 Blood glucose meters, whether shared or not, must be <u>cleaned</u> <u>after every use</u>, based on manufacturer's instructions 		
	 Any agent used to clean or disinfect the device must be approved and used exactly per manufacturer's instructions, i.e., leave on device for 5 minutes 		
•	A simple guideline for safe care follows: blood glucose meters should be assigned to individual residents and not shared		
•	Store in labeled pouches or ziplock bags		
(S-	S-29) Blood Glucose Meters		
•	A simple guideline for safe care follows: blood glucose meters should be assigned to individual residents, labeled with individual resident name, stored in labeled pouches or ziplock bags, and not shared		
•	Notice that George, Bob, Mary, Ann, and John each have their own blood glucose meters and they are each labeled		
(S-	S-30) Fingerstick Devices		
•	Devices used to prick the skin and obtain drops of blood for testing		

Section 5 – Bloodborne Pathogens		
 Has a sharp lancet used to jab the skin and obtain drops of blood for testing Two main types often used in the adult care home Those that are designed for reuse on a single person Those that are disposable and for single-use CDC recommends that these devices should only be used by individual residents, and NEVER shared with other residents (S-31) Re-usable Fingerstick Devices for a Single Person 		
 Re-usable fingerstick devices are designed to be re-used, but only by a single resident and never shared Labeled with resident's name Store with the resident's blood glucose equipment/supplies Used by individuals who are self-monitioring The lancet must be removed after each use, discarded appropriately, and a new, unused lancet inserted in its place Often resemble a pen 		
 (S-32) Single-use, Auto-disabling Fingerstick Devices In adult care home settings where assisted monitoring of blood glucose (blood sugar) is performed, single-use, auto-disabling fingerstick devices should be used Single-use fingerstick devices are disposable and meant to be used once and then discarded The auto-disabling feature prevents reuse A fingerstick device that has a single-use lancet that permanently retracts (disappears from view) after puncture (jab) adds an extra measure of safety for the resident and the provider 		
 (S-33) Outbreaks Outbreaks of Hepatitis B infection in health care settings have been caused by sharing of blood glucose meters and fingerstick devices among residents Critically important that you know what you are doing and know what you are using when you perform fingersticks on your residents and work with blood glucose monitors Your knowledge is key to preventing the spread of bloodborne pathogens in the adult care home 		
 (S-34) Point of Care Testing Guidelines for Blood Glucose Testing The following guidelines apply to the use of point of care testing devices, specifically those used to check a resident's blood for glucose: Always wear gloves when performing finger sticks, when testing the blood for glucose (sugar), and when cleaning and disinfecting any blood glucose testing device 		

Section 5 – Bloodborne Pathogens Change gloves between residents when performing multiple finger sticks in an adult care home Change gloves that have possibly touched blood-contaminated objects or "jab sites" before touching clean surfaces or objects Remove and discard gloves in appropriate container after every procedure that involves a possible exposure to blood during fingerstick blood testing Perform hand hygiene right after removal of gloves and before touching other residents or things Discard used lancet in an approved sharps container (S-35) Point of Care Testing Guidelines for Blood Glucose Testing The following guidelines apply to the use of point of care testing devices, specifically those used to check a resident's blood for glucose: o Never, ever reuse lancets o Never, ever recap, bend, or break lancets, because of the danger of jabbing the finger If a blood glucose meter is designed for use on a single resident, then the device cannot be shared with other residents If a blood glucose meter is designed for use on multiple residents and that is the method used in the adult care home, then manufacturer's directions must be followed for use, cleaning, and disinfecting between residents (S-36) Point of Care Testing Guidelines for Blood Glucose Testing The following guidelines apply to the use of point of care testing devices, specifically those used to check a resident's blood for glucose: Immediately clean and disinfect countertops and surfaces that have been contaminated with blood; use a germicidal (killer of germs) that is provided by the adult care home o Do not carry alcohol swabs, lancets, or other supplies in pockets Only carry supplies needed for the fingerstick procedure to the bedside; any unused supplies should be discarded and not be used with other residents If you jab your finger with a used lancet, immediately follow adult care home's exposure policy regarding care and reporting of the occurrence Each time you perform a fingerstick blood glucose test on your resident, you must ask yourself the following questions: What type of fingerstick device is this? Is it meant to be used only one time and discarded? Am I supposed to assist the resident?

