The four organisms that cause infection essay sample

Unit being assessed HLTINF001 Comply with infection prevention and control policies and procedures

Instructions for Assessment Task 2 This assessment comprises sixteen [16] written questions. You must answer each question. Answers must word processed and submitted as instructed by your teacher. References must be included.

NMBA Standards linked to this assessment task: 1. 2, 1. 3, 3. 9, 9. 2

Questions

Identify and discuss the four organisms that cause infection and give two specific examples of each.

Bacteria: Bacteria are single-celled organisms and it believes that bacteria are either harmful or useful organisms. Bacteria can be transmitted through contaminated water, the wound or airborne. For example, cholera is because of the food or water is contaminated and TB is contagious by a person with TB coughs, spit, laughs, or talks.

Viruses: Viruses are diverse organisms that have various forms. Viruses take over or infect the host’s cells (humans, animals, plants) so that viruses can reproduce themselves. A well-known disease of viruses which infects human is HIV, and flu is another common disease caused by viruses.

Fungi: The food resources for fungi are dead bodies and living organisms. In terms of human bodies, fungi commonly appear on hair, skin, nails and mucous membranes. Athlete’s foot and vaginal yeast infections are caused by fungi.

Protozoa: Protozoa are single-celled eukaryotes. Protozoa can be transmitted by contaminated food, water, or contact with infected person. Moreover, humans can be infected by the vectors. For example, malaria is caused by the infectious mosquito’s bite that brings protozoa into the bloodstream, also cutaneous leishmaniasis is caused by the vectors as well and makes the skin sore.

Explain the three (3) modes of infection transmission

Contact: Infectious agents can be transmitted by HCWs directly or indirectly.
Direct contact-The interactions between HCWs and patients.
Indirect contact-By contact with the object which is contaminated by pathogens.

Airborne: Airborne transmission occurs when invisible pathogens exist in the air carried by dust and moisture. These pathogens are lasting in the air and inhaled by another person.

Droplet: Droplet transmission occurs when a person with diseases is coughing, talking, sneezing then spraying visible droplets with pathogens into the air, and pathogens jump to another person directly.

Explain the difference between airborne and droplet transmission

The size of airborne particles is smaller than droplets and therefore droplets are visible but airborne droplets are invisible. Moreover, airborne pathogens remain in the air longer than droplets.

Define standard and additional (or transmission based) precautions and give an example of when each would be used.

Standard precautions are the fundamental procedures for each individual to eliminate or prevent the risk of being infected. For example, we are required to wear gloves in the case of touching blood, body fluids, non-intact skin, mucous membranes, and contaminated items.

We practise transmission-based precautions when standard precautions are not enough to fully control a specific disease in some modes of transmission. For instance, SARS needs an isolation precaution to prevent being infected through airborne and contact.

Discuss how linen waste would be handled for a patient who has gastroenteritis and is isolated with contact/droplet precautions

Contact and droplet precautions: Gloves, surgical mask, and eye protection should be wore before entering the patient’s room.

- Prevent linen contact with HCWs clothing.
- Used linen should be sealed in clear plastic bags or laundry bags and should be bagged at the specific point.
- Don’t wash used linen in patent’s area and domestic washing machines.
- Perform hand hygiene.
- Define the term ‘ susceptible host’.
- A susceptible host is someone has the poor immune system or insufficient physical condition so that they get infected easily.

Discuss how the following factors impact susceptibility to infection

- Immune status – Poor immune status lets pathogens easier to survive in human body and unable to defeat the pathogen.
- Wounds and devices – By invasive medical procedures or a wound contacting infectious surfaces, pathogens become easier to transmit to the human body.
- Medications – In the period of taking some medications can make immune system in a poor condition.
- Co-morbidities – Co-morbidities can lead the associated organ to become dysfunction and easier to get infected.
- Age – Normally, elders have poor immune status and insufficient physical condition to protect themselves, and become the susceptible host.
- Discuss the difference between colonisation, infection and disease

Colonisation is the microorganism flora in or on the human body but not cause illness. However, infection is pathogens infect the human body and multiply inside of it. Disease is the human body is infected by pathogens and become dysfunction.

Discuss the difference between harmless microorganisms and pathogens

Most of microorganisms are harmless, in fact, they support human bodies by producing vitamins to protect human bodies. However, the microorganisms such as bacteria and viruses, they can infect human bodies to destroy the immune system.

- You are caring for a patient who has gastroenteritis and is in isolation with contact precautions
- Where would documentation such as medication charts be kept?
- Medication charts should be kept outside the patient’s room.
- Where would instruments such as sphygmomanometers be kept once used for a patient in isolation?
- Prepare a well-covered container with description label outside the isolation room for used instruments.
- Describe how you would handle and clean equipment that has been used for this patient to prevent contamination of yourself and transfer of pathogens.
- Wearing proper PPE, such as gloves, gown, eyewear, and the surgical mask.
- After use the equipment, clean it thoroughly as soon as possible.
- Following the manufacturer’s instructions to reprocess the equipment.
- Using automated cleaners or doing manual cleaning (scrub and remove the soil).
- Disinfect and sterilize the equipment.

