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EPIDEMIOLOGY AND DISEASES CONTROL

CHO

300L

1) Explain Immunization and prevention

Ans:Immunization is the process of protecting individuals from infectious diseases by administering vaccines that stimulate the body to produce antibodies and long-lasting immunity.

How Immunization Works

*A vaccine is introduced into the body.

*The immune system recognizes it as foreign.

*Antibodies and memory cells are produced.

*When the real germ enters, the body responds quickly and prevents illness.

Types of Vaccines

1. Live attenuated vaccines – weakened organisms (e.g., BCG, OPV, Yellow fever).

2. Inactivated vaccines – killed organisms (e.g., IPV, Hepatitis A).

3. Toxoid vaccines – inactivated toxins (e.g., Tetanus, Diphtheria).

4. Subunit/Conjugate vaccines – specific parts of the organism (e.g., Hepatitis B, PCV, HPV).

5. mRNA vaccines – genetic instructions to trigger immunity.

Immunization Schedule (Nigeria

*At birth: BCG, OPV 0, Hepatitis B 1

*6 weeks: Penta 1, OPV 1, PCV 1, Rotavirus 1

*10 weeks: Penta 2, OPV 2, PCV 2, Rotavirus 2

*14 weeks: Penta 3, OPV 3, PCV 3, IPV

*9 months: Measles, Yellow fever, Meningitis A

*Additional: HPV for girls 9–14 years, Tetanus toxoid for pregnant women

Types of Immunity

Active immunity: Body produces its own antibodies; long-lasting (vaccination or natural infection).

Passive immunity: Ready-made antibodies; immediate but short-term (maternal antibodies, antiserum).

Cold Chain

A system used to store and transport vaccines at recommended temperatures (mostly +2°C to +8°C) to maintain potency.

Equipment: Vaccine refrigerators, cold boxes, carriers, ice packs, thermometers.

Prevention Through Immunization

*Protects individuals from diseases (measles, polio, tetanus, HBV, etc.).

*Prevents transmission by breaking the chain of infection.

*Creates herd immunity in communities.

*Reduces outbreaks, disability, and child mortality.

*Saves healthcare costs and promotes public health.

Examples of Vaccine-Preventable Diseases

Measles, polio, yellow fever, tuberculosis, tetanus, hepatitis B, whooping cough, meningitis, HPV-related

cancers.

Prevention

This refers to all measures taken to stop diseases, reduce risk factors, and promote health before illness occurs or worsens. It aims to protect individuals and communities from health problems through planned actions.

Prevention is grouped into three main levels:

1. Primary Prevention: These are actions taken before a disease occurs to stop it from happening.

Examples: Immunization, health education, good nutrition, personal hygiene, safe water, sanitation, use of mosquito nets.

2. Secondary Prevention. :Measures used to detect diseases early and treat them promptly to stop complications.

Examples: Screening tests (BP check, sugar test), early diagnosis, prompt treatment, growth

monitoring.

3. Tertiary Prevention :These reduce disability, complications, or death after a disease has already occurred.

Examples: Rehabilitation, physiotherapy, long-term treatment of chronic diseases, health counseling.

Importance of Prevention

*Reduces disease burden

*Saves cost and time

*Protects the community

*Improves quality of life

*Supports national health goals