

СЕКЦІЯ XIX. МЕДИЧНІ НАУКИ ТА ГРОМАДСЬКЕ ЗДОРОВ'Я

EFFECTIVENESS OF CHILD VACCINATION IN CENTRAL ASIA REGIONS

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Summary. *Child vaccination programs are a cornerstone of public health efforts worldwide, aiming to prevent numerous infectious diseases and their associated morbidity and mortality. This scientific article explores the effectiveness of child vaccination in Central Asia regions, focusing on the impact of vaccination campaigns, vaccine coverage rates, and their contribution to disease control and public health outcomes. We examine the current state of child vaccination programs in Central Asia, assess the challenges faced, and discuss the prospects for improving vaccination coverage to ensure the health and well-being of children in the region.*

Introduction:

Child vaccination is a vital and time-tested public health intervention designed to prevent and control infectious diseases among the most vulnerable members of society. In Central Asia, a region characterized by its cultural diversity and dynamic geopolitical landscape, child vaccination programs play a pivotal role in safeguarding the health and well-being of its youngest citizens. This scientific article embarks on a comprehensive exploration of the effectiveness of child vaccination initiatives in Central Asia, delving into the multifaceted dimensions of vaccination campaigns, vaccine coverage rates, and their profound influence on disease control, healthcare infrastructure, and broader public health

outcomes.

Central Asia is a region encompassing five nations: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. The region's unique blend of ethnicities, languages, and cultures is mirrored in the array of public health challenges faced by its diverse population. In a vast and intricate landscape spanning deserts, mountains, and steppes, the design and execution of child vaccination programs necessitate a nuanced approach that takes into account the region's unique socioeconomic conditions, healthcare infrastructure, and sociocultural dynamics.

Central Asia's commitment to child vaccination is fortified by the collaborative efforts of national governments and international organizations such as the World Health Organization (WHO) and UNICEF. The Expanded Program on Immunization (EPI), originally introduced in 1974, stands as a testament to the region's dedication to delivering essential vaccines to children, thereby mitigating the burden of vaccine-preventable diseases.

Despite notable progress in the development and implementation of child vaccination programs, Central Asia confronts an array of hurdles on the path to achieving high and equitable vaccine coverage. These challenges include geographical isolation in remote areas, inadequacies in healthcare infrastructure, fragile health systems, and the pervasive issue of vaccine hesitancy. These obstacles have, in part, hindered the realization of herd immunity, a cornerstone of public health that limits the propagation of vaccine-preventable diseases within communities.

The impact of child vaccination programs on disease control in Central Asia has been profound. Maladies like measles, polio, diphtheria, and pertussis have witnessed substantial declines, thanks to dedicated vaccination efforts. Most notably, in 2019, the World Health Organization declared the region free of wild poliovirus, marking a significant milestone in child vaccination campaigns and a testament to the remarkable progress achieved.

However, Central Asia is not without its prospects and challenges. To further enhance vaccination coverage and its ensuing outcomes, a holistic approach is needed. Strengthening healthcare systems, overcoming vaccine hesitancy, ensuring equitable vaccine access for all children, particularly those in marginalized and underserved populations, and maintaining robust surveillance and monitoring systems are integral components of the path forward.

This article delves into these dimensions of child vaccination in Central Asia, offering insights into the progress made, the challenges that persist, and the collective efforts required to ensure the continued health and well-being of the region's children. The effectiveness of child vaccination is a beacon of hope and a testament to the significance of international collaboration in the realm of public health. Central Asia's journey serves as both inspiration and a model for regions worldwide seeking to achieve similar milestones in child vaccination and disease prevention.

1. Vaccination Programs in Central Asia

Central Asia has made significant progress in developing and implementing child vaccination programs. These programs are typically organized and funded by national governments, with support from international organizations such as the World Health Organization (WHO) and UNICEF. The Expanded Program on Immunization (EPI), initially launched in 1974, has been a key initiative for delivering vaccines to children in Central Asia.

