Healthstream electrical safety test answers

Charging electricity is one of the most dangerous forces in the workplace. If not operated properly, it can cause fires, explosions and electric shock. Of course, no modern object can function without electricity, so it is important to take steps to ensure that it is used as safely as possible at all times. Fortunately, there are many things you can do to reduce the overall risk of electricity-related accidents or injuries and minimize the impact of anything that happens. Taking electrical safety seriously We have written a series of frequently asked questions and answers related to electrical safety to help companies ensure the safety of their employees and facilities. These posts are written for everyone in the workplace who is responsible for the safety of the facility in general, and electrical safety in particular. This can include object security coordinators, supervisors, managers, executives, and even frontline employees. Whether you're reading all the different topics to understand electrical safety as a whole, or just choosing and choosing which questions you need answers to, this section will be very useful. By browsing our list of different topics, you will see that there are answers to many different types of questions related to electrical safety. We cover everything you need to know to protect your facility from electricity, including prevention, protection and emergency procedures. You can learn about things like: Types of electrical hazards – There are many different types of electricity hazards. We explain what they are, how to identify them and how to avoid them. Personal protective equipment – personal protective equipment or PPE is an important safety factor for anyone who works with electrical systems. Learn more about the insulated and arcing PPE you may need. Safety training – ensuring that everyone in your facility is up to date with the best electrical safety standards. We offer information on how to train your team effectively. Visual communication benefits – Implementing visual safety standards, such as locks/markers, labels, and signs, can help prevent accidents and injuries. Much more - There are many other topics covered by this Q&A segment that focus on electrical safety. 1 HealthStream Regulatory Electrical Safety Script Release Date: August 2009 HLC Version: 603 Lesson 1: Introduction Lesson 2: Electrical Safety Basics Lesson 3: Electric Shock Hazards Lesson 4: Hazard Reporting and Accident Prevention 2 Lesson 1: Introduction 1001 Introduction Welcome to the Introductory Lesson on Electrical Safety. This lesson gives you the rationale for the course, goals and outline. 1001.JPG As your partner, HealthStream strives to provide its customers with excellence in regulatory educational solutions. As the new guidelines are constantly issued by regulatory agencies, we are working to update the courses, if necessary, in a timely manner. As the responsibility for complying with the new guidelines remains the responsibility of the healthstream encourages you to routinely check all relevant regulatory agencies directly for the latest updates to clinical/organizational guidelines. If you have concerns about any aspect of the safety or quality of patient care in your organisation, remember that you can report these concerns directly to the Joint Commission. Page 1 of 4 2 3 1002 Course justification Most devices in the healthcare environment are electric. For example, ECG machines, night monitors, anesthesia, fans and incubators work on electricity. FLASH ANIMATION: 1002.SWF/FLA Patients and staff are often in contact with these devices. Therefore, electric shock is always a threat in the healthcare environment. This course will teach you: Basics of electricity How and why there is an electric shock how to identify and report electrical hazards How to prevent electrical accidents Page 2 of 4 4 1003 Course goals After completing this course you should be able to: Read the basics of electricity Explain how electric shock occurs List of potential electrical injuries List of factors affecting the likelihood and severity of electric shock and injury Specify, what to do if you notice an electrical hazard List of what to look for during equipment inspection List what to do before performing maintenance on an electrical device List of safety guidelines for power cords and sockets List of best practices for protecting patients from electric shock Explain how the Joint Commission expects the devices to prepare for the loss of electricity NO IMAGE Page 3 of 4 5 1004 Lesson outline of course 1 gave justification and objectives of the course. FLASH ANIMATION: 1004.SWF/FLA Lesson 2 will describe the basics of electricity. Lesson 3 will discuss the dangers of electric shock. Lesson 4 will describe how to report hazards and prevent accidents. Page 4 of 4 6 