

NATIONAL WEEKLY INFLUENZA BULLETIN OF THE RUSSIAN FEDERATION

week 15 of 2023 (10.04.23 - 16.04.23)

Summary.

Influenza and ARI incidence data. Influenza and other ARI activity in Russia decrease in comparison with previous week. The nationwide ILI and ARI morbidity level (55.2 per 10 000 of population) was lower than national baseline (70.0) by 21.1%.

Etiology of ILI & ARI. Among 6030 patients investigation 140 (2.3%) respiratory samples were positive for influenza, including 4 cases of influenza A(H1N1)pdm09 in 3 cities, 2 cases of influenza A(H3N2) in 1 city, 2 cases of influenza A unsubtype in 2 cities and 132 cases of influenza B in 29 cities.

13 influenza viruses were isolated on MDCK cell culture in Krasnoyarsk (2), Novosibirsk (1), Saint-Petersburg (10). Since the beginning of the season 1199 influenza viruses were isolated on MDCK cell culture, including: 775 viruses A(H1N1)pdm09, 29 viruses A(H3N2) and 395 viruses B.

Antigenic characterization. Since the beginning of the season, 648 influenza A(H1N1)pdm09 viruses have been antigenically characterized by the NICs, including: Moscow (105) and Saint-Petersburg (543), 28 influenza A(H3N2) viruses in Moscow (1) and Saint-Petersburg (27) and 185 influenza B, including: Moscow (15) and Saint-Petersburg (170). All viruses A(H1N1)pdm09 were antigenically similar to reference strain A/Victoria/2570/2019 (H1N1)pdm09. 26 influenza A(H3N2) strains were similar to the reference virus A/Darwin/9/2021 and 2 influenza A(H3N2) viruses reacted with the reference virus antiserum to a 1:8 homologous titer. 183 influenza B viruses were antigenically similar to reference strain B/Austria/1359417/2021 and 2 influenza B viruses reacted with the reference virus antiserum to a 1:8 homologous titer.

Genetic analysis. Sequencing of 993 influenza viruses and isolates from primary clinical materials from patients was performed by NIC (Saint-Petersburg). According to phylogenetic analysis, 904 influenza A(H1N1)pdm09 viruses were assigned to genetic subgroup 6 B.1A.5a.2 and similar to reference virus A/Victoria/2570/2019 (H1N1)pdm09; 27 A(H3N2) viruses was assigned to subgroup 3C.2 a1b.2a.2 and similar to reference virus Bangladesh/4005/2020 (H3N2); 62 influenza type B viruses were assigned to genetic subgroup V1A.3a.2 reference virus B/Austria/1359417/2021.

Susceptibility to antivirals. The sensitivity of 390 influenza viruses to neuraminidase inhibitors (oseltamivir, zanamivir) was studied in two NICs (Moscow, St. Petersburg), including 330 A(H1N1)pdm09 viruses and 10 A(H3N2) viruses in NIC (Saint-Petersburg) and 45 A(H1N1)pdm09 viruses and 5 B viruses in NIC (Moscow). All the viruses studied were sensitive to oseltamivir and zanamivir.

ARVI detections. The overall proportion of respiratory samples tested positive for other ARVI (PIV, ADV, RSV, RhV, CoV, MPV, BoV) was estimated in total as 12.3% (PCR).

