



## The Results of Vaccination and Reversed After Vaccination of Coronavirus Infection in Fergana Region for 2021–2022

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**ABSTRACT:** In this study, an analysis of the incidence of COVID–19 in the Fergana region was carried out, the number of vaccinated vaccination coverage and those who recovered after vaccination with COVID–19 was determined. The incidence was studied for the period from March 2020 to 2022. Since vaccination began in 2021, we analyzed those vaccinated and recovered from 2021 to 2022. The dynamics of the incidence of COVID–19 in the Fergana region was undulating. During the surveyed period, the intensive indicator of the incidence of COVID–19 was as follows: in the city of Fergana (887.6), Kuvasay–1169.5, Kuva–995, Sokh–737.2, Yazyavan–781, Altirik–610.1, Fergana–472 cases per 100,000 populations. During this period, more than 7 million doses of COVID–19 vaccines were administered, and no side effects of the vaccines used were observed among those vaccinated.

**KEYWORDS:** coronavirus infection, vaccination, results, immunization, infectious diseases, primary medical care, psychological knowledge, COVID–19, Fergana region, World Health Organization, medical knowledge, epidemiological analysis.

### INTRODUCTION

According to the World Health Organization (WHO), equitable access to safe and effective vaccines is essential to ending the COVID–19 pandemic, and it is encouraging to see so many vaccines making it through the trial and development stages [2, 6, 17, 18]. Environmental change, climate warming, increase in population density, development biotechnology and other factors provoke the emergence, and ever–increasing migration flows and the processes of globalization of the economy contributes the spread of new infections [7, 9, 11]. Biological threats associated with epidemics of infectious diseases are global in nature [1, 3, 16]. On February 11, 2020, the World Health Organization assigned the official name of the infection caused by the new coronavirus–COVID–19 (“Coronavirus disease 2019”). On February 11, 2020, the International Committee on Taxonomy of Viruses assigned its own name to the causative agent of COVID–19 infection–SARS–CoV–2 [4, 8, 15, 18]. WHO works tirelessly with partners to develop, manufacture and introduce safe and effective vaccines [5, 9, 18]. The coronavirus pandemic has highlighted a number of public health problems. Most of the world states were not ready to face this infection. The article is devoted to the problems of vaccination (COVID–19) in the Russian Federation. Scientific work is based on the interdisciplinary integration of medical, psychological, legal and sociological knowledge [10, 13]. WHO provided daily support to the Government of Uzbekistan through the provision of all technical guidance and advice during technical meetings, joint analysis of actions taken and recommendations for further emergency actions aimed at ensuring public health security [12, 19]. The WHO notes that the benefits of administering the COVID–19 vaccine outweigh the possible risks. For this reason, the experts of the Organization urge to be vaccinated against coronavirus infection and to introduce additional, booster doses in accordance with the recommendations [14, 19].

### THE AIM OF THE STUDY

The aim of this research was to study the evaluation of the results of vaccination and those who recovered after vaccination against coronavirus infection in the Fergana region.

### THE OBJECT AND METHOD

Materials of vaccination and those who recovered after vaccination, a retrospective epidemiological analysis of data on the incidence of COVID–19 was carried out. The epidemiological method of the study was a retrospective analysis of the intensive indicator for



COVID-19. Statistical processing of the obtained data was carried out on the basis of special programs in Microsoft Excel. The diagnosis of COVID-19 was established on the basis of a polymerase chain reaction of a smear obtained from the nasopharyngeal region of a patient.

**RESULTS AND DISCUSSIONS**

The dynamics of the incidence of coronavirus infection is undulating. From March to December 2020, 782 patients with COVID-19 were registered in the Fergana region. From January to December 2021, 9959 patients with COVID-19 were registered. From January to December 2022, 3350 patients with COVID-19 were registered.

The registration of coronavirus infection patients was carried out based on the results of PCR diagnostics. The largest number of patients (absolute indicators) in the Fergana region for the specified period of time was registered in the city of Fergana city-2936, Kuvasay-1134, Fergana district-1150, Kuva-995, Altirik-1318 (Table 1).

**Table 1.** The number of registered patients with COVID-19 in Fergana region from March 2020 to 2022 (abs. indicator)

Cities and regions:	The number of patients with COVID-19
Kuvasay	1134
Kokand	565
Margilan	925
Fergana city	2936
Besharik	113
Baghdad	290
Buvayda	97
Dangara	244
Yazyavan	897
Kuva	995
Altirik	1318
Kushtepa	793
Rishtan	781
Sokh	603
Tashlak	806
Uzbekistan	164
Uchkuprik	160
Fergana district	1150
Furkat	120
Total:	14091

Morbidity according to the intensive indicator, the largest number of patients in the Fergana region for the specified period of time was registered in the city of Fergana-887.6, Altirik-610.1, Yazyavan-781, Kuvasay-1169.5, Fergana district-472, Kuva-995 and Sokh-737.2 (Table 2).