2. Vaccine Coverage Rates

Despite efforts to improve vaccination coverage, Central Asia faces several challenges in achieving high and equitable vaccine coverage. Factors contributing to low vaccination coverage include geographic barriers in remote and rural areas, inadequate infrastructure, weak health systems, and vaccine hesitancy. These challenges have hindered the achievement of herd immunity, which is vital in preventing the spread of vaccine-

preventable diseases.

3. Impact on Disease Control

Child vaccination programs have had a considerable impact on disease control in Central Asia. Diseases such as measles, polio, diphtheria, and pertussis have significantly declined, thanks to vaccination efforts. In 2019, the World Health Organization declared the elimination of wild poliovirus in the region, marking a significant achievement in child vaccination.

Figure 2. Prevalence of zero-dose and under-vaccinated children in Europe and Central Asia

Historical trends over the past two decades show **less than 10 per cent prevalence of zero-dose children**. However, since the onset of the COVID-19 pandemic, there has been **a slight increase in the prevalence of zero-dose and under-vaccinated children**.

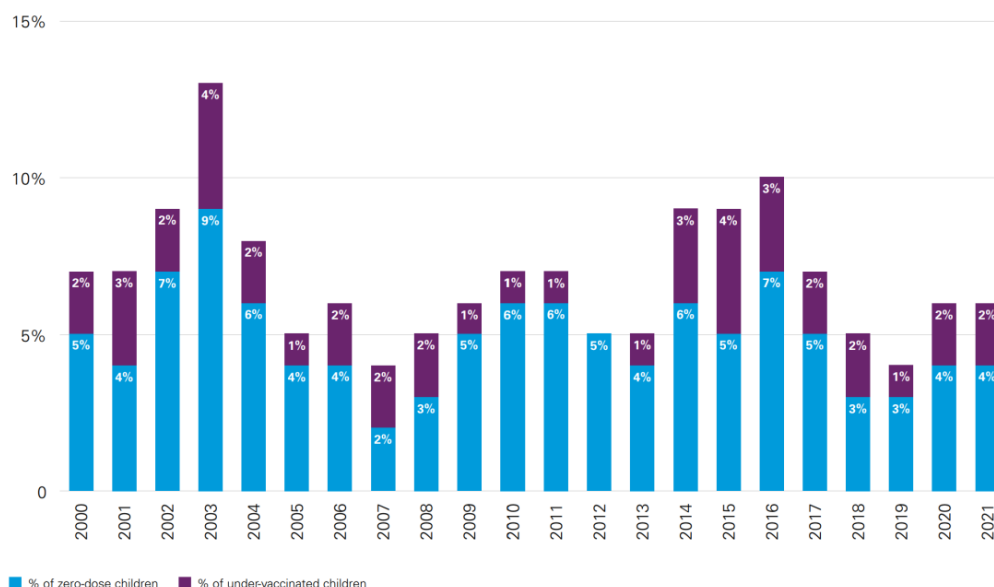


Fig.1. Prevalence of zero-dose and under-vaccinated children in Europe and Central Asia

4. Prospects and Challenges

The effectiveness of child vaccination in Central Asia regions is commendable, but several challenges persist. To further improve vaccination coverage and outcomes, it is crucial to address these challenges:

4.1. Strengthen Health Systems: Investments in healthcare infrastructure, including the training of healthcare workers and the expansion of healthcare services in rural and remote areas, are essential.

4.2. Overcome Vaccine Hesitancy: Misinformation and vaccine hesitancy are issues in Central Asia. Public health campaigns and community engagement are necessary to build trust in vaccines and healthcare providers.

4.3. Equity in Vaccine Access: Ensuring that vaccines reach all children, including those in marginalized and vulnerable populations, is vital for achieving high vaccination coverage rates.

4.4. Surveillance and Monitoring: Continual surveillance and monitoring of vaccination coverage and disease incidence are crucial for early detection and response to outbreaks.