Define the two classifications that determine the frequency of cleaning in a patient area. Include in your answer the objects in the patients room that fit in to each classification.

High touch surfaces: High touch surfaces are the surfaces near the patient and frequently touched by patients, HCWs or visitors. It is including bedside locker, call bell, bed rails, door handles, patient chair, tap handles, and patient tray table.

Minimal touch surfaces: Minimal touch surfaces are items not often touched by hands. It is including windows, shelves, walls, and the floor.

Watch the following video on respiratory hygiene and cough etiquette.

Discuss respiratory hygiene practices and why they are important (consider mode of transmission for most respiratory illness)

Respiratory hygiene practices:

- Follow standard precautions
- Using tissues to cover nose and mouth when coughing and sneezing. Then, dispose of the used tissues to the bins straightaway.
- Under the situation of no tissues, cough and sneeze into inner elbow or arm.
- Perform hand hygiene after coughing and sneezing.
- Keep one-meter distance to other people when coughing and sneezing.
- Stay at home if there’s a risk of infecting other people.
- It is important for everyone to adhere the respiratory hygiene practices to prevent droplet transmission. Droplets with pathogens can jump to other people easily when we are not following the respiratory hygiene etiquette.
- Identify the microorganism that cause chickenpox and discuss the period of contagion and how this should be managed.
- Chickenpox is caused by Varicella-zoster virus (VZV). Before the symptoms of chickenpox start to occur, up to 48 hours earlier, the human body will be contagious to other people, also the virus will exist in the human body about 7 to 21 days. Once diagnosed with chickenpox, it is better to stay at home until all the blisters are healed.

This is because VZV infects other people through saliva, coughing, sneezing and contact with an infected person.

Define the difference between single use items and single patient use items

Single use items: Single use items cannot be used more than once, such as a needle and syringe. Those items are required to throw away immediately after use.

Single patient use items: Single patient use items can be used repeatedly on a single patient and then throw away, such as blood pressure cuff.

Identify the three (3) categories of reusable equipment including how/where this equipment comes in to contact with the patient, how it is reprocessed after use and its storage requirements.

Critical items: Critical items are used to enter sterile tissue, cavity or bloodstream, such as invasive surgical and dental equipment. Before use the critical items, make sure it is sterilsed. Then, after use the critical items, clean it completely as soon as possible and sterilize it again. Store the critical items in sterility.

Semi-critical items: semi-critical items come into contact with mucous membranes or non-intact skin, such as respiratory and anaesthetic equipment. After use the semi-critical items, clean it completely as soon as possible then preferably sterilised or minimum high level disinfected. Store the semi-critical items in sterility.

Non-critical items: Non-critical items come into contact with intact skin, but not mucous membranes, such as stethoscopes, blood pressure cuffs,

commodes and IV pumps. Clean non-critical items thoroughly with detergent between different patients and store in a clean dry place.

Define the stages of surgical hand hygiene

Dress in perioperative attire and remove all jewellery

Stage 1 – 1 minute

Turn on taps with wrists or forearms

Wet hands and forearms with water

Apply surgical hand antiseptic to hands and forearms, and just spreading beyond the elbow

Use soap and running water to clean under nails with single-use nail cleaner (fingernails should be short and free of polish)

Rinse hands and forearms with water throughly, (start from hands, keeping hands and forearms elbow level)

Stage 2 – 3 minutes – for re-entry or subsequent scrubs at the day

Apply surgical hand antiseptic and lather well from fingertips to forearms

Use a circular motion moving from fingertips to elbows

Rinse thoroughly, and turn off taps with elbow

Stage 3 – 2 minutes

Reapply surgical hand antiseptic to hands and wrists only

Rinse hands and arms. Keep hands and arms above elbow level

Use a sterile towel to dry hand first then forearm -> rotate the towel and do another hand

Always keep hands and forearms above elbow level.

Discuss three (3) components of a surgical hand wash that differ to a routine hand wash.

Hand wash Dry hand by paper towel Only cover all hands surfaces clean under nails thoroughly

Surgical hand wash Dry hand by sterile towel Cover hands and forearms Without cleaning under nails

A nurse is preparing to administer a subcutaneous injection to a patient. Once prepared, the nurse carries the injection in her hands to the patient's room and administers the medication following the 6 R's correctly. They then recap the needle using their hands and carry it back to the treatment room for disposal.

Identify three (3) risk management strategies that should have been used to decrease the infection risk to the nurse.

The nurse carries the injection in her hands to the patient's room- The nurse should wear gloves and other proper PPE. In addition, the nurse should put the injection on a tray to transport to patient's room.

They them recap the needle using their hands- never recap needles after use.

Carry it back to the treatment room for disposal- used needles must put into an approved sharp container at the point-of-use.

References

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