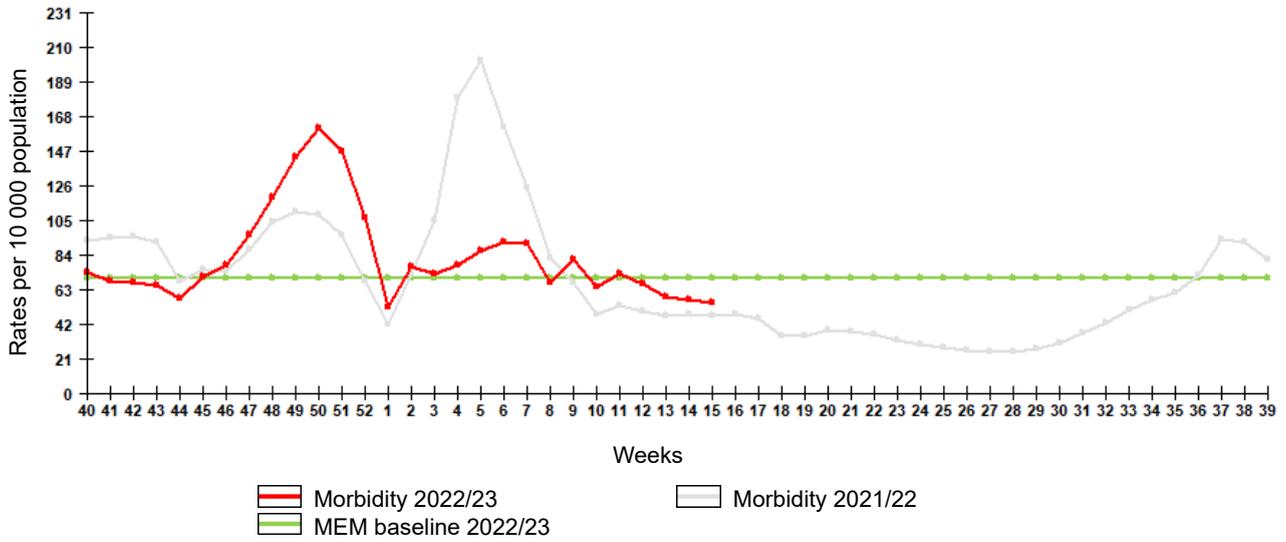
In sentinel surveillance system clinical samples from 75 SARI patients were investigated by rRT-PCR for influenza, among them 2 (2.7%) cases of influenza B. Among 65 SARI samples 6 (9.2%) cases positive for ARVI detected including 1 case of PIV, 3 cases of RhV, 1 case of MPV and 1 case of BoV infection. Among 65 SARI patients no cases positive for coronavirus SARS-CoV-2 recognized.

Clinical samples from 56 ILI/ARI patients were investigated for influenza by rRT-PCR, among them no positive cases recognized. Among 45 ILI/ARI samples 10 (22.2%) cases positive for ARVI detected including 2 cases of PIV, 1 case of ADV, 4 cases of RhV, 1 case of CoV and 2 cases of MPV infection. 2 (3.6%) of 56 ILI/ARI patients were positive for coronavirus SARS-CoV-2.

COVID-19. Totally 22 789 729 cases and 397 974 deaths associated with COVID-19 were registered in Russia including 7 041 cases and 35 deaths in last 24 hours (on 12:00 of 20.04.2023). According to the data obtained by NIC in Saint-Petersburg totally 9657 clinical samples were PCR investigated in last week. Among them coronavirus SARS-CoV-2 detected in 1211 (12.5%) cases.

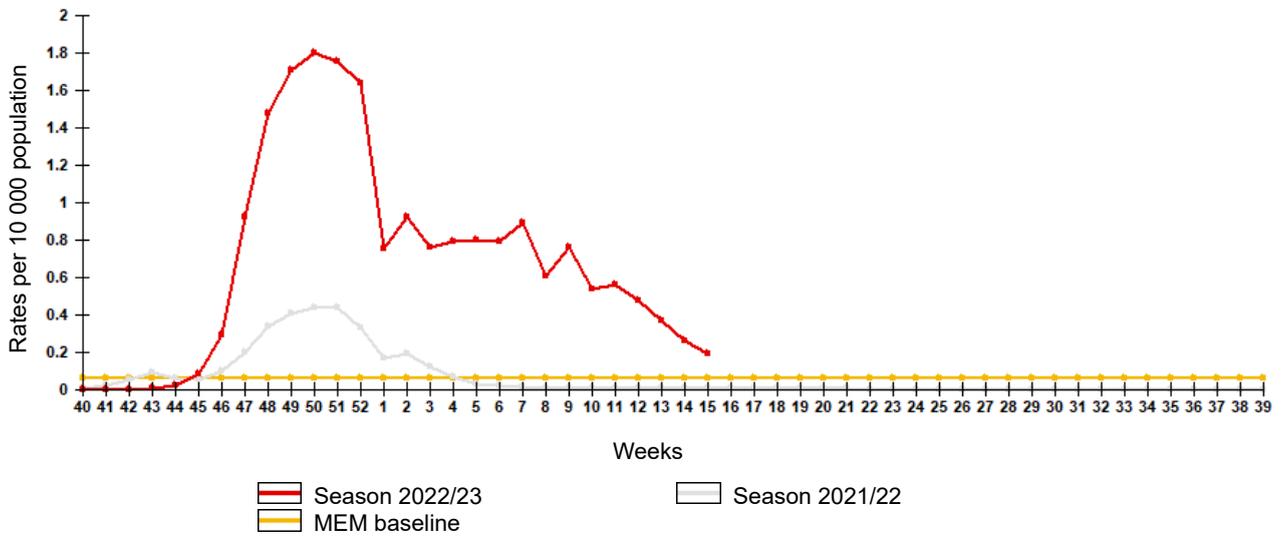
Influenza and ARI morbidity data

Fig. 1. Influenza and ARI morbidity in 61 cities under surveillance in Russia, seasons 2021/22 and 2022/23



