Strategia Netherlands

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**Assignment**

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 because it is not caused by infectious agents and cannot be transmitted between people. Diabetes mellitus (DM) is a disorder in which blood sugar (glucose) levels are abnormally high because the body does not produce enough insulin to meet its needs. Although there are other types, Diabetes Mellitus (DM) has two main types of Type 1 and Type 2 which are precisely classified as follows:

Type 1 diabetes is often diagnosed during childhood or young adulthood. It’s the result of an immune system dysfunction.

Type 2 diabetes is often acquired during later adulthood. It’s typically the result of poor diet, inactivity, obesity, and other lifestyle and environmental factors.

However, the reason being a non-communicable disease is because it cannot be transmitted from one person to another. It also takes many years to develop in a person which will result to a prolonged high level of sugar in the bloodstream and that increases risk of heart attack, stroke and can cause kidney disease.

Most of non-communicable diseases are referred to as lifestyle because majority of these diseases are preventable illnesses, the most common causes for non-communicable diseases (NCD) include tobacco use (smoking), alcohol abuse, poor diets (high consumption of sugar, salt, saturated fats, and trans fatty acids) and physical inactivity.

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

Pulmonary Tuberculosis can be classified into the following

1. Primary pulmonary disease

Primary pulmonary disease refers to the infection of a previously uninfected (tuberculin-negative) individual. A few patients develop a self-limiting febrile illness but clinical disease only occurs if there is a hypersensitivity reaction or progressive infection. Progressive primary disease may appear during the course of the initial illness or after a latent period of weeks or month.

1. Secondary or Post-primary pulmonary disease adult type

Post-primary pulmonary disease (Adult-Type) refers to exogenous (new infection) or endogenous (reactivation of a dormant primary lesion) infection in a person who has been sensitized by earlier exposure. It is most frequently pulmonary and characteristically occurs in the apex of an upper lobe, where the oxygen tension favors survival of the strictly aerobic organisms. The onset is usually insidious, developing slowly over several weeks.Systematic symptoms include fever, night sweatiness, malaise and loss of appetite and weight and are accompanied by progressive pulmonary symptoms. In excessive disease, collapse may be marked and results in significant displacement of the trachea and mediastinum. Occasionally, a caseous lymph node may drain into an adjoining bronds leading to primary tuberculosis.

1. Miliary TB

Blood-borne dissemination gives rise to miliary tuberculosis which may present acutely but more frequently is characterized by 2-3 weeks of fever, night sweatiness, anorexia, weight loss and a dry cough. Hepatosplenomegaly may develop and the present of a headache may indicate coexistent tuberculosis meningitis. Auscultation of the chest is frequently normal, but in more advanced disease, widespread crackles are evident. Fundoscopy may show choroidal tubercles. The classical appearance on chest X-ray are of fine 1-2 mm lesions (millet-seed) distributed throughout the lung fields, although occasionally, the appearance are courser. Anemia and leucopenia reflect bone marrow involvement, cryptic military TB is an unusual presentation, sometimes seen in old age.

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

The four bacterial vaccine-preventable diseases that have the same modes transmission are as follows:

1. Tuberculosis:

Tuberculosis (TB) is caused by bacteria (Mycobacterium tuberculosis) that most often affect the lungs. Tuberculosis is curable and preventable.

TB is spread from person to person through the air. When people with lung TB cough, sneeze or spit, they propel the TB germs into the air. A person needs to inhale only a few of these germs to become infected. **According to WHO, key facts about Tuberculosis (2018),** about one-quarter of the world's population has latent TB, which means people have been infected by TB bacteria but are not (yet) ill with the disease and cannot transmit the disease. People infected with TB bacteria have a 5–15% lifetime risk of falling ill with TB. However, persons with compromised immune systems, such as people living with HIV, malnutrition or diabetes, or people who use tobacco, have a much higher risk of falling ill. When a person develops active TB disease, the symptoms (such as cough, fever, night sweats, or weight loss) may be mild for many months. This can lead to delays in seeking care, and results in transmission of the bacteria to others. People with active TB can infect 10–15 other people through close contact over the course of a year.

Without proper treatment, 45% of HIV-negative people with TB on average and nearly all HIV-positive people with TB will die. Tuberculosis mostly affects adults in their most productive years. However, all age groups are at risk. Over 95% of cases and deaths are in developing countries.

Common symptoms of active lung TB are cough with sputum and blood at times, chest pains, weakness, weight loss, fever and night sweats. Many countries still rely on a long-used method called sputum smear microscopy to diagnose TB. Trained laboratory technicians look at sputum samples under a microscope to see if TB bacteria are present. Microscopy detects only half the number of TB cases and cannot detect drug-resistance.

