

Communicable diseases (“infectious” or “transmissible” diseases)

Dengue fever

- Is a mosquito-borne viral infection transmitted by Aedes mosquitoes. This mosquito also transmits chikungunya, yellow fever and Zika infection.
- There are four DENV serotypes, meaning that it is possible to be infected 4 times.
- Dengue is found in tropical and sub-tropical climates worldwide, mostly in urban and semi-urban areas.(African regions).
- Sequential infection with the different serotypes of dengue virus increases the risk of more severe disease that can result in shock syndrome and death.
- Infected humans are the main carriers and multipliers of the virus.
- Dengue should be suspected when a high fever (40°C/104°F).
- Severe dengue is a potentially deadly complication due to plasma leaking, Fluid accumulation, respiratory distress, severe bleeding, or organ impairment. Warning signs occur with a decrease in temperature (below 38°C/100°F).
- There is no specific treatment for dengue/ severe dengue, but early detection and access to proper medical care lowers fatality rates below 1%. There is a vaccine (dengue vaccine). The best options to treat symptoms are acetaminophen or paracetamol. NSAIDs (non-steroidal anti-inflammatory drugs), such as ibuprofen and aspirin **should be avoided**. These anti-inflammatory drugs act by thinning the blood, and in a disease with risk of hemorrhage, blood thinners may exacerbate the prognosis.
- Prevention will be by preventing mosquito breeding mainly by sanitation and cleaning.

Cholera

- is an acute watery diarrhoeal infection that can kill within hours if left untreated. It is caused by ingestion of food or water contaminated with the bacterium Vibrio cholerae.

-Indicator of inequity and lack of social development.

-Most people infected with *V. cholerae* do not develop any symptoms, although the bacteria are present in their faeces. Among people who develop symptoms, the majority have mild or moderate symptoms, while a minority develop acute watery diarrhoea with severe dehydration. This can lead to death if left untreated. Can lead to severe diseases in the host.

-Rice water stool

-Cholera transmission is closely linked to inadequate access to clean water and sanitation facilities. Humanitarian crisis can increase the risk of cholera transmission.

-There is a vaccine (oral cholera vaccine)

-Mass administration of antibiotics is not recommended, as it has no proven effect on the spread of cholera and contributes to increasing antimicrobial resistance.

Malaria

-Is an acute febrile illness in a non-immune individual which are transmitted through the bites of infected female *Anopheles* mosquitoes. Most symptoms are fever related.

-The best available treatment, particularly for *P. falciparum* malaria, is artemisinin-based combination therapy (ACT).

-Resistance to anti-malarial medicines is a recurring problem.

Smallpox

Is a contagious disease transmitted from person to person by infected aerosols and air droplets spread through face-to-face contact with an infected person after fever has begun. The disease can also be transmitted via contaminated clothes and bedding.

-At the beginning the rash of smallpox and chickenpox appears similar to each other.

Smallpox

Chickenpox

By day 5, it is perfectly clear that the patients have different diseases:	
All lesions are at the same stage of development.	Several different stages of rash "papules, vesicles and pustules"
Lesions are uniformly larger, between 5 and 10 mm.	Lesions are small, between 1 and 5 mm
The rash develops slowly	The rash develops more rapidly
The pustules are firm and deeply embedded in the skin	The lesions are much more superficial.
By day 7, Scabs over the smallpox lesions have not yet formed.	By day 7, most lesions have already formed scabs and some scabs, in fact, have already separated.
On day 10 of the rash, the scabs are just beginning to form.	On day 10 of the rash, most of the chickenpox scabs have fallen off (the scabs may form as early as day 3 or 4 of rash and normally fall off by day 14)
More pocks usually occur on the arms and legs than on the body. Lesions are commonly found on the palms and soles.	More pocks occur on the body. There are very few or no lesions on the palms and soles.
Fever is present for 2 to 4 days before the rash begins	Fever and rash develop at the same time.
Death is not uncommon	Death is very rare
When death occurs in a patient in whom chickenpox has been diagnosed, smallpox should always be suspected	

Polio

- It is caused by the poliovirus (spreads from person to person and can invade an infected person's brain and spinal cord, causing paralysis, meningitis and paresthesia), it is very contagious and spreads through person-to-person contact, lives in an infected person's throat and intestines, can live in an infected person's feces for many weeks.
- Even children who seem to fully recover can develop new muscle pain, weakness, or paralysis "post-polio syndrome".
- There is no cure for polio; it can only be prevented by immunization.
- Polio vaccine protects children by preparing their bodies to fight the polio virus.
- Treatments for polio focus on limiting and alleviating symptoms. Heat and physical therapy can be used to stimulate the muscles and antispasmodic drugs are used to relax the affected muscles. This can improve mobility but does not reverse permanent polio paralysis.

Hepatitis

- is an inflammation of the liver that is caused by a variety of infectious viruses and noninfectious agents.
- Types B and C lead to chronic disease and together are the most common cause of liver cirrhosis, liver cancer and viral hepatitis-related deaths.
- Hepatitis A, B, C can have similar symptoms.
- Hepatitis B and D are very similar to each other.