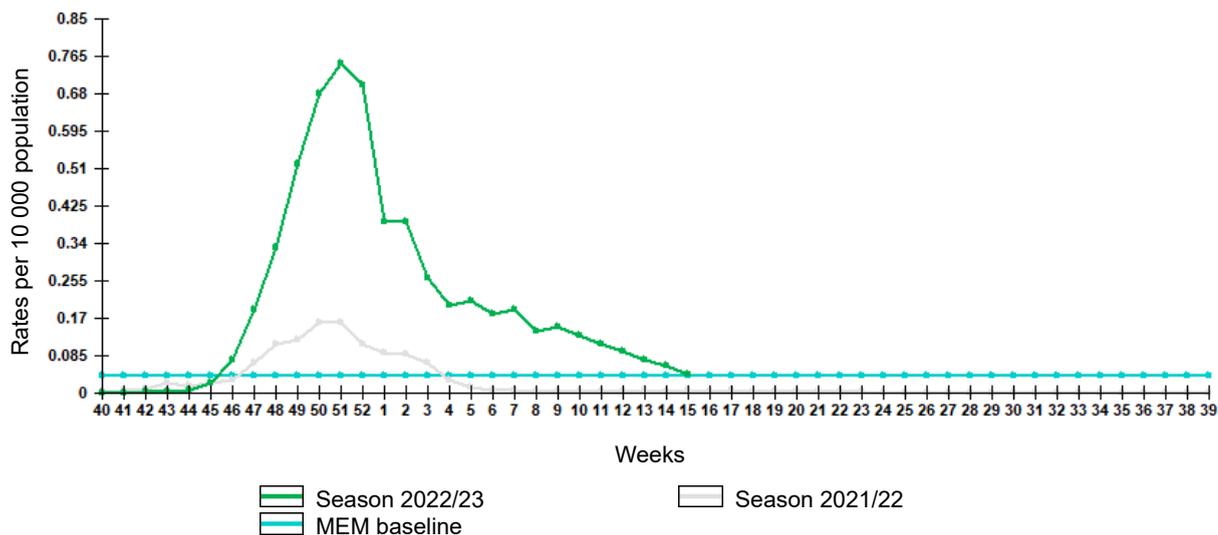
Epidemiological data showed decrease of influenza and other ARI activity in Russia in comparison with previous week. The nationwide ILI and ARI morbidity level (55.2 per 10 000 of population) was lower than national baseline (70.0) by 21.1%.

Fig. 2. Comparative data on incidence rate of clinically diagnosed influenza, seasons 2021/22 and 2022/23



Incidence rate of clinically diagnosed influenza decreased comparing to previous week and amounted to 0.19 per 10 000 of population, it was higher than pre-epidemic MEM baseline (0.060).

Fig. 3. Comparison of hospitalization rate with clinical diagnosis of influenza, seasons 2021/22 and 2022/23



Hospitalization rate of clinically diagnosed influenza decreased comparing to previous week and amounted to 0.042 per 10 000 of population, it was higher than pre-epidemic MEM baseline (0.040).

Influenza and ARVI laboratory testing results

Cumulative results of influenza laboratory diagnosis by rRT-PCR were submitted by 48 RBLs and two WHO NICs. According to these data as a result of 6030 patients investigation 140 (2.3%) respiratory samples were positive for influenza, including 4 cases of influenza A(H1N1)pdm09 in 3 cities, 2 cases of influenza A(H3N2) in 1 city, 2 cases of influenza A untyped in 2 cities and 132 cases of influenza B in 29 cities.

13 influenza B viruses were isolated on MDCK cell culture in Krasnoyarsk (2), Novosibirsk (1), Saint-Petersburg (10). Since the beginning of the season 1199 influenza viruses were isolated on MDCK cell culture, including: 775 viruses A(H1N1)pdm09, 29 viruses A(H3N2) and 395 viruses B.

