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EPIDEMIOLOGY 300LEVEL CHO

## DEFINITION

Immunization is the process by which an individual's immune system becomes fortified against an infectious disease. This is typically achieved through the administration of vaccines, which contain antigens that stimulate the immune response without causing the disease.

### 1. TYPE OF VACCINES:

- **LIVE ATTENUATED VACCINES:** Contain weakened forms of the virus (e.g., measles, mumps, rubella).
  - **INACTIVATED VACCINE:** Contain killed pathogens (e.g., polio).
  - **SUBUNIT, RECOMBINANT, OR CONJUGATE VACCINES:** Include pieces of the virus or bacteria (e.g., HPV, hepatitis B).
  - **mRNA VACCINES:** Use messenger RNA to instruct cells to produce proteins that trigger an immune response (e.g., COVID-19 vaccines).
2. **HERD IMMUNITY:** When a significant portion of a population is immunized, it provides indirect protection to those who are not immune, reducing the overall spread of disease.
3. **VACCINATION SCHEDULES:** Each vaccine has recommended ages and intervals for administration, often starting in infancy and continuing through adulthood.

## PREVENTION

### 1. PREVENTIVE MEASURES:

- **HYGIENE PRACTICES:** Regular hand washing, using hand sanitizers, and maintaining cleanliness can help prevent infections.
  - **SAFE FOOD PRACTICES:** Proper food handling, cooking, and storage can prevent foodborne illnesses.
  - **VECTOR CONTROL:** Measures to control disease-carrying insects, such as mosquitoes, can prevent diseases like malaria and dengue.
2. **HEALTH EDUCATION:** Informing communities about the benefits of vaccination, the importance of preventive measures, and recognizing symptoms of infectious diseases is essential for effective prevention.
3. **SCREENING AND EARLY DETECTION:** Regular health screenings can help identify diseases early when they are most treatable, contributing to better health outcomes.

## IMPORTANCES

- **DISEASE ERADICATION:** Vaccination programs have led to the eradication of diseases like smallpox and significant reductions in others like polio and measles.
- **COST-EFFECTIVENESS:** Preventative health measures often reduce healthcare costs by preventing diseases that require expensive treatments.