UNIT 3**: TARGET DISEASES FOR IMMUNIZATION**

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20. **TUBERCULOSIS**

* TB is a contagious/Infectious disease caused by *Mycobacterium tuberculosis*whose spread is airborne or by droplet transmission.
* Usually attacks the lungs but can also affect other parts of the body e.g bones, joints, skin and brain.
* Easily spread through the air when the infected individuals expel the bacteria by coughing, sneezing, talking or spitting.
* Globally, Tuberculosis is a worldwide public health problem and more so in low resource countries and in countries with high prevalence of HIV/AIDS. TB is the world’s seventh-leading cause of death and is closely linked to poverty.
* Locally, TB is a common illness in Kenya affecting all age groups and has been on the increase since the onset of the HIV/AIDS pandemic. Kenya ranks 13th on the list of 22 high burden tuberculosis countries in the world and has the 5th highest burden in Africa.

1. **POLIOMYELITIS**

* Polio is a highly infectious disease caused by a virus.
* It invades the nervous system, and can cause total paralysis in a matter of hours.
* The virus enters the body through the mouth (faecal-oral route) and multiplies in the intestines and is spread through the faeces.
* Initial symptoms are fever, fatigue, headache, vomiting, neck stiffness and pain in the limbs.
* The infection can lead to irreversible paralysis, usually in the legs and 5% to 10% of those paralyzed die when their breathing muscles become immobilized.
* Poliovirus is highly infectious. An infected individual will infect all other non-immune persons in the household, especially where sanitation is poor. Poliomyelitis mainly affects children under five years of age.
* Globally, polio cases have decreased by over 99% since 1988. The reduction is the result of the global effort to eradicate the disease.
* Locally, there have been no polio cases in Kenya except for imported cases from Somalia, Sudan and Uganda with the latest case reported in November 2011.

1. **DIPHTHERIA**

* Diphtheria is a life threatening bacterial infection caused by *Corynebacterium diphtheriae,* transmitted from person to person through close physical and respiratory contact.
* It is characterized by laryngitis, pharyngitis or tonsillitis.
* Globally, it is common in developing countries and mostly affects children aged 2-15 years of age.
* Locally, Diphtheria has not been reported in Kenya for over 20 years, although there is no documentary evidence of the last known case.

1. **PERTUSSIS (WHOOPING COUGH)**

* Is a life threatening disease of childhood caused by the bacteria *Bordetella pertussis?*
* It is a highly contagious acute bacterial disease affecting the respiratory tract.
* Presents as episodes of coughing lasting atleast 2 weeks.
* Globally, pertusis is a major cause of childhood morbidity and mortality. Most cases of serious disease and majority of death are observed in early infancy.
* Locally, no major outbreaks of pertusis have occurred in over 20 years but isolated scattered incidences do continue to be reported.

1. **TETANUS**

* Also known as lockjaw, is caused by a *Clostridium tetani* bacteria that is present in the soil, in animal and human feces.
* After entering the body through a wound, the bacterium produces a neurotoxin that causes spasms of all skeletal muscles making breathing and feeding difficult or impossible.
* Tetanus disease results in death if specialized care is not available.
* Neonatal tetanus affects newborn babies and results from contamination with tetanus spores that occurs when babies are delivered in unclean conditions.
* Tetanus is the only vaccine-preventable disease that is not spread from person to person.
* Globally, tetanus contributes to neonatal and maternal mortality wherever maternal protection with tetanus toxoid is low and clean deliveries and umbilical cord care practices are not followed.
* Locally, tetanus has been on the decline in Kenya over the last decade due to the 5 Tetanus Toxoid (5-TT) vaccination schedule introduced in 2002 and due to an increase in clean deliveries.

1. **HEPATITIS B**

* Is a viral infection of the liver caused by the Hepatitis B virus?
* It is an acute illness typically acute jaundice, dark urine, anorexia, malaise, extreme fatigue and right upper quadrant tenderness.
* If not fatal, the acute infection either resolves or progresses to chronic infection, which may lead to liver cirrhosis or liver cancer several decades later. When it resolves, patients develop lifelong immunity.
* Globally, an estimated 600,000 people worldwide die each year due to the acute or chronic consequences of hepatitis B. About 25% of adults who become chronically infected during childhood later die from liver cancer or cirrhosis (scarring of the liver) caused by the chronic infection. The HBV is 50-100 times more infectious than the HIV.
* Locally, hepatitis B is prevalent in Kenya with about 1 in 3 persons infected. It is the main cause of liver cancer in Kenya.
* **Transmission:** Child-to-child transmission through open wounds or shared implements that contain blood or body fluids, exposure of babies to maternal blood or other fluids during delivery if the mother is a chronic carrier, sexual activity, contaminated needles and syringes and contaminated blood products.
* Special risk groups for HBV infection in adulthood include:
* Health care workers
* Heterosexuals with multiple partners
* Prisoners
* Inmates of drug rehabilitation centers
* Homosexuals
* Rape victims
* Members of the armed forces and rescue groups.