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Fig. 4. Geographic distribution of RT-PCR detected influenza viruses in cities under surveillance in Russia, week 15 of 2023

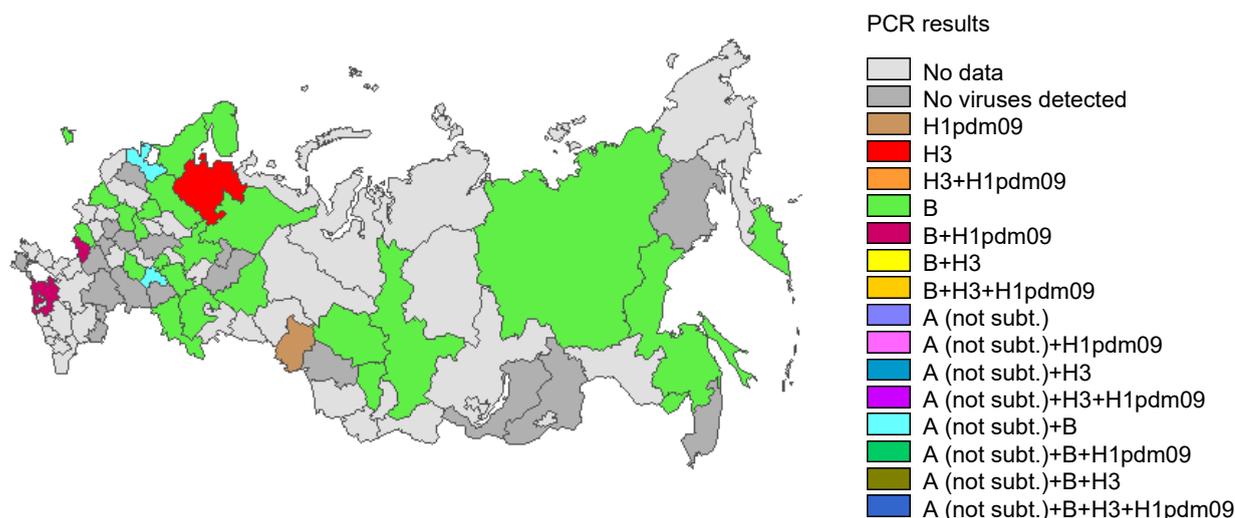


Fig. 5. Monitoring of influenza viruses detection by RT-PCR in Russia, season 2022/23

