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PROGRAM: POSTGRADUATE DIPLOMA IN WATER, SANITATION AND HYGIENE

SUBJECT: MODULE TWO ASSIGNMENT (ANSWERS TO QUESTIONS)

1. Consider a disease known as diabetes mellitus, which is characterized by an increase in the blood sugar level. Infectious agents may contribute to the development of the disease in early childhood, but are not the main cause of the disease. Can it be classified as communicable? Explain your reasons

Diabetes mellitus is a non-communicable disease as is not contagious and cannot be spread from one person to another. It's a chronic disease that occurs because the body does not produce insulin or the insulin is insufficient. Insulin is a hormone produced in the body by pancreatic cells. It is a disease that takes many years to develop. Diabetes is a defect in the way that our bodies process sugar, impairing the removal of sugar from the bloodstream.

2. How would you classify pulmonary tuberculosis using the epidemiologic method? What is the main importance of such classification?

Tuberculosis is a public health problem worldwide. The pulmonary TB, is the most common and infectious form of the disease. Tuberculosis manifests in active and latent forms. Active disease can occur as primary tuberculosis, developing shortly after infection, or postprimary tuberculosis, developing after a long period of latent infection.

Pulmonary tuberculosis (PTB) refers to any bacteriologically confirmed or clinically diagnosed case of TB involving the lung parenchyma or the tracheobronchial tree. Miliary TB is classified as PTB because there are lesions in the lungs. Tuberculous intra-thoracic lymphadenopathy (mediastinal and/or hilar) or tuberculous pleural effusion, without radiographic abnormalities in the lungs, constitutes a case of extrapulmonary TB. A patient with both pulmonary and extrapulmonary TB should be classified as a case of PTB.

TUBERCULOSIS CLASSIFICATION

Class	Type	Description
TB-0	- No TB exposure - Not infected	No history of exposure. Negative reaction to tuberculin skin test.
TB-1	- TB exposure - No evidence of infection	History of exposure. Negative reaction to tuberculin test skin test.
TB-2	- TB infection - No disease	Positive reaction to tuberculin skin test. Negative bacteriologic studies (if done). No clinical or radiographic evidence of TB.
TB-3	- Current TB disease	<i>M. tuberculosis</i> cultured (if done) or <i>both</i> a positive reaction to tuberculin skin test <i>and</i> clinical and/or radiographic evidence of current disease.
TB-4	- Previous TB disease	History of episode(s) of TB, abnormal stable radiographic findings in a person with a positive reaction to the tuberculin skin test, negative bacteriologic studies (if done) and no clinical or radiographic evidence of current disease.
TB-5	- TB suspect	Diagnosis pending (a patient should not be in this class for more than 3 months).

3. Describe four or more bacterial vaccine-preventable diseases that have the same modes of transmission.

The vaccine-preventable disease is the infectious disease for which an effective preventive vaccine exists. Therefore, in response to this question, I have considered the respiratory infectious for which the vaccines are available and used for their prevention. These respiratory infectious diseases are infectious diseases caused by germs, bacteria or other pathogenic microbes which infect the respiratory system (lungs, throat, airways) and can often be spread through mucus and saliva (also known as "respiratory secretions") expelled when a person coughs, sneezes, talks or laughs.

Below are the four listed which have vaccines available and used for their prevention

1. The influenza
2. The tuberculosis
3. The pertussis
4. The Pneumococcal disease

4. What are the causes and methods for preventing bacterial meningitis?

Meningitis is an infection of the membranes (meninges) surrounding the brain and spinal cord. Meningitis can be caused by a bacterial, fungal or viral infection. Meningitis can be acute, with a quick onset of symptoms, it can be chronic, lasting a month or more, or it can be mild or aseptic. Acute bacterial meningitis is the most common form of meningitis.

Common causes of bacterial meningitis vary by age group:

- Newborns: Group B Streptococcus, Streptococcus pneumoniae, Listeria monocytogenes, Escherichia coli
- Babies and children: Streptococcus pneumoniae, Neisseria meningitidis, Haemophilus influenzae type b (Hib), group B Streptococcus
- Teens and young adults: Neisseria meningitidis, Streptococcus pneumoniae
- Older adults: Streptococcus pneumoniae, Neisseria meningitidis, Haemophilus influenzae type b (Hib), group B Streptococcus, Listeria monocytogenes.

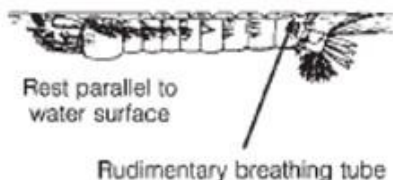
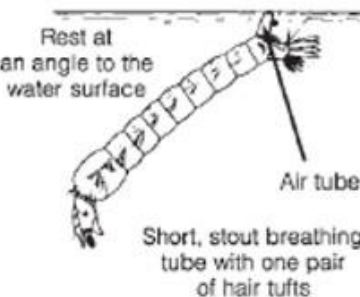
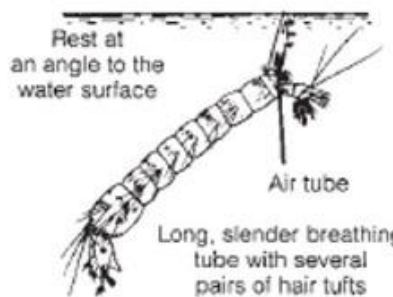


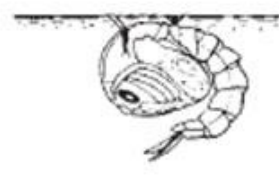



For prevention purpose, the most effective way to get protected against the bacterial meningitis is to get vaccinated. There are vaccines for three types of bacteria that can cause meningitis:

- Neisseria meningitidis
- Streptococcus pneumoniae
- Hib

5. Explain two characteristics that illustrate how the Anopheles larvae are different from other mosquito larvae.

Using illustration is advised

As illustrated in the figure below, the differences in the body structure and resting position in water collections of the anopheles and culicine larvae, are showing the two characteristics of how the Anopheles larvae are different from other mosquito larvae. The anopheline mosquitoes are potential malaria vectors while culicine and aedes mosquitoes don't transmit malaria.

ANOPHELES	CULEX	AEDES
<p>Larvae</p>  <p>Rest parallel to water surface</p> <p>Rudimentary breathing tube</p>	 <p>Rest at an angle to the water surface</p> <p>Air tube</p> <p>Short, stout breathing tube with one pair of hair tufts</p>	 <p>Rest at an angle to the water surface</p> <p>Air tube</p> <p>Long, slender breathing tube with several pairs of hair tufts</p>
<p>Pupae (differ only slightly)</p> 		
<p>Adult</p>  <p>Proboscis and body in same straight line</p>	 <p>Proboscis and body at an angle to one another</p>	 <p>Proboscis and body at an angle to one another</p>

WHO, 1997

References:

- Centers for Disease Control and Prevention. *Principles of epidemiology*, 2nd ed. U.S. Department of Health and Human Services;1992.
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