Lesson 2: Basics of Electricity 2001 Introduction Welcome to the lesson on the basics of electricity. FLASH ANIMATION: 2001.SWF/FLA After completing this lesson you should be able to: Define electricity Define wires and provide examples of guides Define an insulator and provide examples of insulators Describe how the flow of electricity in the circuit Details how a person can become part of the circuit Point 1 of 9 7 2002 Electricity is the flow of electricity or electricity. PHOTO: 2002.JPG Electricity is present in nature. For example, lightning is an example of static electricity. Electricity can also be generated and shipped over long distances. Electricity demand: Closed wire Point 2 of 9 8 2003 Wire wire is any material that can transmit electricity. PHOTO: 2003.JPG There are many examples of guides. that is, the earth, he is the conductor. Metals such as aluminum, silver, gold and iron also have good wires. Other examples of guides are: Moist body tissues Body fluids Water Electric current flows easily through all these wires. Point 3 of 9 9 2004 Insulators Some materials block the flow of These materials are insulators. PHOTO: 2004.JPG examples of insulators are: Rubber plastic glass fabrics wooden insulators can force electricity to take a harder path. For example, the insulation of the power cord forces electricity to flow through the device. This is a difficult road, because electricity has to work to power the equipment. Point 4 of 9 10 2005 Electricity basics: Electricity circuits always move in a loop. This loop begins and ends with a source of electricity. PHOTO: 2005.JPG name for electric current loops is circuit [glossary]. The graphic on the right shows how electricity moves in a loop and returns to the source. Follow the circuit on the graphic: Electricity moves through wires from the power company to the house or building. When the device is connected, electricity flows from the outlet to the machine and then back into the outlet. Note that this is also a circuit! From the building, electricity eventually moves to the ground through a grounded wire. The circuit is complete when electricity returns to the power plant. The power plant has a large rod in the ground to pick up electricity from the ground. Point 5 of 9 11 2006 Electricity basics: circuits and anything that conducts electricity can become part of the circuit. This includes YOU. PHOTO: 2006.JPG Electric shock occurs when you become part of the circuit. Consider the example on the next screen. Point 6 9 12 2007 Electricity basics: circuits and you (2) Suppose you hold the power cord in one hand and touch the metal chair on the other. The insulation of the power cord is damaged. PHOTO: 2006.JPG What will happen and why? You are a conductor. The metal chair is the conductor. Earth is a conductor. You are part of the way to the ground. The path of which you are a part is shorter and easier than the one concerned. Electricity will flow from the damaged wire, to YOU, to the chair, to the ground. From the ground, electricity returns to the power plant. It ends its circuit. Meanwhile, you may have severe electrical burns or other injuries. Even death is possible. Section 7 of 9 13 2008 FLASH INTERACTION REVIEW: 2007.SWF/FLA Which one is most likely to be an electricity conductor? Picture rubber shoes Picture water puddle Picture of a wooden horse Correct: (Puddle of water on the floor) Section 8 of 9 14 2009 Summary You have completed an introductory lesson on the basics of electricity. NO PICTURE Remember: Electric current moves easily through wires. The wires include metals, water and moist tissues of the human body. Insulators block the flow of electricity. Examples of insulators are rubber, wood and plastic. Electricity always returns to the source. He does this by traveling in the perimeter. Electric shock occurs when a person becomes part of an electrical circuit. Section 9of 9 15 Lesson 3: Electric Shock 3001 Introduction & Goals Welcome to a lesson on electric electric Threats. FLASH ANIMATION: 3001.SWF/FLA After completing this lesson, you should be able to: Explain how electric shock occurs List of potential electrical injuries List of factors affecting the likelihood and severity of electric shock and damage Point 1 of 13 16 3002 Warning signs Do you pay attention to warning signs of electrical hazards? PHOTO: 3002.GIF Many people think: I would never have happened. But thousands of electrical accidents happen every year. Electrical accidents often cause injuries, fires and death. Point 2 of 13 17 3003 Electrical hazards Electrical safety requires the cooperation of all employees and departments in your plant. PHOTO: JPG All employees need to know the warning signs of electrical hazards. This can help keep staff and patients safe. Point 3 of 13 18 3004 Electric shock: How to remember: Electric shock occurs when a person becomes part of the circuit. PHOTO: 3004.GIF This can happen if a person touches: Damaged electrical device Electrified object Point 4 of 13 19 3005 Electric shock: Why remember: Electricity prefers to choose the easiest way to return to the source. PHOTO: 3005.GIF Think about it: Electric current flows easily through moist body tissues. Inside the device, the electricity is slowed down by the need to perform work. Therefore, electricity would prefer to travel by a person than

