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Discuss on immunization and prevention **(Epidemiology)**

1.IMMUNIZATION AND PREVENTION

Immunization is the process of protecting an individual against infectious diseases by giving vaccine s.A vaccines contain weakened, killed,or part of microorganisms that stimulate the body's immune s ystem to produce antibodies. These antibodies protect the person from future infections by the same organism.

Immunization can be:

***Active immunization:** giving vaccines to stimulate the body to produce its own immunity.

***Passive immunization:** given preformed antibodies (e.g, antiserum) for immediate but short-term p rotection.

2.IMPORTANT OF IMMUNIZATION

Immunization is one of the most effective public health measures.it helps to:

a .Prevent communicable diseases: Vaccination protect against diseases such as measles,polio, tet anus, tuberculosis.hepetitisB, yellow fever,et

b. reduce morbidity and mortality:By preventing infection, vaccines reduce sickness, disability and death especially in children.

c. Promote herd immunity: when a large portion of a community is immunize,even unvaccinated pe ople get indirect protection because disease cannot easily spread.

d. Support healthy childhood growth: immunize children are less likely to fall sick, allowing them to grow, learn, and develop properly.

c. Reduce healthcare cost: preventing disease is cheaper than treating them, especially severe infec tions requiring hospital care.

PREVENTION OF DISEASES

Prevention refers to actions taken to avoid illness,limit its impact,or stop it from worsening

Prevention can be categorize into:

(A). Primary prevention: measure taken to stop disease before it occurs.

Example

*Immunization

*Good hygiene

*Proper sanitation

*Safe drinking water

*Health education

*Use of mosquito nets

*Practicing safe sex

(B). Secondary prevention: early detection and treatment to stop disease progression

Example

*Screening test (e.g,BPcheck,HIV test,eye screening)

*Early diagnosis and prompt treatment

(C). Teritiary prevention: Measure to reduce complications and disability from established disease
Example:
*Rehabilitation
*Physiotherapy
*Long-term medication to prevent complications

RELATIONSHIP BETWEEN IMMUNIZATION AND PREVENTION

Immunization is a major tool of primary prevention,it helps prevent infectious disease before they oc cur.By doing so, immunization:
*Stop disease outbreak
*Protect vulnerable populations
*Enhance overall public health
*Contribute to long life expectancy

EXAMPLE OF VACCINES IN NIGERIA IMMUNIZATION SCHEDULE

*BCG(Tuberculosis)
*OPV(Oral polio vaccine)
*Yellow fever vaccine
*PCB(pneumococcal vaccine)
*Rotavirus vaccine
*HPV Vaccine+for cervical cancer prevention in girls)

Types of vaccines

ATTENUATED VACCINES: These contain weakened form of the live pathogens that can replicate b ut don't disease in healthy individuals. Example include:
***Measles,Mumps, Rubella (MMR)**
***Oral polio vaccine (OPV)**
***Chickenpox vaccine**
***Yellow fever vaccine**
***Rotavirus vaccine**

NON ATTENUATED VACCINE THESE INCLUDE:

***Inactivated vaccines:** contain killed pathogen eg, **influenza (shot only), Hepatitis A, Rabies.**
***Subunit vaccines:** contain specific pieces of pathogens,e.g, **Hepatitis B, HPV Vaccine, Pneumococ cal conjugate vaccine.**
***Toxid vaccines:** contain inactivated toxins e.g**Tetanus toxiod, Diphtheria toxiod,**
***mRNA Vaccine:**use genetic material to instruct cells,e.g **COVID-19 Vaccines (Pfizer -BioNTEch ,Mo derna)**
***Vira vector vaccines:**use a modified virus to deliver genetic instruction,e.g **Ebola vaccine, COVID-1 9 Vaccine (AstraZeneca and Johnson & Johnson)1**
14COMMON TYPES OF VACCINES
***MMR Vaccine:** protect against mumps, measles and rubella.
***Hib vaccine:** protect against hemophilus influenzae type b.
***DTaP vaccine:** protect against Diphtheria, tetanus and pertussis (whooping cough)
***Polio vaccine:** protect against poliomyelitis.

*__Hepatitis B vaccine__: protect against Hepatitis B virus.
*__Varicella vaccine:__ protect against chickenpox
*__Influenza vaccine:__ protect against seasonal flu.
*__Pneumococcal vaccine:__ protect against pneumococcal disease (pneumonia, meningitis)
*__Tdap vaccine__: protect against tetanus, diphtheria,and pertussis (whooping cough)
*__Shingles vaccine:__ protect against shingles (herpes zoster)
*__Yellow fever vaccine__: protect against yellow fever virus
*__Typhoid vaccine__: protect against typhoid fever
***HPV Vaccine**: protect against human papilloma virus (HPV)
***Meningococcal vaccine**: protect against meningococcal disease (e.g, meningitis,septicemia)