WATER HYGIENE AND SANITATION POST GRADUATE DIPLOMA

WATER, HYGIENE AND SANITATION ASSIGNMENT 2

COURSE CODE PGD002

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

Definitely no. diabetes mellitus cannot be classified as communicable disease because the disease can be considered non-communicable disease that cannot be spread from one person to another. The reason as to why I said it is not communicable disease is that, it stays in the blood level since childhood to adulthood and if it was communicable disease it would have to infect many people who stay with that person and therefore it would have been considered contagious and deadly disease by the Doctors in the world. ‘Diabetes mellitus’ according to clinical diagnosis, it is said that its results from insulin deficiency or resistance leading to high blood glucose, also called blood sugar. In quote “diabetes mellitus has two main forms; type 1 diabetes and type 2diabetes. Type 1 diabetes cannot be diagnosed correctly in adults as the symptoms can be less prominent.

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

To make classification of pulmonary tuberculosis using epidemiologic method, I’m going to consider the main modes of transmission and of infectious agents. This will help me to know the prevention methods and controlling measures. When I have known the transmission routes of pulmonary tuberculosis I will be able to control and prevent the disease from being spread to others. To clarify the classification using epidemiologic method I should consider the following examples of these two type of diseases.; cholera and typhoid fever are two different diseases which can be transmitted by drinking contaminated water therefore they are classified as water borne diseases using epidemiologic classification. Hence pulmonary tuberculosis is considered as communicable disease and can be classified using epidemiologic method as airborne disease. Pulmonary tuberculosis is air borne disease which can be transmitted through respiratory by cough and sneezing, kissing and spitting of the saliva on the ground by the pulmonary tuberculosis’ patient. When we say prevent, it refers to the measures that applied to prevent the occurrence of the disease and when we say control, it refers to the measures that are applied to prevent the transmission after the disease has occurred. The important of this classification is that, it enables me to select prevention and control measures which are common to (shared by) communicable diseases in the same class so to interrupt the mode of transmission. Pulmonary tuberculosis (PTB) a lung infectious disease and it is caused by bacteria call mycobacterium tuberculosis. It is prevented through BCG vaccine chemoprophylaxis early diagnosis and treatment

You can see below another classification which I quoted from Google School

*Tuberculosis exposure, no evidence of infection.* Persons in class 1 do have a history of exposure but have a negative reaction to the tuberculin skin test. Action taken for persons in this class depends mainly on the degree and decency of exposure to *M. tuberculosis*, as well as the immune status of the exposed person. If there has been significant exposure within 3 months, a follow-up skin test should be performed 10 weeks after the last exposure and in the interim, treatment of latent tuberculosis infection should be considered, especially for children less than 15 year of age and persons with HIV infection.

*2.  Latent tuberculosis infection, no disease.* Persons in class 2 have a positive reaction to the tuberculin skin test (indicate mm in duration), negative bacteriologic studies (if done), and no clinical, bacteriological, or radiographic evidence of active tuberculosis. Treatment of latent tuberculosis infection may be indicated for some persons in this group.

Chemotherapy status

Never received therapy

Currently receiving chemotherapy (date and regimen)

Therapy complete (dates and prescribed course of therapy)

Therapy incomplete (dates and regimen)

*3.  Tuberculosis, clinically active.* Class 3 includes all patients with clinically active tuberculosis whose diagnostic procedures are complete. If the diagnosis is still pending, the person should be classified as a tuberculosis suspect (Class 5). To fit into Class 3, a person must have clinical, bacteriological, and/or radiographic evidence of current tuberculosis. This is established most definitively by isolation of *M. tuberculosis.* A person who had past tuberculosis and who also currently has clinically active disease belongs in Class 3. A person remains in Class 3 until treatment for the current episode of disease is completed. This group is further defined by the following features:

Location of disease

Pulmonary

Pleural

Lymphatic

Bone and/or joint

Genitourinary

Disseminated (miliary)

Meningeal

Peritoneal

Other

The predominant site should be listed. Other sites may also be listed. Anatomic sites may be specified more precisely.

Bacteriologic status

Negative

Not done

Microscopy (date)

Nucleic acid amplification (date)

Culture (date)

Positive

Microscopy (date)

Nucleic acid amplification (date)

Culture (date)

Susceptibility results with method and concentrations used (date)

The following data are necessary under certain circumstances:

Chest radiograph findings

Normal

Abnormal

Cavitary or noncavitary

Stable or worsening or improving

Tuberculin skin test reaction

Positive (mm induration)

Negative (mm induration)

*4.  Tuberculosis: not clinically active.* This classification is defined by a history of previous episode(s) of tuberculosis or abnormal stable radiographic findings in a person with a positive reaction to tuberculin skin test (indicate mm induration), negative bacteriologic studies (if done), and no clinical and/or radiographic evidence of current disease. Persons in Class 4 may never have received chemotherapy, may be receiving treatment for latent infection, or may have completed a previously prescribed course of chemotherapy. If current clinically active disease has not been ruled out, especially in persons not adequately treated in the past, this person should be classified as a tuberculosis suspect (Class 5) until diagnostic evaluation permits classification as Class 3 or Class 4.

