Discuss immunization and prevention

Immunization can be define as the process by which a person is protected from communicable diseases by stimulating their immune system to recognize and fight specific pathogens such as viruses etc .It is achieved through vaccination

Vaccine preventable diseases

1.Diphtheria
2. Tetanus
3. hepatitis B
4. human papilloma virus
5. measles
6. meningococcal virus
7. mumps
8. yellow fever
9. Diphtheria
10. Polio virus
11. Rotavirus
12. Rubella
13. Pertussis

Importance of Immunization

1. Prevents Deadly Diseases: Immunization is highly effective at preventing diseases such as polio, measles, tetanus, and influenza, which can lead to severe illness, disability, or death.

2. Protects Vulnerable Populations: It provides "herd immunity" (community immunity), which protects individuals who cannot be vaccinated (such as newborns, the elderly, pregnant women, and those with compromised immune systems) by reducing the spread of disease within the community.

3. Eradicates or Controls Diseases: Widespread vaccination efforts have successfully eradicated smallpox and nearly eliminated wild polio virus globally, demonstrating the power of vaccines in controlling infectious diseases.

4. Saves Lives: According to the World Health Organization (WHO), immunization prevents an estimated 3.5 – 5 million deaths every year from diseases like diphtheria, measles, pertussis (whooping cough), and tetanus.

5. Cost-Effective Public Health Measure: Immunization is one of the most cost-effective public health interventions, saving billions of dollars in averted medical costs, lost productivity, and long-term care expenses.

6. Reduces Healthcare Costs: By preventing hospitalizations and long-term disabilities, vaccines lighten the burden on healthcare systems and allow resources to be directed elsewhere.

7. Ensures Healthy Development: Vaccinations contribute to the healthy physical and cognitive development of children by preventing diseases that can cause long-term health problems or developmental delays.

8. Combats Antimicrobial Resistance (AMR): By preventing bacterial infections, vaccines reduce the need for antibiotics, which helps slow the development of antibiotic resistance—a major global health threat.

9. Supports Economic Stability: A healthy population is more productive. By preventing outbreaks

that could disrupt communities and economies, immunization helps ensure stable economic growth.

10. Aids Global Security and Equity: Vaccination programs are fundamental to achieving global health equity and security, as they help bridge health disparities between rich and poor nations and prevent the international spread of infectious diseases.

Types of immunization

1. Active immunization: Stimulates the body's own immune system to produce antibodies and memory cells, providing long-lasting protection.

Vaccination: A controlled form of active immunization using vaccines to safely trigger an immune response.

2. Passive immunization: Provides immediate, but temporary, protection by transferring antibodies from another source.

A. Natural: Antibodies are passed from mother to child (e.g., across the placenta or through breast milk).

B. Artificial: A person receives antibodies through a medical intervention.

Benefits

1. Disease prevention: Immunization is one of the most effective ways to prevent infectious diseases like measles, polio, tetanus, and diphtheria.

2. Saves lives: Immunization prevents 3.5 to 5 million deaths annually, according to the World Health Organization.

3. Herd immunity: When a high percentage of a population is immunized, it protects those who cannot be vaccinated (like newborns or people with compromised immune systems).

4. Cost-effective: It is considered one of the most successful and cost-effective public health interventions available.

5. Health system security: It is critical for preventing infectious disease outbreaks and plays a role in global health security.

Considerations

1. Vaccine side effects: While vaccines are very safe, some mild and temporary side effects can occur, such as a sore arm or a low-grade fever, which are signs the immune system is building protection.

2. Need for boosters: The body's immunity can decrease over time, which is why some vaccines require booster shots to maintain protection.

*Prevention involves a range of actions, including health promotion, early detection, and rehabilitation, to stop diseases from occurring or progressing. It is categorized into four levels: primordial, which addresses broad social and environmental causes of disease; primary, which prevents the onset of disease through risk reduction; secondary, which involves early detection and prompt treatment; and tertiary, which manages an existing disease to slow progression and prevent complications.

Four levels of prevention

1. Primordial prevention

Focus: To prevent the emergence of risk factors in the first place by addressing social, economic, and environmental influences on health.

Examples: Reducing poverty, improving sanitation, and promoting education.

2. Primary prevention

Focus: To prevent a disease from ever occurring by reducing or eliminating risk factors.

Examples:

Health promotion: Encouraging healthy eating, exercise, and avoiding smoking and excessive alcohol.

Specific protection: Vaccinations, wearing helmets, and using safety equipment in hazardous workplaces.

3. Secondary prevention

Focus: To detect and treat a disease in its early stages, often before symptoms appear, to slow or halt its progression.

Examples:

Screening programs: Mammograms for breast cancer, blood pressure checks, and Pap smears.

Contact tracing: Identifying and treating sexual contacts of someone with a sexually transmitted infection.

4. Tertiary prevention

Focus: To manage an existing, established disease to prevent complications, reduce disability, and improve quality of life.

Examples:

Managing diabetes: Controlling blood sugar, exercising, and providing foot care to prevent heart disease and other complications.

Rehabilitation: Physical therapy after a stroke to restore function.