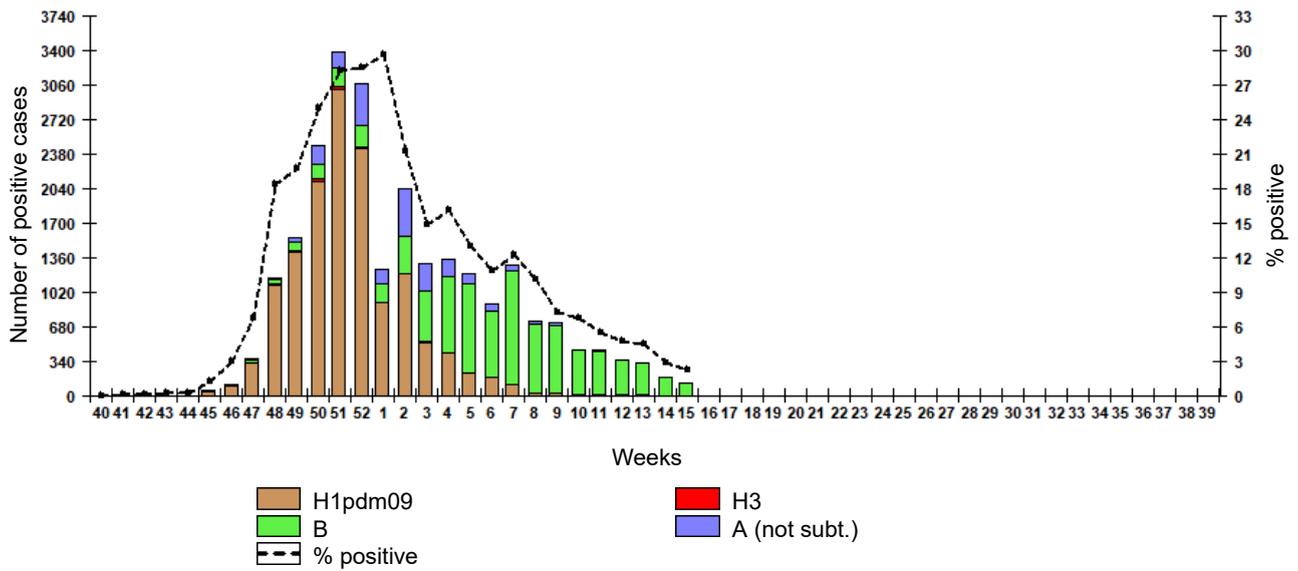
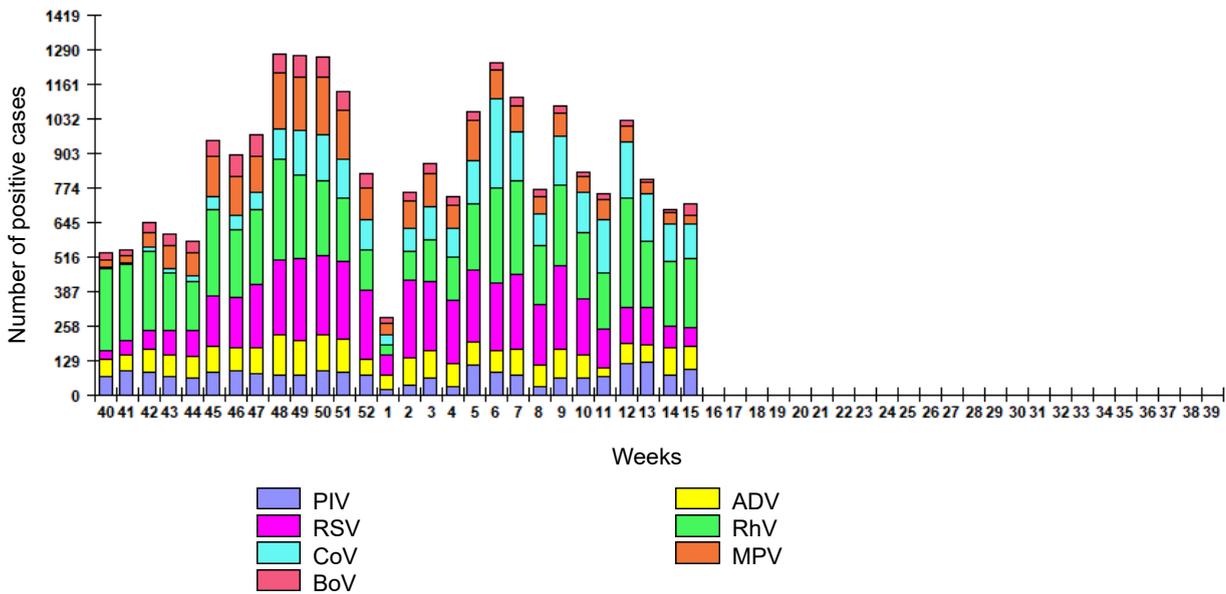


Fig. 6. Monitoring of ARVI detection by RT-PCR in Russia, season 2022/23



ARVI detections. The overall proportion of respiratory samples tested positive for other ARVI (PIV, ADV, RSV, RhV, CoV, MPV, BoV) estimated as **12.3%** of investigated samples by PCR.