*5.  Tuberculosis suspects (diagnosis pending).* Persons should be so classified when a diagnosis of tuberculosis is being considered, whether or not treatment has been started, until diagnostic procedures have been completed. Persons should not remain in this class for more than 3 months. When diagnostic procedures have been completed, the person should be placed in one of the preceding classes.

**Below is the table showing the prevention of pulmonary tuberculosis**

|  |
| --- |
| **Five Steps for Patient Management to Prevent Transmission of TB in Health Care Settings** |

|  |  |  |
| --- | --- | --- |
| **Steps** | **Action** | **Description** |
| 1 | **Screen** | ♦ Early identification of TB suspects or confirmed TB patients\*\*\* can be achieved by assigning a health worker to screen patients for prolonged cough immediately they arrive at the facility.  ♦ TB suspects or patients on TB treatment should be separated from other patients. |
| 2 | **Educate** | ♦ Instruct all patients with chronic cough on cough hygiene i.e. covering the nose and mouth when coughing or sneezing, o Where possible provide face masks or tissues to assist them in covering their mouths.  ♦ Educate on safe sputum disposal methods |
| 3 | **Separate** | ♦ TB suspects and patients must be separated from other patients ♦ Keep them in a separate well ventilated waiting area, o Where possible provide face masks or tissues to cover their mouths and noses while waiting. |
| 4 | **Investigate for TB or refer** | TB diagnostic tests should be done onsite or, if not available, the facility should have an established link with a TB diagnostic Centre to which symptomatic patients can be referred.  ♦ Each facility should have a linkage with a TB treatment Centre to which those who are diagnosed with TB can be referred. |
| 5 | **Monitor and Evaluate** | Monitor and evaluate the TB prevention plan |

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

The four or more bacterial vaccine-preventable diseases that have the same mode of transmission are as seen below;

1. Tuberculosis which is caused by bacteria known as mycobacterium tuberculosis and it modes of transmission is, through respiratory by coughing or sneezing and spite of saliva and kissing.
2. Diphtheria. This is a bacterial disease caused by corynebacterium called diphtheriae and its toxin. Its mode of transmission is through respiratory by coughing and sneezing.
3. Pertussis is bacterial disease caused by Bordetelle pertussis and its mode of transmission is through respiratory by coughing and sneezing
4. Meningitis infection. This disease is a bacterial disease that affects the brain and the spinal cord. The disease is caused by bacteria called Neisseria meningitides. It has the same mode of transmission with other mentioned diseases above i.e. through respiratory by coughing or sneezing.
5. Pneumonia infection of lungs is caused by streptococcus pnemoniae. The mode of transmission is through respiratory cough or sneezing
6. What are the causes and methods for preventing bacterial meningitis?

The causes of meningitis and methods for preventing it are discussed below;

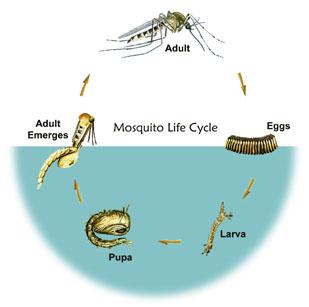
1. The causes of meningitis are seen below; we have haemophilus influenzae ( most caused by type b, Hib) streptococcus pneumoniae, group B streptococcus, listeria monocytogenes ( in new born) and Neisseria meningitides.
2. Prevention methods; the disease is prevented through HIB vaccine (Haemophilus influenzae type B) and pneumococcal vaccines are recommended by childhood vaccines and given routinely to children in many countries of the world. The HIB vaccine was introduced in 1980s by United States. The vaccine is given in three or four doses depending on the brand given. The CDC recommends that children receive the first two doses at two months and four months. Some brands then have a third dose at six months. Final dose given at 12 to 15 months, since the vaccine has become routine. The pneumococcal vaccine prevents infections caused by streptococcus pneumoniae which can cause meningitis. The vaccine is given in early childhood in four doses. There is also a pneumococcal polysaccharide vaccine that is given to anyone over two years old who have illness that affect their immune system and to people over 65 years. Bacterial meningitis can also be prevented through hygiene practice including proper hand washing hence will decrease the chances of spreading the bacterial.
3. Explain two characteristics that illustrate how the Anopheles larvae are different from other mosquito larvae. Using illustration is advised.

Anopheles larvae breathe through spiracle located on the 8th and abdominal segment and therefore it comes to the surface frequently while other mosquito larvae have a well-developed head with mouth brushes use for feeding, a large thorax, and a segment abdomen. They have no legs.

Anopheles larvae lacks respiratory siphon and for this reason they position themselves so that their body is parallel to the surface of the water while other mosquito larvae has respiratory siphon for breathing

* Egg - hatches when exposed to water.
* Larva - (plural: larvae) "wriggler" lives in water; molts several times; most species surface to breathe air.
* Pupa - (plural: pupae) "tumbler" does not feed; stage just before emerging as adult.
* Adult - flies short time after emerging and after its body parts have hardened.

See illustration below



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