1. Diphtheria

Diphtheria is a bacterial disease caused by ***Corynebacterium diphtheriae*.** The infection commonly affects the throat and may lead to obstruction of the airways and death. Exotoxin-induced damage occurs to organs such as the heart. Nasal diphtheria may be mild, and chronic carriage of the organism frequently occurs; a symptomatic infection is common. Diphtheria can be transmitted from person to person via droplets and close physical contact, and is increased in overcrowded and poor socioeconomic conditions. A cutaneous form of diphtheria is common in tropical countries and may be important in transmission of the infection.

1. Meningitis:

Meningitis is an inflammation of the membranes (meninges) surrounding the brain and spinal cord. The swelling from meningitis typically triggers symptoms such as headache, fever and a stiff neck. **(Mayo Clinic Health newsletter)** Most cases of meningitis in the United States are caused by a viral infection, but bacterial, parasitic and fungal infections are other causes. Some cases of meningitis improve without treatment in a few weeks. Others can be life-threatening and require emergency antibiotic treatment. It is important to seek immediate medical care if you suspect that someone has meningitis. Early treatment of bacterial meningitis can prevent serious complications. Meningitis symptoms may develop over several hours or over a few days. The complications associating with Meningitis can be severe. The longer you or your child has the disease without treatment, the greater the risk of seizures and permanent neurological damage such as hearing loss, memory difficulty, learning disabilities, brain damage, gait problems, seizures, kidney failure, shock and death. While with prompt treatment, even patients with severe meningitis can have good recovery. However, meningitis can be prevented with hand washing with soap at five critical times, practising goo hygiene behaviours, staying healthy and covering your mouth when coughing or sneezing.

1. Pneumonia:

Pneumonia is swelling (inflammation) of the tissue in one or both lungs. It's usually caused by a bacterial infection. At the end of the breathing tubes in your lungs are clusters of tiny air sacs. If you have pneumonia, these tiny sacs become inflamed and fill up with fluid. The symptoms of pneumonia can develop suddenly over 24 to 48 hours, or they may come on more slowly over several days. Common symptoms of pneumonia include, coughing or at times coughing up blood (haemoptysis), difficulty in breathing, chest pain and headaches. While Pneumonia is usually the result of a pneumococcal infection, it is caused by bacteria called **Streptococcus pneumoniae**.If you do not have any other health problems, you should respond well to treatment and soon recover, although your cough may last for some time. It's usually safe for someone with pneumonia to be around others, including family members. But people with a weakened immune system are less able to fight off infections, so it's advisable to avoid close contact with a person with pneumonia. The Complications of pneumonia are more common in young children, the elderly and those with pre-existing health conditions such as [diabetes](https://www.nhs.uk/conditions/diabetes/).

The possible complications of pneumonia include pleurisy, abscess and blood poisoning (septicaemia). However, although most cases of pneumonia are bacterial and are not passed on from person to another, ensuring good standards of hygiene will help prevent germs spreading such as covering your mouth and nose with a handkerchief or tissue when you cough or sneeze, throwing away used tissues immediately. Germs can live for several hours after they leave your nose or mouth, hence it needs washing your hands regularly to avoid transferring germs to other people or objects. A healthy lifestyle can also help prevent pneumonia. For example, you should avoid smoking as it damages your lungs and increases the chance of infection. **(Google NHS).**

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

Bacterial meningitis is caused by several different types of bacteria, including [***Streptococcus pneumoniae***](https://www.healthline.com/health/bacterial-pneumonia)**,** also called pneumococcus, [*Neisseria meningitidis*](https://www.healthline.com/health/meningitis-meningococcal), also called meningococcus, [*Haemophilus influenzae*](https://www.healthline.com/health/epiglottitis), also called Hib, ,[*Listeria monocytogenes*](https://www.healthline.com/health/listeria-infection)*,* [group B strep](https://www.healthline.com/health/strep-throat) and [*E. coli*](https://www.healthline.com/health/e-coli-infection)*.* Bacteria that cause meningitis can live in your body and the environment around you. In many cases they are harmless. Bacterial meningitis occurs when these bacteria get in your bloodstream and travel to your brain and spinal cord to start an infection. Most bacteria that cause this form of infection are spread through close personal contact, such as [coughing](https://www.healthline.com/symptom/cough), [sneezing](https://www.healthline.com/symptom/sneezing) and kissing. An infected person’s throat secretions, like phlegm and saliva contain bacteria. When that person coughs or sneezes the bacteria travel through the air. But most of the germs that can lead to bacterial meningitis aren’t contagious. In fact, the bacteria that cause meningitis are less contagious than viruses that cause the cold or flu. Not all bacteria that cause meningitis are spread from one person to another. You can also develop bacterial meningitis after eating certain foods containing the *Listeria* bacterium, such as soft cheeses, hot dogs, sandwich meats. However, problems due to *Listeria* are more common in pregnant women, elderly and babies. Meningitis-causing bacteria are more likely to attack the membranes of your brain after a trauma such as a [head fracture](https://www.healthline.com/health/skull-fracture), surgery and a [sinus infection](https://www.healthline.com/symptom/sinusitis). These conditions lower your immunity and disrupt your body’s natural barriers thus, leaving your body open to infection of any kind, including bacterial meningitis. Additionally, babies and people with weak immune systems are more likely to develop bacterial meningitis. It’s important to note that the cause of an infection can be hard to pinpoint. (Healthline, Medically reviewed by [Modern Weng DO](https://www.healthline.com/medical-team) on June 7, 2016 Written by Erica Roth).