equipment! Electric shock occurs when a person becomes a shortcut to electricity, which is to return to the source when the device is turned on. Point 5 of 13 20 3006 Electric shock: Potential injuries Electric shock can cause: Burns Muscle spasms Abnormal heartbeat Respiratory arrest electric shock [link to glossary] PHOTO: 3006.JPG Knowledge of CPR can help save the life of a victim of electric shock! Point 6 of 13 21 3007 Injury potential (1) Several factors can increase the risk of injury when a person is in shock. PHOTO: 3007.JPG The first factor is whether a person is a good conductor or a bad conductor. Remember: Moist body tissues are conductors. This makes people conductors. But some people are better conductors than others. For example, infants and children tend to be better conductors than adults. Electricity flows through infants and children EXTREMELY easily. Therefore, infants and children are more likely to be injured if they are shocked. Point 7 of 13 22 3008 Injury potential (2) There are many other factors that can make a person a better conductor. These factors include: Wet clothes High humidity Sweating Bare bead Standing in a puddle of water After breaks in the skin (e.g. wound, incision or catheter insertion site) PHOTO: 3008.JPG All these factors increase the risk of injury if a person is shocked. Point 8 of 13 23 3009 Damage potential (3) On the other hand, insulators make person is a bad guide. PHOTO: 2004.GIF for example, shoes with a rubber sole make it difficult for an electric current passing through the feet of a person directly to the ground. A A wearing shoes with a rubber sole may no longer be such an easy road to electricity! This person is less likely to be injured if he or she is exposed to electricity. Point 9 of 13 24 3010 Current path The current path also affects the severity of injuries when a person is in shock. FLASH ANIMATION: 3009.SWF/FLA For example, suppose a nurse accidentally touches a live wire with one hand and a set of metal shelves with the other hand. Electric current will always be a shortcut. Electricity will flow from the wire, through the nurse's chest, to the shelves, to the ground. From the ground, electricity returns to the power plant. This terminates the circuit. Think about what happened to the nurse. The current passed directly through her heart. Current throughout the heart is very likely to cause the heart to stop beating normally. Current through other areas of the body is less likely to affect the heart in a life-threatening way. Point 10 of 13 25 3011 Review True or False: Electric shock can be surprising. However, shock must not cause long-term damage. a. Truth b. False interaction TRUE/FALSE [CORRECT ANSWER: B] [OPINION FOR A: Incorrect. Electric shock can cause burns, muscle spasms, abnormal heartbeat, respiratory arrest and electric shock.] [REVIEWS FOR B: Correct. Electric shock can cause burns, muscle spasms, abnormal heartbeat, respiratory arrest and electric shock.] Section 11 of 13 26 3012 Review Electric shock occurs when a person's body becomes part of the circuit. a. Truth b. False true/false interaction [CORRECT ANSWER: A] [OPINION FOR A: Correct. Electric shock happens when the current flows through the body. This happens when the body becomes part of the shortcut to electricity to complete the circuit.] [FEEDBACK FOR B: Incorrect. Electric shock happens when the current flows through the body. This happens when the body becomes part of the shortcut to electricity to complete the circuit.] Section 12 of 13 27 3013 Summary You have completed a lesson on the dangers of electric shock. Remember: Electric shock happens when the body becomes part of the circuit. Electric shock can cause burns, muscle spasms, abnormal heartbeat, respiratory arrest and death. When a person is shocked, injuries are more likely if: Humidity is high. A person is sweating or wearing wet clothes. A person has bare feet. A person stands in a puddle of water. A person has breaks in the skin. Wearing shoes with a rubber sole reduces the risk of electric shock. Current throughout the heart can cause the heart to stop beating normally. Current through other areas of the body can cause burns or muscle spasms. However, it is less likely to affect the heart in a life-threatening manner. NO IMAGE Section 13 of 13 28 Lesson 4: Reporting threats and Accidents 4001 Introduction & Goals Welcome