HAV

HBV

HCV

HDV

HEV

<p>-Is transmitted primarily by the faecal- oral route (poor sanitation).</p>	<p>Is most commonly spread from mother to child at birth (perinatal transmission) or through horizontal transmission (exposure to infected blood or other body fluids).</p> <ul style="list-style-type: none"> - Vaccination against HBV prevents HDV coinfection. -Chronic HBV carriers are at risk of infection with HDV. - Those who are more likely to have HBV and HDV co-infection include indigenous people, people who inject drugs and people with hepatitis C virus or HIV infection. 	<p>-Is a bloodborne virus. Can be passed from an infected mother to her baby and via sexual practices (less common).</p> <ul style="list-style-type: none"> -Is not spread through breast milk, food, water or casual contact such as hugging, kissing and sharing food or drinks with an infected person. - Can cause both acute and chronic infection. - There is no vaccine for hepatitis C. -Antiviral medicines can cure more than 95% of persons with hepatitis C infection. 	<p>-Hepatitis D (HDV) is only found in people already infected with hepatitis B (HBV); however, the dual infection of HBV and HDV can cause a more serious infection and poorer health outcomes, including accelerated progression to cirrhosis.</p> <ul style="list-style-type: none"> -Development of chronic hepatitis D is rare. - The routes of transmission like HBV. Transmission from mother to child is possible but rare. 	<p>-Is found worldwide and is common in low- and middle-income countries with limited access to essential water, sanitation, hygiene and health services. The cases in these areas are caused mostly by infection with genotype 1 virus, and much less frequently by genotype 2 virus.</p> <ul style="list-style-type: none"> --HEV vaccine is not currently widely available.
---	--	--	---	---

HBV vaccine reduces transmission risk from mother to child. - Only a proportion of people with chronic hepatitis B infection will require treatment.			
---	--	--	--

- There are no specific treatments for HBV and HEV and hospitalization is not usually required.

Tuberculosis

-Is caused by bacteria (*Mycobacterium tuberculosis*) that most often affect the lungs.

-The ninth leading cause of death worldwide and the leading cause from a single infectious agent, ranking above HIV/AIDS.

-Is a leading killer of HIV-positive people (HIV deaths due to TB).

-Not everyone infected with TB bacteria becomes sick. As a result, two TB- related conditions exist: latent TB infection (LTBI) and TB disease.

-TB bacteria are spread through the air from one person to another. A person needs to inhale only a few of these germs to become infected. TB is NOT spread by shaking someone's hand; sharing food or drink; touching bed linens or toilet seats; sharing toothbrushes; kissing.

-Symptoms of TB disease depend on the area affected.

-Many people who have latent TB infection never develop TB disease. But some people who have latent TB infection are more likely to develop TB disease than others. Those at high risk for developing TB disease include: People who are sick with other diseases that weaken the immune system(like HIV)/ People who became infected with TB bacteria in the last 2 years/People who inject illegal drugs.

-Is treated with a standard 6 months course of 4 anti-microbial drugs that are provided with information, supervision and support to the patient by a health worker or trained

Volunteer. Without such support, treatment adherence can be difficult and the disease can spread.

-Multidrug-Resistant Tuberculosis (MDR-TB) is a form of TB caused by bacteria that do not respond to isoniazid and rifampicin, the 2 most powerful, first-line anti-TB drugs. MDR-TB is treatable and curable by using second-line drugs are limited and require extensive chemotherapy (up to 2 years of treatment) with medicines that are expensive and toxic”.

-Drug resistance emerges when anti-TB medicines are used inappropriately, through incorrect prescription by health care providers, poor quality drugs, and patients stopping treatment prematurely.

-People living with HIV are more likely to develop active TB disease than people without HIV.

Ebola (Ebola haemorrhagic fever)

-Severe, often fatal illness in humans. Is transmitted to people from wild animals and spreads in the human population through human-to-human transmission.

-Ebola spreads via direct contact (through broken skin or mucous membranes) with the blood, secretions, organs or other bodily fluids of infected people, and with surfaces and materials (e.g. bedding, clothing) contaminated with these fluids.

- Health-care workers have frequently been infected while treating patients with suspected or confirmed EVD. This has occurred through close contact with patients when infection control precautions are not strictly practiced.

- People remain infectious as long as their blood contains the virus.

-Ebola virus is known to persist in immune-privileged sites in some people who have recovered from Ebola virus disease. These sites include the testicles, the inside of the eye, and the central nervous system. In women who have been infected while pregnant, the virus persists in the placenta, amniotic fluid and fetus. In women who have been infected while breastfeeding, the virus may persist in breast milk.

-Some body fluids may test positive on(RT-PCR) for Ebola virus for longer than 9 months.

-Laboratory findings include low white blood cell and platelet counts and elevated liver enzymes.

-Humans are not infectious until they develop symptoms. First symptoms are the sudden onset of fever, fatigue, muscle pain, headache and sore throat. This is followed by vomiting, diarrhoea, rash, symptoms of impaired kidney and liver function, and in some cases, both internal and external bleeding (e.g. oozing from the gums, blood in the stools).

