IMMUNIZATION AND PREVENTION

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1. Introduction

Immunization and prevention are two critical pillars of public health aimed at reducing the burden of infectious and non-infectious diseases. Immunization protects individuals and communities from vaccine-preventable diseases, while prevention focuses on reducing risk factors and stopping diseases before they occur. Together, they contribute significantly to improved health outcomes, reduced morbidity and mortality, and strengthened community health systems.

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2. Immunization

2.1 Definition

Immunization is the process of inducing immunity in an individual by administering a vaccine. Vaccines stimulate the body's immune system to recognize and fight specific pathogens (bacteria or viruses) without causing the actual disease.

2.2 Types of Immunization

1. **Active Immunization:**
   Occurs when a vaccine triggers the immune system to produce antibodies and long-term immunity (e.g., BCG, OPV, Hepatitis B vaccines).
2. **Passive Immunization:**
   Involves the administration of ready-made antibodies, providing immediate but short-term protection (e.g., anti-rabies serum, tetanus immunoglobulin).

2.3 Importance of Immunization

- Prevents vaccine-preventable diseases such as measles, tuberculosis, poliomyelitis, tetanus, hepatitis, and diphtheria.
- Reduces childhood morbidity and mortality.
- Contributes to herd immunity, protecting even those who cannot be vaccinated (e.g., newborns, immunocompromised people).

- Lowers healthcare costs by reducing disease outbreaks.
- Helps eradicate diseases globally (e.g., eradication of smallpox and near-eradication of polio).

2.4 National Immunization Schedule (Example: Nigeria)

- **At Birth:** BCG, Hepatitis B (0), OPV 0
- **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-Rubella, Yellow Fever

This schedule helps ensure children receive timely and complete vaccination.

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3. Prevention

3.1 Definition

Prevention in epidemiology refers to actions taken to reduce the occurrence, spread, or effects of diseases. It includes interventions before, during, and after exposure to risk factors.

3.2 Levels of Prevention

1. **Primary Prevention:**
   Aims to stop disease before it begins.
   Examples: Immunization, health education, proper sanitation, balanced diet, use of insecticide-treated nets.
2. **Secondary Prevention:**
   Detects and treats diseases in early stages.
   Examples: Screening for hypertension, malaria test, cervical cancer screening, early diagnosis, and prompt treatment.
3. **Tertiary Prevention:**
   Reduces complications and disability after a disease has developed.

4. *Examples:* Rehabilitation, physiotherapy, diabetic limb care, stroke rehabilitation.

3.3 Methods of Prevention

- **Health Education:** Promoting healthy behaviours and lifestyle changes.
- **Environmental Hygiene:** Proper waste disposal, clean water supply, vector control.
- **Nutrition:** Encouraging adequate diet to strengthen immunity.
- **Personal Hygiene:** Handwashing, safe food handling, regular bathing.
- **Use of Preventive Tools:** Condoms (for STI prevention), ITNs (for malaria), seat belts (for accident prevention).
- **Disease Surveillance:** Monitoring disease patterns to prevent outbreaks.

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4. Relationship Between Immunization and Prevention

Immunization is a form of primary prevention. It reduces the risk of disease occurrence by strengthening an individual's immunity. When widely implemented, it prevents epidemics, reduces disease transmission, and promotes community health. Therefore, both immunization and prevention work together to reduce disease burden and improve population health outcomes.

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5. Conclusion

Immunization and prevention are essential strategies in public health aimed at protecting individuals and communities from disease. Through timely vaccination, health education, sanitation, and lifestyle modifications, the spread of diseases can be significantly reduced. For effective community health practice, every CHO must promote immunization compliance and implement preventive measures at all levels of care. These strategies remain vital for achieving improved health status and preventing avoidable illness and death.