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| **WASH ASSIGNMENT 2 IN MODULE 2.** |

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**COURSE TITLE: POST GRADUATE DIPLOMA IN WATER, HYGIENE & SANITATION**

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QN1. Diabetes mellitus is a chronic disease caused by inherited and or acquired deficiency in production of insulin by the pancreas or by the ineffectiveness of the insulin produced. Such a deficiency results in increased concentrations of glucose in the blood which in turn damage many of the body’s systems, in particular the blood vessels and nerves. (Source WHO). It’s a condition that impairs the body’s ability to process blood glucose. The glucose is vital to health because it’s an important source of energy for the cells that make up body muscles and tissues. It’s also the brain main source of fuel. Diabetes mellitus is an example of non-communicable disease because it has a prolonged course that doesn’t resolve spontaneously and for which a complete cure is rarely achieved. It’s not caused by infectious agents that can be transmitted to other people from an infected person, animal or a source in the environment. Communicable diseases constitute the leading cause of health problems in developing countries like South Sudan.

Diabetes mellitus can’t be classified as communicable disease because communicable diseases such as cholera, diarrhea, chickenpox, AIDs/HIV, gonorrhea, all types of hepatitis, tuberculosis among others are contagious diseases, they spread from an infected person to another or an animal, a source in the environment. Communicable diseases are caused by infectious agents that can be transmitted to other people from an infected person to another healthy person. They spread spontaneously and can infect many people in the community meanwhile non- communicable diseases such as diabetes mellitus, cancer, cardiovascular disease, and unintended injuries among others are chronic conditions that don’t result from an (acute) infectious process and hence are “not communicable”.

**CHARACTERISITICS BETWEEN COMMUNICABLE AND NON-COMMUNICABLE DISEASES.**

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| **COMMUNICABLE DISEASES** | **NON-COMMUNICABLE DISEASES** |
| Short latency period | Long latency period |
| Epidemiologic classification ( waterborne, foodborne, airborne & vector borne diseases)- mode of transmission | Multiple risk factors |
| Preventable | Complex etiology (causes) |
| Contagious/infectious | Non – contagious origin |
| Poor hygiene practices increase risk factors | Prolonged course of illness |
|  | Functional impairment or disability |
| Examples are; cholera, diarrhea, measles, malaria, bacterial meningitis, whooping cough, ringworm ,tuberculosis, Ebola etc. | Examples are; cancer, stroke, cardiovascular disease, diabetes, etc. |

QN2. Pulmonary tuberculosis, according to epidemiologic classification can be classified as “**airborne disease”.** Based on the mode of transmission of the infectious agents, communicable diseases can be classified as;

* Waterborne diseases -transmitted by ingestion of contaminated water
* Foodborne diseases - transmitted by ingestion of contaminated food
* Airborne diseases – transmitted through the air
* Vector-borne diseases – transmitted by vectors such as mosquitoes and flies.

The epidemiologic classification is very important to public health practitioners because it enables them to select prevention and control measures which are common to (shared by) communicable diseases in the same class, so as to interrupt the mode of transmission.

QN3. The following are some of the bacterial vaccine-preventable diseases that have the same modes of transmission.

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| **Disease** | **Bacterial cause ( Scientific name)** | **Mode of transmission** | **Symptoms** | **Prevention and control methods** |
| Tuberculosis | Mycobacterium tuberculosis | Respiratory by coughing/sneezing | Chronic cough, weight loss, decreased appetite | BCG vaccine,  Chemoprophylaxis, early diagnosis and treatment |
| Diphtheria | Corynebacterium, diphtheria and its toxin | Respiratory by coughing or sneezing | Sore throat, loss of appetite, slight fever | Diphtheria vaccine,  Combined with two or four other vaccines against pertussis, tetanus BCG etc. |
| Pertussis | Bordetella pertussis | Respiratory by coughing or sneezing | Runny nose, sneezing, watery eyes, fever | Pertussis vaccine, combined with two or four other vaccines against diphtheria, tetanus, BCG etc. |
| Meningitis | Neisseria meningitides | Respiratory by coughing or sneezing | Fever, headache, neck stiffness, coma | Meningococcal vaccine and treatment by antibiotics |
| Pneumonia ( infection of the lungs) | Streptococcus pneumoniae | Respiratory by coughing or sneezing | Cough, fast breathing, difficult breathing | Treatment by antibiotics |

QN4. Bacterial meningitis is an inflammation of the membranes (meninges) surrounding brain and spinal cord. The swelling from meningitis typically triggers symptoms such as headache, fever and stiff neck. It’s the most serious type of meningitis. It can lead to death or permanent disability.

**Causes of bacterial meningitis.**

* Homophiles influenza (H. influenza) type B
* Neisseria meningitides (N. Meningitides)
* Streptococcus pneumoniae (S. pneumonia)
* Listeria monocytogenes (L. monocytogenes)
* Group B streptococcus

**Prevention**

Common bacteria or viruses that can cause meningitis can spread through coughing, sneezing, kissing, or sharing eating utensils, a toothbrush or a cigarette.

These steps can help prevent meningitis:

* **Wash your hands.** Careful hand-washing helps prevent the spread of germs. Teach children to wash their hands often, especially before eating and after using the toilet, spending time in a crowded public place or petting animals. Show them how to vigorously and thoroughly wash and rinse their hands.
* **Practice good hygiene.** Don't share drinks, foods, and straws, eating utensils, lip balms or toothbrushes with anyone else. Teach children and teens to avoid sharing these items too.
* **Stay healthy.** Maintain your immune system by getting enough rest, exercising regularly, and eating a healthy diet with plenty of fresh fruits, vegetables and whole grains.
* **Cover your mouth.** When you need to cough or sneeze, be sure to cover your mouth and nose.
* **Proper meat cooking and other foods.** Reduce your risk of listeriotic by cooking meat, including hot dogs and deli meat, to 165 F (74 C). Avoid cheeses made from unpasteurized milk. Choose cheeses that are clearly labeled as being made with pasteurized milk.

QN5. Characteristics of anopheles mosquito larvae and other mosquito larvae.

Figure 1.0 Life cycle of anopheles mosquito larva.

Adult

Pupa

Egg Larva

Larva

In contrast to other mosquitoes, the anopheles larva lacks a respiratory siphon, so it positions itself so that its body is parallel to the surface of the water. The feeding of anopheles mosquito larva species attaches itself to the water surface with its posterior siphon pointing downwards.