-Confirmation that symptoms are caused by Ebola virus infection are made using the following diagnostic methods: ELISA/RT-PCR/Virus isolation by cell culture/electron microscopy/antigen-capture detection tests/ serum neutralization test.

-No proven treatment available for EVD. However, a range of supportive care- rehydration with oral or intravenous fluids- and treatment of specific symptoms, improves survival.

- Recovery from EVD depends on good supportive care and the patient's immune response.

Sexually transmitted infections (STIs)

-STIs have direct impact on sexual and reproductive health through stigmatization, infertility, cancers and pregnancy complications and can increase the risk of HIV.

-Eight pathogens are linked to the greatest incidence of sexually transmitted disease. Of these, 4 are currently curable: syphilis, gonorrhoea, chlamydia and trichomoniasis. The other 4 are viral infections which are incurable: hepatitis B, herpes simplex virus (HSV or herpes), HIV and human papillomavirus (HPV).

-STIs are spread predominantly by sexual contact, including vaginal, anal and oral sex. Some STIs can also be transmitted from mother-to-child during pregnancy, childbirth and breastfeeding.

-Common symptoms of STIs include vaginal discharge, urethral discharge or burning in men, genital ulcers and abdominal pain.

-Accurate diagnostic tests(useful for the diagnosis of asymptomatic) for STIs are widely used in high-income countries>>>expensive and geographically inaccessible,and patients often need to wait a long time (or need to return) to receive results. As a result, follow-up can be impeded and care or treatment can be incomplete.

- The only inexpensive, rapid tests currently available for STIs are for syphilis, hepatitis B and HIV(rapid syphilis test , rapid dual HIV/syphilis test)>>> provide results in 15 to 20 minutes.However,increased efforts are still needed in most low- and middle- income countries to ensure that all pregnant women receive a syphilis test at the first antenatal care visit.

-Chlamydia, gonorrhoea ,syphilis and trichomoniasis are curable with single-dose regimens of antibiotics.

- For herpes and HIV, the most effective medications available are antivirals that can modulate the course of the disease, though they cannot cure the disease.

- Antimicrobial resistance (AMR) of STIs – in particular gonorrhoea – to antibiotics has increased rapidly in recent years and has reduced treatment options(quinolone resistance, increasing azithromycin resistance and emerging resistance of extended-spectrum cephalosporins, a last-line treatment, increasing the risk that gonorrhoea will be untreatable.

HIV/AIDS

- HIV stands for Human Immunodeficiency Virus. It is the virus that can lead to Acquired Immuno-Deficiency Syndrome or AIDS if not treated. Africa is most affected region. Not everyone infected with HIV gets AIDS. Chimpanzee version of the immunodeficiency virus (called simian immunodeficiency virus, or SIV) most likely was transmitted to humans and mutated into HIV.The human body can't get rid of HIV completely, even with treatment. So once a person get HIV, s/he has it for life. Untreated, HIV reduces the number of CD4 cells in the body. No effective cure currently exists, but with proper medical care, HIV can be controlled.

Stages of HIV

Stage 1: Acute HIV infection

- People with acute infection are often unaware that they're infected because they may not feel sick right away or at all. To know whether someone has acute infection, either a fourth-generation antibody/antigen test or a nucleic acid (NAT) test is necessary.

Stage 2: Clinical latency (HIV inactivity or dormancy)

- This period is sometimes called asymptomatic HIV infection or chronic HIV infection. During this phase, HIV is still active but reproduces at very low levels. People may not have any symptoms or get sick during this time. For people who aren't taking medicine to treat HIV, this period can last a decade or longer, but some may progress through this phase faster. People who are taking medicine to treat HIV (ART:anti-retroviral therapy) the right way, every day may be in this stage for several decades. It's important to remember that people can still transmit HIV to others during this phase.

Stage 3: Acquired Immunodeficiency Syndrome (AIDS)

- People are diagnosed with AIDS when their CD4 cell count drops below 200 cells/mm or if they develop certain opportunistic illnesses.
- Without treatment, they could also develop severe illnesses such as tuberculosis, cryptococcal meningitis, and cancers such as lymphomas and Kaposi's sarcoma.
- Serological tests(detect antibodies produced by an individual as part of their immune system to fight off foreign pathogens, rather than direct detection of HIV itself), such as RDTs or enzyme immunoassays (EIAs), detect the presence or absence of antibodies to HIV-1/2 and/or HIV p24 antigen.
- Most individuals develop antibodies to HIV-1/2 within 28 days and therefore antibodies may not be detectable early after infection(window period) This early period of infection represents the time of greatest infectivity.
- HIV can be transmitted via the exchange of a variety of body fluids from infected individuals, such as blood, breast milk, semen and vaginal secretions. Individuals cannot become infected through ordinary day-to-day contact such as hugging, shaking hands, or sharing personal objects, food or water.

Done by : Moataz Alaraj