1. **HEMOPHILUS INFLUENZA TYPE B**

* Is a bacteria that predominantly causes pneumonia but may go on to cause invasive diseases resulting in bacteremia and meningitis which are often fatal in Kenya?
* Where death does not occur following invasive Hib disease, recovery is often accompanied by some neurological disability.
* It is most severe in under-fives.
* Bacterial meningitis is characterized by acute onset of fever, headache and stiff neck. Meningitis is not specific to Hib disease and the disease cannot be diagnosed on clinical grounds. Confirmation is through isolation of the Hib from cerebrospinal fluid or blood.
* Contrary to what the name Haemophilus influenza suggests, the bacterium does not cause influenza.
* **Transmission:** Passed from child to child through droplets when an infected child coughs or sneezes. Also spreads when children share toys and other things that they put in their mouth. Crowded and poorly ventilated settings are a risk factor.
* **Globally, Hib** bacterium is responsible for 3M serious illnesses worldwide chiefly through meningitis and pneumonia. Almost all victims are children under the age of 5 years.
* **Locally,** Hib causes the vast majority of death through pneumonia than meningitis.

1. **MEASLES**

* Is an acute and highly infectious viral illness transmitted through the respiratory droplets or contact with nasal and throat secretions of the infected person?
* The first sign of the infection is usually high fever which begins approximately 10 to 12 days after exposure and lasts 1 to 7 days.
* During the initial stage, the patient may develop runny nose (coryza), cough, red and watery eyes and small white spots inside the cheeks known as Koplik spots.
* After 4-7 days, a rash develops, usually on the face and upper neck.
* Over a period of about 3 days, the rash proceeds downwards, eventually reaching the hands and feet. The rash lasts for 5 to 6 days and then fades.
* Locally, since 2002, the ministry of Public Health and Sanitation has been committed to the control of measles disease using the following strategies:
* Provision of first dose of the measles vaccines to all infants at 9 months.
* Ensuring that all children get a second opportunity for measles vaccination through periodic mass campaigns.
* Introduction of a second dose of measles into the routine immunization schedule for children aged 18 months.
* Enhancing measles surveillance through integration of laboratory confirmation and epidemiological linkages to outbreaks.
* Improving measles case management for every case and appropriate supportive management.

1. **YELLOW FEVER**

* It is a mosquito borne viral haemorrhagic fever transmitted to unvaccinated persons from infected persons by mosquitoes of the Aedes Species.
* The incubation period of yellow fever is 12-21 days.
* Mild cases of yellow fever present with headache, fever, nausea and vomiting while classic cases present with sudden onset of fever, chills, intense headache, back pain, generalized muscle pain, nausea and vomiting and conjunctival infection. Progressively patient presents with jaundice, vomiting (black vomitus), bleeding from the gums and nose, albuminuria and oliguria.
* Globally, the disease is endemic in 33 countries in Africa. 50% of cases die between the 7th and 10th day after onset.
* Locally, an outbreak of yellow fever disease occurred in the Kerio Valley and mass vaccination was conducted in Baringo, Koibatek, Keiyo and Marakwet districts.

1. **PNEUMOCOCCAL DISEASE**

* Is caused by the bacterium *Streptococcus pneumoniae (pneumococcus)*.
* The major clinical syndromes include the life threatening infections of such as pneumonia, meningitis and bacteremia.
* Pneumococcus is the most commonly identified cause of community-acquired pneumonia. It is also a major cause of sinusitis and otitis media.
* S. pneumoniae is transmitted directly from person to person through close contact via respiratory droplets.
* The organism frequently colonizes the nasopharynx of healthy people, particularly young children, without causing illness.
* The bacterium causes primarily a lower respiratory infection- pneumonia, but in a small proportion of those affected it extends (invasive disease) to the blood and parts of the body causing threatening septicemia, meningitis and otitis media.
* Globally, pneumococcal disease caused by the bacterium Streptococcus pneumoniae is a major public health problem all over the world. Atleast 1M of children die of pneumococcal disease every year most of them being in developing countries.

1. **VITAMIN A DEFFICIENCY**

* Vit. A deficiency is a cause of preventable blindness in Kenya and therefore all efforts must be made to strengthen the supplementation of Vitamin A for all infants.
* The Division of Vaccines and Immunization recommends the continued integration of Vitamin A supplementation within the infant vaccination schedule.

**ASSIGNMENT:**Read on other vaccine preventable diseases including: MUMPS, RUBELLA, INFLUENZA, HEPATITIS A and C infections, RABIES, ROTAVIRUS, CHOLERA, TYPHOID, HUMAN PAPILLOMA VIRUS, and SNAKE VENOMS.