to lessons on hazard reporting and accident prevention. FLASH ANIMATION: 4001.SWF/FLA After completing this lesson you should be able to: do if you notice an electrical hazard List, what to look for when inspecting equipment List of activities before performing maintenance on an electrical device List of safety guidelines for power cords and outlets List of best practices for protecting patients from electric shock Point 1 of 13 29 4002 Prevention of accidents To prevent electrical accidents in the facility, follow best practices in: Hazard reporting Using electrical equipment Equipment inspection and testing Maintenance and repair of power cords and operating sockets IMAGE: 4002.JPG Let's take a closer look at best practices in each category. Point 2 of 13 30 4003 Hazard reporting All workers should pay attention to electrical hazards. PHOTO: 4003.JPG Dangerous devices should be removed from service immediately. Equipment is dangerous if: Not working properly Shows signs of damage It gets too hot when it is used Odors like it smells when it is used Staff Shocks or patients Follow the procedures of the plant to roll in dangerous devices for repair. You may need to contact hardware maintenance. You may need to fill out a work order. Contact your supervisor to find out what to do. Section 3 of 13 31 4004 Using electrical equipment Before using electrical equipment: Learn how to use the equipment correctly. Check that the device is not damaged and consumed. Do not use damaged hardware. Turn it on for repair. PHOTO: 4004.JPG Do not use electrical equipment: If the liquid has been spilled on the device If the floor is wet and you are standing in a damp area If your hands are wet Finally: Do not lay anything on or behind the electrical equipment. Turn off the device before connecting or disconnecting. Section 4 13 32 4005 Inspection and testing of equipment All medical equipment should be regularly inspected and tested. Your object should have schedules and procedures in this regard. PHOTO: 4005.JPG Inspection procedures should include at least the following information: Check the power cord of the device for fraying, connecting and wear Check the device housing for cracks, holes and other damage Check that all device covers are in place Check all circuit locks (if applicable) Before use, also check the equipment brought by patients. Components such as radios and razors should be battery powered whenever possible. Section 5 13 33 4006 Maintenance and repair of equipment Before inspection, service or repair of equipment, it must be removed from a power source. PHOTO: 4006.JPG Many devices can simply be disconnected. Other devices must be removed from power using a procedure known as lock/tagout. For more information about lock/tagout, see the Control course Energy: Lockout/Tagout. Section 6 13 34 4007 Power cords and sockets The best practices for power cords and sockets include: Do not use sockets or cables with exposed wiring. Report damaged sockets or wires to your supervisor or repairer. Sockets that become too hot may not be connected Unplug the wires from the outlet. Report a problem. Do not bend, stretch or bend the power cords. Do not yank the cords from the sockets. Pull the plug to remove the cable from the socket. Do not sesh, glue or nail to walls or floors. This can damage the insulation and expose the bare wires. If necessary, use tape. Do not base the equipment on power cables. Use only power cables with three pin plugs. Never use adapters, dual-track plugs or damaged plugs with three pins. PHOTO: 4007.JPG Extension cords are usually not allowed in patient care areas. Contact your supervisor. Point 7 of 13 35 4008 Circuit breakers Please note: Electricity travels around the circuit. The entire circuit starts and ends at the power plant. PHOTO: 4008.JPG There are smaller circuits in your plant that branch away from the main circuit. Each of them starts and ends with a switch in the switch box. Overloading one of these circuits can be extremely dangerous. Never overload the circuit. In order not to overload the circuit: Install the equipment systems in accordance with the manufacturer's instructions Observe national and local electrical regulations when installing equipment systems Each circuit breaker should be clearly marked with the names of the devices on this circuit. This makes it easier to verify that the circuit is overloaded. Clear labelling also facilitates the immediate shutdown of the right circuit in an emergency. Switch boxes should be available at all times. Section 8 13 36 4009 Patient safety patients come into contact with many electrical equipment in the healthcare environment. Examples include: Adjustable Beds Nurses Call Systems Lamp Treatment Devices IMAGE: 4009.JPG This puts patients at risk of electric shock and injury. To help protect patients: Place electrical equipment at