

## CHILDHOOD VACCINATIONS

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**Abstract:** Childhood vaccinations play a crucial role in preventing infectious diseases and improving global public health. Immunization stimulates the immune system to develop long-lasting protection against dangerous pathogens. Vaccines help reduce child mortality, prevent outbreaks, and create herd immunity, protecting those who cannot be vaccinated.

**Keywords:** Childhood vaccination; immunization; infectious diseases; herd immunity; vaccine schedule; public health; WHO; CDC; MMR vaccine; DTP; hepatitis B; polio; vaccine safety; side effects; disease prevention; global health.

### Introduction

Vaccination is one of the most important medical achievements in human history. Before vaccines, diseases such as polio, measles, and diphtheria caused widespread deaths and lifelong disabilities in children. Modern vaccines are safe, effective, and recommended by global health organizations such as WHO and CDC.

Childhood vaccination schedules are designed to protect children at the earliest and most vulnerable stages of life. Immunization programs around the world have significantly reduced the prevalence of infectious diseases, saving millions of lives.

### How Vaccines Work

Vaccines work by introducing a weakened, killed, or partial form of a pathogen into the body. This triggers the immune system to produce antibodies, which provide future protection against infection.

Types of vaccines:

- Live attenuated vaccines (e.g., MMR, polio oral vaccine)
- Inactivated vaccines (e.g., hepatitis A, influenza)
- Toxoid vaccines (e.g., tetanus, diphtheria)
- Subunit and conjugate vaccines (e.g., hepatitis B, Hib)

### Importance of Childhood Vaccination

- Prevents life-threatening infectious diseases
- Reduces hospitalization and long-term complications
- Creates herd immunity in the community
- Saves healthcare costs and supports public health
- Protects future generations by eradicating diseases

### Common Childhood Vaccines and Their Purpose

- BCG – protects against tuberculosis
- DTP – diphtheria, tetanus, pertussis
- Polio vaccine – prevents poliomyelitis
- Hepatitis B vaccine – protects the liver from infection
- Hib vaccine – prevents meningitis and pneumonia

- MMR – protects against measles, mumps, rubella
- Pneumococcal vaccine – prevents severe bacterial infections
- Rotavirus vaccine – prevents severe diarrhea in infants
- Influenza vaccine – protects against seasonal flu

### **Vaccination Schedule**

Vaccination schedules vary by country, but most nations follow WHO guidelines. Vaccines are given at birth, 2 months, 4 months, 6 months, 12 months, 18 months, and school entry age. Booster doses are required for long-term protection.

### **Safety and Side Effects**

Vaccines are carefully tested for safety before approval. Common mild side effects include fever, soreness at the injection site, and fatigue. Severe adverse reactions are extremely rare. The benefits of vaccination far outweigh the risks.

### **Consequences of Not Vaccinating**

Failure to vaccinate can result in:

- Increased risk of outbreaks
- Higher child mortality rates
- Return of previously controlled diseases
- Serious complications like paralysis, pneumonia, encephalitis

### **Conclusion**

Childhood vaccinations are essential to ensure a healthy society. They protect children from dangerous diseases, reduce healthcare burdens, and contribute to global disease eradication efforts. Parents and communities must follow recommended immunization schedules to keep future generations safe.

### **References:**

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