Fig. 7. Monitoring of influenza viruses isolation in Russia, season 2022/23

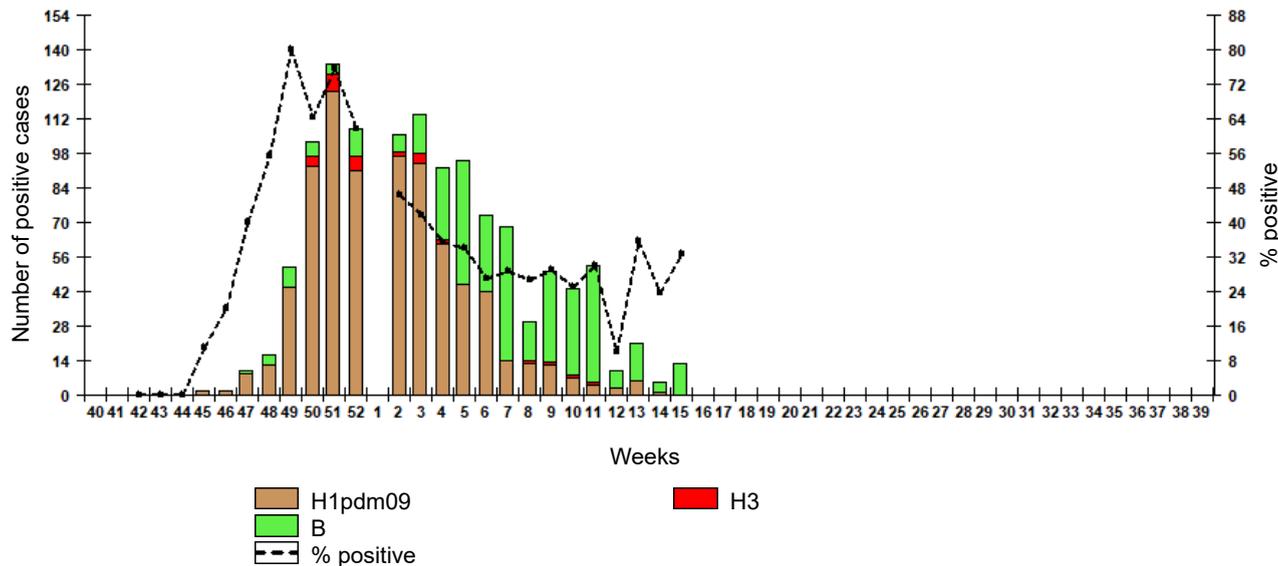
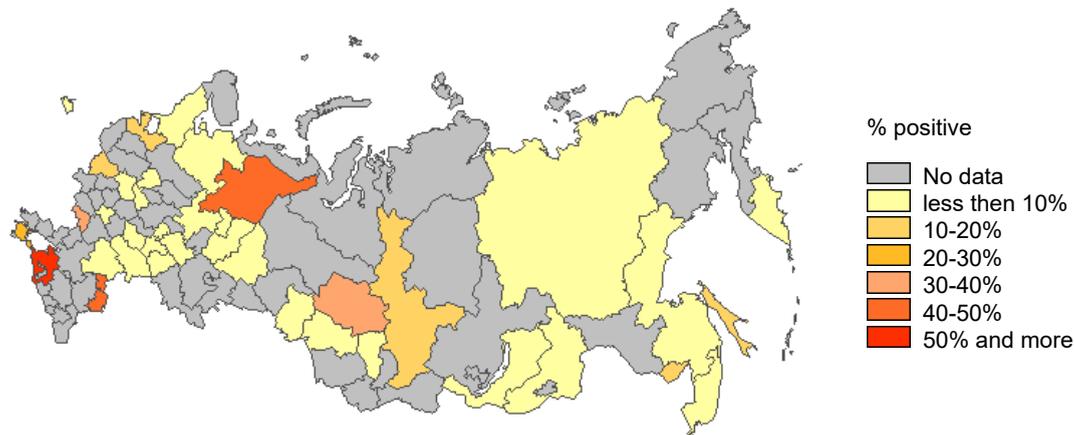


Table 1. Results of influenza and other ARVI detection by RT-PCR in Russia, week 15 of 2023

	Number of specimens / number of positive cases	% positive
<u>Influenza</u>		
Number of specimens tested for influenza	6030	-
Influenza A (not subt.)	2	0,03%
Influenza A(H1)pdm09	4	0,07%
Influenza A(H3)	2	0,03%
Influenza B	132	2,2%
All influenza	140	2,3%
<u>Other ARVI</u>		
Number of specimens tested for ARVI	5795	-
PIV	97	1,7%
ADV	85	1,5%
RSV	71	1,2%
RhV	259	4,5%
CoV	128	2,2%
MPV	30	0,5%
BoV	41	0,7%
All ARVI	711	12,3%
<u>SARS-CoV-2 (COVID-19)</u>		
Number of specimens tested for SARS-CoV-2	9657	-
SARS-CoV-2	1211	12,5%

Fig. 8. Results of PCR detections of SARS-CoV-2 in Russia



COVID-19. Totally 22 789 729 cases and 397 974 deaths associated with COVID-19 were registered in Russia including 7 041 cases and 35 deaths in last 24 hours (on 12:00 of 20.04.2023). According to the data obtained by NIC in Saint-Petersburg totally 9657 clinical samples were PCR investigated in last week. Among them coronavirus SARS-CoV-2 detected in 1211 (12.5%) cases.