a distance from patients whenever possible. Make sure that the floors in patients' rooms remain dry. If possible, do not touch patients and electrical equipment at the same time. Point 9 of 13 37 4010 Electrical power failure Although electricity can cause injury to the patient, it is necessary to care for the patient. Many patients depend on electrical appliances for survival. For example, electricity supplies respiratory electricity to refrigerators where blood and drugs are stored IMAGE: 4010.JPG Loss of power can endanger patient care and put patients at risk. Joint Commission Requires Health Care Facility: Electrical Power Failure Risk Assessment Electricity Loss Plan Test Entire Emergency Power System Plan for Periods of Emergency Power Loss Point 10 of 13 38 4011 Review Which of the following statements is true? A. You can use electrical equipment when your hands are wet, as long as you are wearing rubber shoes. B. You can disconnect the equipment without turning it off, how much you charge the wire from the outlet. c. Using damaged equipment is fine if you report that it is damaged. d. Power cords may be attached to walls or floors as long as the tape, not staples, pinned or nails. MULTIPLE CHOICE INTERACTION [CORRECT ANSWER: D] [REVIEWS FOR A: INCORRECT. Shoes with a rubber sole can help protect against electric shock. Still, never use electrical equipment when your hands are wet. The correct answer is D.] [FEEDBACK FOR B: Incorrect. Always turn off the device before connecting or disconnecting. Never yank the cords from the sockets. Pull the plug to remove the cable from the socket. The correct answer is D.] [FEEDBACK FOR C: Incorrect. Report damaged equipment, remove it from service, and enable it for repair. Never use damaged hardware. The correct answer is D.] [REVIEWS FOR D: Correct!] Section 11 of 13 39 4012 FLASH INTERACTION Review: 4012.SWF Patients come into contact with multiple electrical devices in a healthcare environment. This exposes patients to electric shock and injury. Some best practices can help protect patients. What are these practices? Enter your thoughts in the box below. Then click submit to compare your response with ours. [OPINION: Do you remember the following practices? To help protect patients: Place electrical equipment at a distance from patients whenever possible. Make sure that the floors in patients' rooms remain dry. If possible, do not touch patients and electrical equipment at the same time. Section 12 of 13 40 40 4013 Summary You have completed a lesson on hazard reporting and accident prevention. NO PICTURE Remember: Most electrical accidents can be prevented. Report threats immediately. Use the equipment correctly. Regularly check and test your equipment. Lock/tagout procedures should be used to maintain equipment. Use power cords and sockets correctly. Do not overload the circuits. Protect patients from the dangers of electric shock. Section 13 of 13 41 [Electrical Safety] Course Dictionary # Term Definition 1. Adapter Connector, which allows you to connect a three-pin plug to a two-way outlet. 2. Conductive material capable of transmitting electricity; easily allows the flow of electrons; has a low resistance. 3. Insulator material that blocks the flow of electricity; does not allow the flow of electrons easily; has high resistance. 4. Electric earth object with physical electrical connection to the ground, and therefore with electric shock voltage Death as a result of electric shock. 7. Circuit Full electrical current path. 42 [Electrical safety] Preliminary assessment 1. What is a guide? A. Closed circuit b. Static electricity c. Material that can transmit electricity d. Materials such as rubber, glass and wood Correct: C Justification: Wire is any material that can transmit electricity. 2. What causes electric shock? A. Wearing latex gloves b. It becomes part of the c. Wearing shoes with rubber sole d. Becomes part of an insulated device Correct: B Justification: Electric shock happens when a person becomes part of an electrical circuit. 3. What is a potential electric shock injury? a. Burns b. Bruises c. Bone fracture d. Stab wound Correct: A A Electric shock can cause severe burns. 4. Which factor increases the risk of injury if a person is in shock? A. Old age b. Sweating c. Dry clothes d. Low humidity Correct: B 43 Justification: Sweating makes a person a better guide, which increases the risk of injury in case of electric shock. 