

## CHILDHOOD VACCINATIONS

**Asatullaev Rustamjon Baxtiyarovich**

*Trainee assistant at Samarkand State Medical University*

**Yuldosheva Umida**

**Abstract:** *Vaccination is a critical preventive measure against infectious diseases in humans and animals. It stimulates the immune system to provide protection, either actively or passively, and has significantly reduced the incidence of many serious illnesses globally.*

### Introduction

Vaccination, or immunization, is a method to prevent infectious diseases in humans and animals. It involves administering vaccines, immune sera, or gamma globulins to induce artificial active or passive immunity.

#### Artificial Active Immunity

To develop artificial active immunity, a person is vaccinated with a vaccine. This stimulates the body to produce an active immune response against the antigens contained in the vaccine. Vaccines can be administered in various ways: on the skin, under the skin, into the muscle, or via the nasal or oral routes. Vaccination schedules vary: some vaccines are given once, others twice, three times, or more. Artificial active immunity develops 2–3 weeks after vaccination and can last for months or even years. Booster vaccinations, given when immunity weakens, are called revaccinations.

#### Artificial Passive Immunity

Artificial passive immunity is used to enhance the body's defense mechanisms, providing immediate resistance against specific infectious diseases or reducing the severity of an ongoing infection. Several infectious diseases are targeted by routine vaccination, including hepatitis B, tuberculosis, diphtheria, smallpox, whooping cough, measles, tetanus, and poliomyelitis in humans; and brucellosis, rabies, anthrax, and rinderpest in animals. Other diseases, such as influenza, cholera, plague, and tularemia, require vaccination based on epidemiological necessity.

#### Vaccination Procedures

Vaccinations are carried out in polyclinics or vaccination centers by specially trained medical staff under the supervision of a physician. Before vaccination, a child's body temperature is measured, and a history of previous illnesses is reviewed. The doctor carefully examines the child to determine whether vaccination is possible. Children

recovering from cardiovascular or central nervous system diseases, or those with chronic illnesses, must be examined by relevant specialists before vaccination.

Sometimes, a child may have a strong reaction to vaccination, so post-vaccination observation under a doctor’s supervision is necessary. Local and systemic reactions may

Vaccination – types, procedure, immunization schedule, and contraindications

Vaccination is the process of creating artificial immunity by introducing antigens of pathogenic microorganisms into the body to protect it from infectious diseases. After the antigen of a microorganism is introduced, the body produces special antibodies against it.

Vaccination is carried out for preventive and therapeutic purposes. If a vaccine is made from live but weakened strains of pathogenic microorganisms, its effectiveness is higher (about 10–15%). Vaccines made from killed microorganisms require the body to develop long-term immunity.

In modern medicine, both types of vaccines are used. In particular, inactivated (killed) vaccines are more often administered to preschool-aged children.

Types of Vaccines

According to the characteristics of microorganisms:

Bacterial vaccines – prepared from live, attenuated (weakened) microorganisms. By their immunogenic nature, they can also be genetically engineered vaccines.

Vaccines containing bacterial RNA and proteins placed in special cells.

Vector (recombinant) vaccines – a gene responsible for protein synthesis from a pathogenic bacterium is inserted into a harmless bacterium, and the body is vaccinated through this method.

Viral vaccines – prepared from killed (inactivated) viruses. By their immunogenic nature, virion vaccines contain viruses or bacteria that retain the ability to restore themselves.

Vaccines can be:

Monovalent – developed against a single specific microorganism that causes disease.

Polyvalent – composed of a combination of several vaccines (for example, DTP vaccine – adsorbed vaccine against whooping cough, diphtheria, and tetanus).

### References:

1. World Health Organization (WHO). (2023). Air Pollution and Health. Retrieved from <https://www.who.int>
2. United Nations Environment Programme (UNEP). (2022). Actions on Air Quality: A Global Summary of Policies and Programmes to Reduce Air Pollution.

3. Brook, R. D., Rajagopalan, S., Pope, C. A., et al. (2010). Particulate matter air pollution and cardiovascular disease: An update to the scientific statement from the American Heart Association. *Circulation*, 121(21), 2331–2378.
4. Cohen, A. J., Brauer, M., Burnett, R., et al. (2017). Estimates and 25-year trends of the global burden of disease attributable to ambient air pollution: An analysis of data from the Global Burden of Disease Study 2015. *The Lancet*, 389(10082), 1907–1918.
5. World Bank. (2021). *The Cost of Air Pollution: Strengthening the Economic Case for Action*. Washington, DC: World Bank Publications.
6. Lelieveld, J., Evans, J. S., Fnais, M., Giannadaki, D., & Pozzer, A. (2015). The contribution of outdoor air pollution sources to premature mortality on a global scale. *Nature*, 525(7569), 367–371.
7. United Nations. (2015). *Transforming our world: the 2030 Agenda for Sustainable Development*. New York: United Nations