While the methods of preventing bacterial meningitis are many, the methods chosen are as follows according to (Healthy Living Newsletter), six ways to prevent meningitis ) by Beth W. Orenstein Medically Reviewed by Pat F. Bass III, MD, MPH. (2014)

## Get Vaccinated

The most effective way to prevent meningitis is to [get vaccinated against the disease](https://www.everydayhealth.com/meningitis/guide/#meningitisvaccine). There are currently two vaccines available in the U.S. that protect against most types of [bacterial meningitis](https://www.everydayhealth.com/meningitis/guide/bacterial-meningitis/). The Centers for Disease Control and Prevention recommends getting vaccinated against meningitis at age 11 or 12, followed by a booster shot at age 16 to 18. You have an increased risk of contracting meningitis between the ages of 16 and 21 and when living in close quarters with others, such as in a college dorm. If you're headed to college and will be living in a dorm, be sure to get up to date with immunizations. The vaccine to prevent meningitis is also recommended if you're entering the military, traveling, or planning to live in a country where bacterial meningitis is common.

## Don't Share Personal Items

Meningitis can be contracted when you come in contact with respiratory or throat secretions saliva, sputum, and nasal mucus of someone who is infected, either through kissing or sharing personal items. You can prevent meningitis by not sharing items where secretions can lurk, such as drinking glasses, water bottles, straws, silverware, toothbrushes, lipsticks or lip glosses and cigarettes.

## Keep Distance from Infected People

The bacteria found in nose and throat secretions can also spread through coughing and sneezing. You could get meningitis if you're close enough to an infected person to come in direct contact with these secretions. If someone you know has a respiratory infection, keep at least some distance away to stay out of the line of fire of any coughing. Likewise, when you cough or sneeze, be kind to others. Bury your head in your elbow so that your spray goes into your sleeve and not further, and then wash your hands. Keep in mind that [bacterial meningitis](https://www.everydayhealth.com/meningitis/guide/bacterial-meningitis/) isn't that easily transmittable. You won't get meningitis simply by breathing in the air where there is a sick friend or a family member.

## Wash Your Hands Vigorously

Just as with cold and flu viruses, the viruses and bacteria responsible for meningitis can get on your hands and into your mouth. You can prevent meningitis from spreading by washing your hands vigorously, especially after you use the bathroom, change a diaper, spend time in a crowded place, and cough or blow your nose. Use hot, soapy water and be sure to get both the fronts and backs of your hands and each finger. Rub your hands together for more than 20 seconds, rinse and then dry them with a clean towel.

## Boost Your Immune System

When getting an infection, your immune system kicks in and works to fight it off. A healthy immune system can help prevent an infection from the viruses and bacteria that cause meningitis. Keep your immune system at its fighting best by eating fresh fruits and vegetables, whole grains, and lean proteins and by getting regular exercise. Also, be sure to get the sleep you need. [Taking good care of your overall health](https://www.everydayhealth.com/meningitis/guide/#whoisatrisk) becomes even more important if you have a chronic condition that compromises your immune system, either directly or through the medications you take to control it.

## Get Prompt Treatment

If you have been in [close contact with someone who has bacterial meningitis](https://www.everydayhealth.com/meningitis/guide/symptoms/), call your doctor right away. Your health care provider can give you antibiotics to keep you from developing meningitis. They won't help prevent meningitis from the viral type of the disease, but it's worth seeing your health care provider and asking about your options.

1. **Explain two characteristics that illustrate how the Anopheles larvae are different from other mosquito larvae. Using illustration is advised.**

* It is an exclusively surface feeder and floats horizontally below the surface of water

***Larvae float horizontally below surface of water.***

* Very active with swift movement and no siphon tube, but breathing apparatus consist of parallel air tube at the tail end.

***Breathe through parallel air tube at the tail.***

**References**

1. WHO(2018), “key facts about tuberculosis”
2. Mayo clinic Health Newsletter
3. Google(NHS)
4. Erica Roth(2016), Health line, medically reviewed by Modern Weng
5. Beth .W. Orenstein, and medically Reviewed by Pat Bass III,MD,MPH (2014), “six ways to prevent meningitis”