**Table 2.** The number of registered patients with COVID-19 in Fergana region from March 2020 to 2022 (int.indicator)

Cities and regions:	The number of patients with COVID-19
Kuvasay	1169,5
Kokand	214,1
Margilan	384,8
Fergana city	887,6



Besharik	49,2
Baghdad	127,6
Buvayda	41,0
Dangara	128,2
Yazyavan	781,0
Kuva	385,0
Altirik	610,1
Kushtepa	395,9
Rishtan	369,9
Sokh	737,2
Tashlak	384,5
Uzbekistan	65,6
Uchkuprik	673
Fergana district	472,0
Furkat	968
Total:	355,5

Distribution of registered patients with coronavirus infection by region according to gender: from March to December 2020, the total number of men is 435 patients, women 347 patients. In 2022, 5971 patients were registered men, 3988 women patients, in 2022, men were 1863 patients, women 1487 patients (Table 3).

**Table 3.** The separation of registered patients with COVID–19 in Fergana region into men and women from 2020 to 2022 year

Cities and regions:	March–December 2020		2021		2022	
	man	woman	man	woman	man	woman
Kuvasay	27	27	432	296	203	149
Kokand	7	2	295	175	49	37
Margilan	30	19	377	285	128	86
Fergana city	103	86	1165	1009	318	255
Besharik	4	1	58	30	13	7
Baghdad	5	5	152	87	26	15
Buvaida	4	2	42	23	11	15
Dangara	4	5	148	69	17	1
Yazyavan	21	28	365	270	87	126
Kuva	21	16	405	302	129	122
Altirik	84	62	444	303	229	196
Kushtepa	24	22	440	136	109	62
Rishtan	27	17	265	197	163	112
Sokh	15	0	317	131	48	92
Tashlak	25	5	363	236	82	95
Uzbekistan	6	5	86	56	10	1
Uchkuprik	1	4	84	54	9	8
Fergana district	23	36	476	295	213	107
Furkat	4	5	57	34	19	1
Total:	435	347	5971	3988	1863	1487



Since April 2021, vaccination of the Fergana region has begun, a vaccination program against coronavirus infection has been launched.

2,309,210 persons received primary vaccination with coronavirus vaccine during the specified period and the coverage rate as a percentage for primary vaccination was 95.3%.

Over 7 million doses of COVID-19 vaccines have been administered between April 2021 and 2022. Booster doses of COVID-19 vaccines are currently being used to prevent coronavirus infection.

Since the beginning of vaccination, several types of vaccines have been used: Astra-Zeneca, ZF-UZ Vac-2001, Sputnik V, Sputnik Light, Moderna, Pfizer, Sinovac (Table 4).

**Table 4.** The ratio of the number of patients with COVID-19 to the number of vaccinated

Month/year	The number of patients	The number of vaccinated
March 2020	26	0
April 2020	105	0
May 2020	47	0
June 2020	5	0
July 2020	100	0
August 2020	58	0
September 2020	91	0
October 2020	182	0
November 2020	102	0
December 2020	83	0
January 2021	273	0
February 2021	54	0
March 2021	48	0
April 2021	273	117 843
May 2021	699	146 309
June 2021	1 911	151 500
July 2021	6 939	565 317
August 2021	9 474	689 081
September 2021	5 130	604 520
October 2021	2 550	566 744
November 2021	1 104	866 305
December 2021	290	637 329
January 2022	2 291	322 933
February 2022	558	277 677
March 2022	32	198 334
April 2022	9	323 871
May 2022	1	308 320
January 2022	87	338 042
July 2022	208	232 539
August 2022	0	288 146
September 2022	0	254 813
October 2022	0	129 505
November 2022	22	0
December 2022	113	0



Successful after vaccination with coronavirus infection in 2021–2022 year are presented in Table 5.

**Table 5.** The successful after vaccination with coronavirus infection in 2021–2022

Vaccines:	2021	After dose			2022	After dose			
		1–dose	2–dose	3–dose		1–dose	2–dose	3–dose	Booster dose
ZF–UZ–VAC 2001	505	229	138	138	26	0	0	26	0
Sputnik V	48	20	28	0	8	0	8	0	0
AstraZeneca	61	9	52	0	3	0	3	0	0
Moderna	43	33	10	0	1	0	1	0	0
Pfizer	6	4	2	0	2	0	2	0	0
Sinovac	1	0	1	0	1	0	1	0	0
Total:	664	295	231	138	41	0	15	26	0

**CONCLUSION**

Thus, in the Fergana region, vaccination against coronavirus infection contributed to a sharp decrease in the incidence and no complications were recorded after the introduction of the coronavirus vaccine. In order to acquire public immunity, the use of vaccines has reduced the number of sick people and contributed to a decrease in the number of sick people, as well as preventing a pandemic and the inability of the population to work. The effectiveness of vaccination showed that in the vaccinated, the formation of collective immunity was achieved and the incidence of coronavirus infection decreased, also due to vaccination, those who recovered after vaccination amounted to only 0.1% of the total vaccinated.

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