5. What should I do if I notice an electrical hazard? A. Ignore threat b. Report threat c. Mark the threat with bureaucracy d. Fix the threat with insulated tape Correct: B Justification: Report all electrical hazards right away. 6. You check the electrical equipment. Which of the following is the threat you should look for? A. Intact housing b. Covers for the appliance in place c. Fraying of the power cord d. Current maintenance records Valid: C Justification: When inspecting the electrical unit, check the power cord for fraying, connection and wear. 7. What should I do before i can control my electrical device? A. Plug the device into wall outlet b. Reload the device with potential energy c. Disconnect the device from power source d. Conversion of all mechanical energy to thermal energy Correct: C Justification: Before the device is checked, serviced or repaired, it must be removed from the power source. 8. What is the best practice for using power cables? A. Use of power cables with exposed wiring b. Use of power cords with three-wheel plugs c. Stretching the power cords to reach outlet d. Stitching the power cords to the floors to prevent slipping Correct: B Justification: Use only power cables with plugs with three pins. Never use adapters, dual-track plugs or damaged plugs with three pins. 44 9. What is the best practice to protect patients from electric shock and injuries? A. Keeping patients dehydrated b. Maintenance of floors in dry areas c. Placing electrical equipment near patients d. Touching patients and electrical equipment at the same time Correct: B Justification: To protect patients, keep floors in dry areas of patients. 10. The Joint Commission expects healthcare facilities to prepare for energy loss. Which of the following requirements is a requirement of the Joint Commission? A. Minimize the use of electrical equipment b. Assess the risk of electrical power failure c. Have battery-powered backups for all key d devices. Document the number of kilowatt-hours of energy consumed each day Correct: B Justification: The Joint Commission requires healthcare facilities to assess the risk of electrical power failure. 45 [Electrical Safety] Final Exam 1. What is the name of the electric current loop? a. Outlet b. Circuit c. Insulator d. Wire Valid: B Justification: Electricity moves in a loop. This loop is called a circuit. 2. In this case, will there be an electric shock? A. A person touches a wooden table. B. A person touches an insulated power cord. c. The person becomes part of the electrical circuit. d. A person is inside during a storm. Correct: C Justification: Electric shock happens when a person becomes part of an electrical circuit. 3. What is potential damage Shock? a. Ulcers b. Stroke c. Abnormal heartbeat d. Deep vein thrombosis Correct: C Justification: Electric shock can cause abnormal heartbeat. 4. Which factor increases the risk of serious injury if a person is in shock? A. Standing on a dry surface b. Wearing shoes with rubber sole c. Current passing through one leg d. Current chest passage Correct: D 46 Justification: Current chest passage is more likely to have a strong effect on heart function, which increases the risk of serious injury. 5. If the equipment shocks the patient, report the incident and the equipment should be removed from service immediately. a. Truth b. False Correct: Justification: This statement is true. 6. Which of the following is a key element in the control of electrical equipment? A. Check the weight of device b. Check your device's make, make and model c. Check the length, width and height of the device d. Check the housing for cracks, holes and damage :D Rationale: When inspecting the electrical device, check the housing for cracks, holes and other damage. 7. What procedure should I use before controlling an electrical device that is permanently connected to a power source? A. Lock/tagout b. Circuit overload c. Power-in/power-out d. Standard precautions Valid: Before controlling devices that cannot be disconnected, they must be isolated from the power source by means of a lock/marker. 8. What is the best practice for using power cables? A. Bending or bending of power cords (b). Devices for resting on power cables c. Reporting of damaged wires immediately d. Using power cords with two-power plugs Valid: C Justification: Do not use damaged power cables. Report damaged wires to your supervisor or repairer. 9. What is the best practice to protect patients from electric shock and injuries? A. Use of damaged electrical equipment b. Removing the enclosure from electrical equipment c. Placing electrical equipment at a distance from patients d. Prohibition of electrical equipment with health care settings 47 Correct: C Justification: If possible, electrical equipment should be placed at a distance from patients. 10. The Joint Commission expects healthcare facilities to prepare for energy loss. Which of the following requirements is a requirement of the Joint Commission? A. Check the emergency power supply system b. Are flashlights available in strategic locations c. Store candles and matches in all patient rooms. Use battery-powered devices whenever possible Correct: Justification: The Joint Commission requires healthcare facilities to test their emergency power system. System.