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Level:300L

Assignment: Epidemiology

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Question: Discuss Immunization and its prevention .

1. What Is Immunization?

Immunization is the process of protecting a person against disease by giving a vaccine.

Vaccines stimulate the body to produce antibodies, which fight specific infections and provide immunity.

Immunization can be:

Active immunity: Body produces its own antibodies (e.g., vaccines).

Passive immunity: Ready-made antibodies are given (e.g., maternal antibodies, immunoglobulins).

2. Importance of Immunization

Prevents deadly diseases like measles, polio, tuberculosis, tetanus, diphtheria.

Reduces sickness and death in children.

Protects entire communities (herd immunity).

Supports national and global health goals. Saves families the cost of treatment and hospital visits.

3. Types of Immunization

A. Routine Immunization

Given to all children under national schedules (e.g., Polio, BCG, DPT, Hepatitis B).

B. Supplemental Immunization

Mass campaigns during outbreaks (e.g., measles campaign).

C. Emergency Immunization

Given after exposure (e.g., rabies vaccine after dog bite, tetanus toxoid after injury).

Conclusion:



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Immunization is one of the most effective public health interventions. When combined with hygiene, environmental sanitation, proper nutrition, and good health education, it prevents many infectious diseases and reduces illness and death—especially in children.

4. PREVENTION OF VACCINE-PREVENTABLE DISEASES

Health prevention is grouped into three levels: Primary, Secondary, and Tertiary. Immunization fits mainly into primary prevention, but other measures help at all three levels.

1. PRIMARY LEVEL PREVENTION

Primary prevention aims to prevent a disease before it occurs.

A. Immunization (Main Primary Prevention)

Administration of vaccines (BCG, OPV, Pentavalent, Measles, Hepatitis B, HPV, etc.).

Ensuring full completion of the national immunization schedule.

Giving booster doses where required. Conducting mass vaccination campaigns (e.g., polio or measles campaigns).

B. Health Promotion

Health education on the importance of immunization.

Educating parents on keeping immunization cards.

Promoting breastfeeding to boost natural immunity.

Good nutrition to strengthen immunity.

C. Environmental Health Measures

Improving sanitation and hygiene.

Safe water supply.

Vector control (mosquito nets, spraying).

Proper waste disposal.

D. Prevention of Exposure

Avoiding contact with infected persons.

Ensuring infection prevention in clinics (handwashing, sterilization).

Safe sexual practices (HPV, hepatitis B).



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2. SECONDARY LEVEL PREVENTION

Secondary prevention focuses on early detection and prompt treatment to stop the disease from spreading or becoming severe.

A. Disease Surveillance and Early Detection

Reporting suspected cases of measles, polio, diphtheria, pertussis, etc.

Monitoring outbreaks through community health workers.

Laboratory testing to confirm infections.

B. Screening

Screening pregnant women for hepatitis B.

Screening adolescents for HPV (where available).

C. Post-Exposure Prophylaxis (PEP)

Tetanus toxoid after injuries.

Hepatitis B immunoglobulin + vaccine for newborns of infected mothers.

Rabies vaccination after dog bites.

D. Isolation and Early Treatment

Isolating infected persons to prevent spread.

Providing early treatment (e.g., antibiotics for diphtheria, antiretrovirals for hepatitis B complications).

3. TERTIARY LEVEL PREVENTION

Tertiary prevention aims to reduce complications, disability, and improve quality of life in people already affected by a disease.

A. Management of Complications

Physiotherapy for paralysis due to polio.

Surgery or airway management for complications of diphtheria.

Treatment of chronic hepatitis B complications (liver care).

B. Rehabilitation

Assistive devices for children with polio deformities (braces, wheelchairs).



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Special education and rehabilitation services for children with measles-related hearing impairment.

C. Long-Term Care

Counseling and support for families with disabled children.

Regular follow-up visits for chronic complications (e.g., hepatitis survivors).

D. Preventing Further Spread

Strengthening herd immunity by ensuring contacts are vaccinated.

Educating affected families to reduce risk of future infections.



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