Conclusion:

Child vaccination programs in Central Asia have been effective in reducing the burden of vaccine-preventable diseases. However, there is still room for improvement in

vaccination coverage, healthcare infrastructure, and addressing vaccine hesitancy. Efforts to strengthen health systems, ensure equitable vaccine access, and maintain high-quality surveillance will be essential in the ongoing battle to protect the health and well-being of children in the region. Central Asia's commitment to child vaccination is a testament to the importance of global collaboration in public health, and serves as a model for other regions striving to achieve similar success.

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References:

1. Burstein, R., Henry, N. J., Collison, M. L., Marczak, L. B., Sligar, A., Watson, S., Marquez, N., Abbasalizad-Farhangi, M., Abbasi, M., Abd-Allah, F., Abdoli, A., Abdollahi, M., Abdollahpour, I., Abdulkader, R. S., Abrigo, M. R. M., Acharya, D., Adebayo, O. M., Adekanmbi, V., Adham, D., Afshari, M., ... Hay, S. I. (2019). Mapping 123 million neonatal, infant and child deaths between 2000 and 2017. *Nature*, 574(7778), 353–358. <https://doi.org/10.1038/s41586-019-1545-0>.
2. Davies, P., Aluloski, I., Aluloski, D., Brcanski, J., Davidzenka, A., Durdyeva, A., Gayrat Umarzoda, S., Goshliyev, K., Jovanovic, V., Jugeli, L., Kocinaj-Berisha, M., Maistruk, G., Naumovic, T., Pilav, A., Rzaeva, G., Saribekyan, K., Siljak, S., Ten, E., Valuta, D., Veljkovic, M., ... Melnic, E. (2023). HPV Vaccination and Cervical Cancer Screening Policies and Practices in 18 Countries, Territories and Entities across Eastern Europe and Central Asia. *Asian Pacific journal of cancer prevention: APJCP*, 24(5), 1781–1788. <https://doi.org/10.31557/APJCP.2023.24.5.1781>.
3. Latipov, R., Utegenova, E., Kuatbayeva, A., Kasymbekova, K., Abdykarimov, S., Juraev, R., Ismailov, U., & Flem, E. (2011). Epidemiology and burden of rotavirus disease in Central Asia. *International journal of infectious diseases : IJID : official publication of the International Society for Infectious Diseases*, 15(7), e464–e469. <https://doi.org/10.1016/j.ijid.2011.03.014>.
4. Berkhof, J., Bogaards, J. A., Demirel, E., Diaz, M., Sharma, M., & Kim, J. J. (2013). Cost-effectiveness of cervical cancer prevention in Central and Eastern Europe and Central Asia. *Vaccine*, 31 Suppl 7, H71–H79. <https://doi.org/10.1016/j.vaccine.2013.04.086>.
5. Rogovskaya, S. I., Shabalova, I. P., Mikheeva, I. V., Minkina, G. N., Podzolkova, N. M., Shipulina, O. Y., ... & Poljak, M. (2013). Human papillomavirus prevalence and type-distribution, cervical cancer screening practices and current status of vaccination implementation in Russian Federation, the Western countries of the former Soviet Union, Caucasus region and Central Asia. *Vaccine*, 31, H46–H58.
6. Bloom, D. E., Canning, D., & Weston, M. (2017). The value of vaccination. In *Fighting the diseases of poverty* (pp. 214–238). Routledge.
7. Ball, L. K., Ball, R., & Pratt, R. D. (2001). An assessment of thimerosal use in childhood vaccines. *Pediatrics*, 107(5), 1147–1154.
8. Ibragimov, S. (2021). HEART DAMAGE IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS. *Збірник наукових праць ЛОГОС*.
9. Ibragimov, S. (2022). The hormone estradiol and what advantages it has over testosterone. *Collection of scientific papers «SCIENTIA»*, (June 24, 2022; Helsinki, Finland), 57–59.
10. Абдуллаева, Н., Ибрагимов, Ш., & Ахмедов, Д. (2023). ОСНОВНЫЕ ЭТИЧЕСКИЕ ПРИНЦИПЫ И КЛИНИЧЕСКИЙ ПОДХОД В ОРТОДОНТИЧЕСКОЙ СТОМАТОЛОГИИ. *Grail of Science*, (25), 450–456.