Table 2. Results of influenza viruses isolation in Russia, week 15 of 2023

	Number of specimens / number of viruses	% isolated viruses
Number of specimens	40	-
Influenza A(H1)pdm09	0	0,0%
Influenza A(H3)	0	0,0%
Influenza B	13	32,5%
All influenza	13	32,5%

Sentinel influenza surveillance

Clinical samples from 75 SARI patients were investigated by rRT-PCR for influenza, among them 2 (2.7%) cases of influenza B. Among 65 SARI samples 6 (9.2%) cases positive for ARVI detected including 1 case of PIV, 3 cases of RhV, 1 case of MPV and 1 case of BoV infection. Among 65 SARI patients no cases positive for coronavirus SARS-CoV-2 recognized.

Clinical samples from 56 ILI/ARI patients were investigated for influenza by rRT-PCR, among them no positive cases recognized. Among 45 ILI/ARI samples 10 (22.2%) cases positive for ARVI detected including 2 cases of PIV, 1 case of ADV, 4 cases of RhV, 1 case of CoV and 2 cases of MPV infection. 2 (3.6%) of 56 ILI/ARI patients were positive for coronavirus SARS-CoV-2.

Fig. 9. Monitoring of influenza viruses detection by RT-PCR among SARI patients in sentinel hospitals, season 2022/23

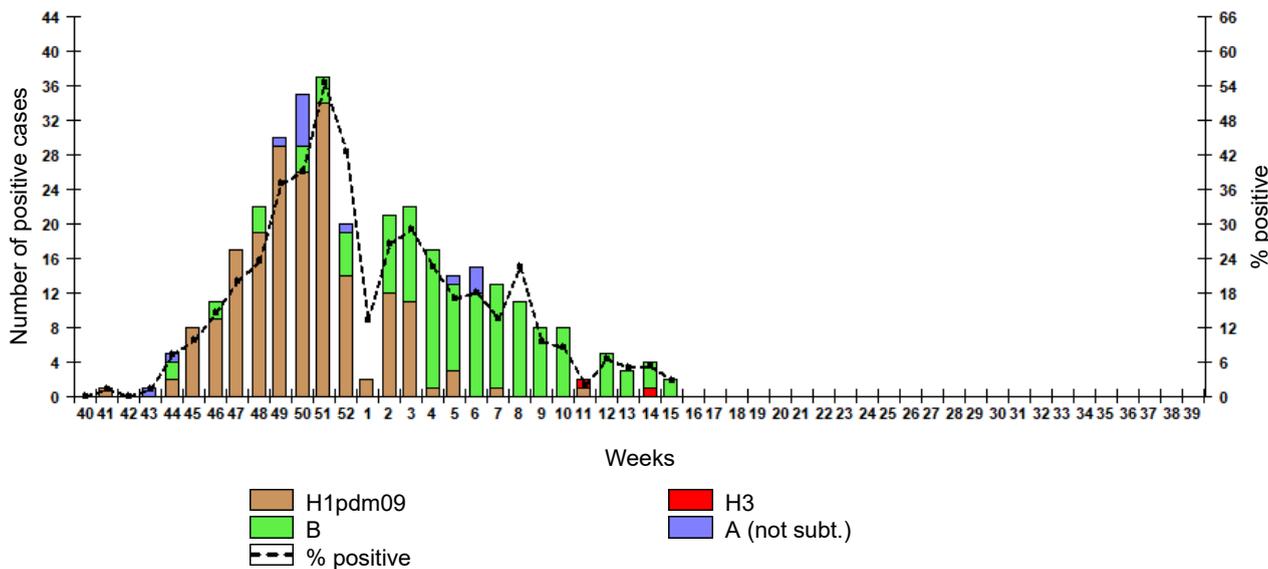


Fig. 10. Monitoring of influenza viruses detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2022/23