Section 5 – Bloodborne Pathogens		
(S-37) Insulin Administration		
 Now that you have tested your resident's blood for glucose (sugar) and according to doctor's orders, the resident is to receive insulin Insulin may also be administered to resident by trained and qualified staff Insulin may be self-administered, which means resident gives self his own insulin Two methods of insulin administration often used in adult care home By injection, using an insulin pen By injection using a syringe, with insulin removed from a multiple-dose vial 		
 (S-38) Insulin Pens Injector devices for insulin are shaped like an ink pen Have an insulin reservoir or an insulin cartridge that usually has enough insulin for a single resident to self-administer several doses by injection of insulin before the reservoir or cartridge is empty Are intended for use by a single resident and not to be shared with other residents Needle is changed before each insulin injection Insulin pens are designed to be safe for a single resident to use a single pen multiple times, with a new needle for each injection; insulin pens should be assigned to individual residents and labeled with each resident's name Should never, ever be used for more than one person 		
 (S-39) Multiple-dose Vials Insulin can be administered using a needle and syringe after withdrawing the correct dose of insulin from a multi-dose vial Multi-dose vial of insulin is a vial that has more than one dose of insulin in it Multi-dose vials of insulin should only be used for a single resident whenever possible If the multi-dose vial must be used for more than one resident it should be stored and prepared in a specific medication preparation area outside of the resident care area and away from equipment that may be contaminated 		
 (S-40) Multiple-dose Vials Always enter multiple-dose vials with new needle and new syringe after cleaning vial top with alcohol Needles and syringes must never be used to administer insulin to more than one resident 		

	Section 5 – Bloodborne Pathogens		
(S-4	11) The CDC is Concerned		
•	Recall that the CDC is an agency of the federal government that is in charge of the control and prevention of disease in our country by helping keep the public healthy and safe by education CDC is concerned about risks for transmitting bloodborne pathogens during assisted blood glucose (sugar) monitoring and insulin administration CDC has looked into multiple outbreaks of hepatitis among		
	residents in long-term care facilities that were traced to the sharing of devices and other breaches in infection control practices related to blood glucose monitoring Ohio Any time blood glucose monitoring devices are shared between residents there is risk of transmitting hepatitis and other bloodborne pathogens Ohio In the last 10 years, there have been at least 17 outbreaks of Hepatitis B infections because health care providers did not follow basic principles of infection control when assisting with blood glucose monitoring; there are likely more cases that have not been identified or reported		
(S-	42) Critically Important		
•	Only use syringes, needles, lancets one time and one time only Dispose of them in sharps container immediately after use		
(S-	43) Check for Understanding		
Tel	I students:		
•	As a review of what you have learned, I am going to show you some pictures and I want you to figure out what is wrong with each picture. When you figure out what is wrong, I want you to shout it out. Let's show some excitement.		
•-			
(S-	44) Check for Understanding Continues		
Ask	students:		
•	What is wrong with this picture?		
Allo	ow students to respond to question.		

Section 5 – Bloodborne Pathogens		
(S-45) Check for Understanding Continues		
Tell students:		
That is correct. The care worker is throwing a sharp in the trashcan. Sharps are never discarded in a trashcan. Sharps must always be discarded in a biohazard container designed for disposal of sharps.		
(S-46) Check for Understanding Continues		
Ask students:		
What is wrong with this picture?		
Allow students to respond to question.		
(S-47) Check for Understanding Continues		
Tell students:		
That is correct. The care worker is recapping a used needle and syringe. Never, ever recap a needle that has been used on a resident. You could jab yourself and then be exposed to a bloodborne pathogen. You will be hearing more about bloodborne pathogens in this section.		
(S-48) Check for Understanding Continues		
Ask students:		
What is wrong with this picture?		
Allow students to respond to question.		
(S-49) Check for Understanding Continues		
Tell students:		
That is correct. The care worker is performing a fingerstick blood glucose check on a resident and is not wearing gloves. You must wear gloves whenever there is a chance that you will be exposed to blood or body fluids. You must always wear gloves when you do a fingerstick blood glucose check.		

Section 5 – Bloodborne Pathogens		
(S-50) Check for Understanding Continues		
Ask students:		
What is wrong with this picture?		
Allow students to respond to question.		
(S-51) Check for Understanding Continues		
Tell students:		
• That is correct. The care worker is opening a door using the door handle while wearing soiled gloves. First of all you must change your gloves immediately if they become dirty. I think we will all agree that the gloves are dirty. Another rule that the care worker violated is moving from an area that is contaminated to an area that is not contaminated without changing or removing gloves. Third, you must never touch anything with dirty gloves that people may touch without wearing gloves. Typically people do not put on gloves to open a door.		
(S-52) Check for Understanding Continues		
Ask students:		
What is wrong with this picture?		
Allow students to respond to question.		
(S-53) Check for Understanding Continues		
Tell students:		
That is correct. The care worker is touching his face with a dirty glove. First of all you must change your gloves immediately if they become dirty. I think we will all agree that the gloves are dirty. Another rule that the care worker violated is moving from an area that is contaminated to a body part that is not contaminated without changing or removing gloves. Finally, you must never, ever touch your skin with the dirty side of your glove. I don't care how badly your nose may itch you must not scratch it with dirty gloves on. You did very well identifying what was wrong with the examples of		
 You did very well identifying what was wrong with the examples of poor care practices. I do need to tell you that the pictures I just showed you were simulated and the blood was fake stage blood. Many times a picture is worth a thousand words. 		

Section 5 – Bloodborne Pathogens	
 (S-54) Congratulations Congratulations, you have completed section five and the final section of your infection prevention training. 	