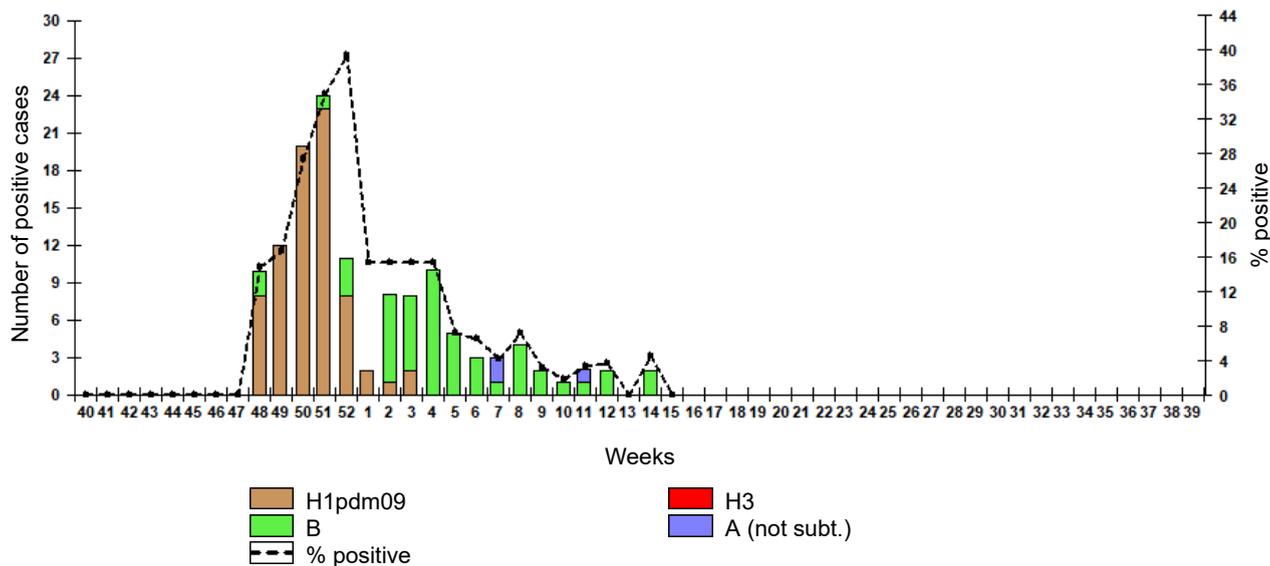


Fig. 11. Monitoring of ARVI detection by RT-PCR among SARI patients in sentinel hospitals, season 2022/23

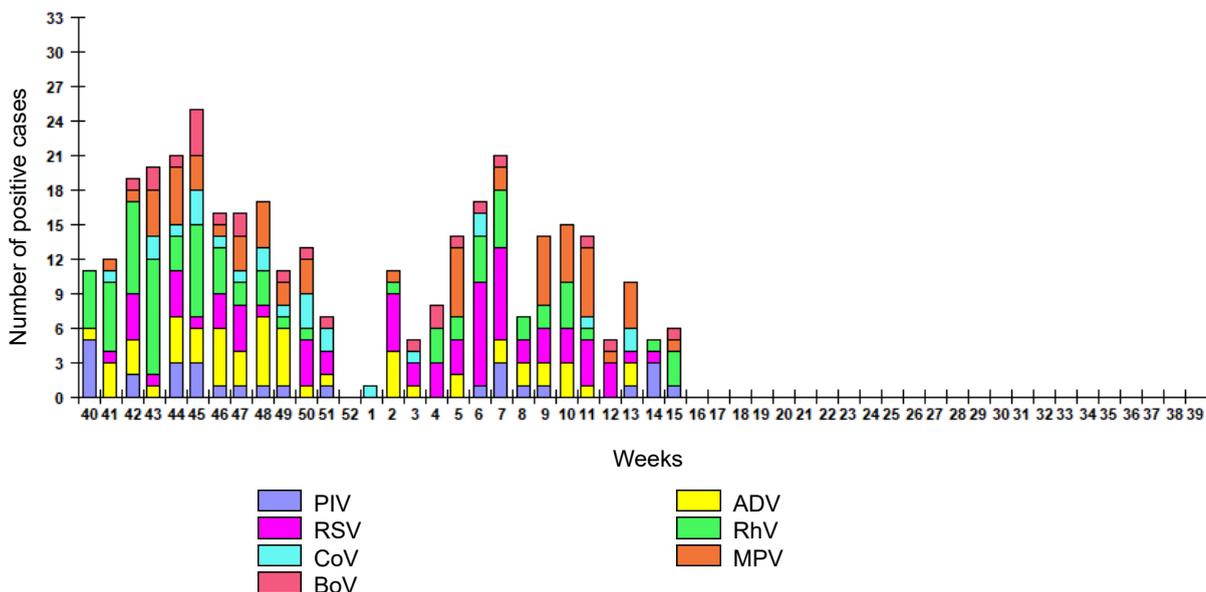


Fig. 12. Monitoring of ARVI detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2022/23

