

## NATIONAL WEEKLY INFLUENZA BULLETIN OF THE RUSSIAN FEDERATION

*week 7 of 2023 (13.02.23 - 19.02.23)*

### Summary.

**Influenza and ARI incidence data.** Influenza and other ARI activity decrease of influenza and other ARI activity in Russia in comparison with previous week. The nationwide ILI and ARI morbidity level (91.4 per 10 000 of population) was higher than national baseline (70.0) by 30.6%.

**Etiology of ILI & ARI.** Among 10365 patients investigation 1287 (12.4%) respiratory samples were positive for influenza, including 114 cases of influenza A(H1N1)pdm09 in 25 cities, 6 cases of influenza A(H3N2) in 2 cities, 55 cases of influenza A untyped in 6 cities and 1112 cases of influenza B in 47 cities.

68 influenza viruses were isolated on MDCK cell culture, including: 14 influenza A(H1N1)pdm09 viruses in Veliky Novgorod (1), Krasnoyarsk (11), Moscow (1), Saint-Petersburg (1); 54 influenza B viruses in Astrakhan (5), Vladivostok (14), Novosibirsk (1), Saint-Petersburg (23), Ulan-Ude (1), Khabarovsk (10). Since the beginning of the season 894 influenza viruses were isolated on MDCK cell culture, including: 665 viruses A(H1N1)pdm09, 19 viruses A(H3N2) and 210 viruses B.

**Antigenic characterization.** Since the beginning of the season, 414 influenza A(H1N1)pdm09 viruses have been antigenically characterized by the NICs, including: Moscow (81) and Saint-Petersburg (333), 24 influenza A(H3N2) viruses in Saint-Petersburg and 68 influenza B, including: Moscow (7) and Saint-Petersburg (61). All viruses A(H1N1)pdm09 were antigenically similar to reference strain A/Victoria/2570/2019 (H1N1)pdm09. 22 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. 66 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 the 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 230 influenza viruses to neuraminidase inhibitors (oseltamivir, zanamivir), including 224 A(H1N1)pdm09 viruses and 6 A(H3N2) viruses, was studied at the NIC (Saint-Petersburg). 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 11.1% (PCR).

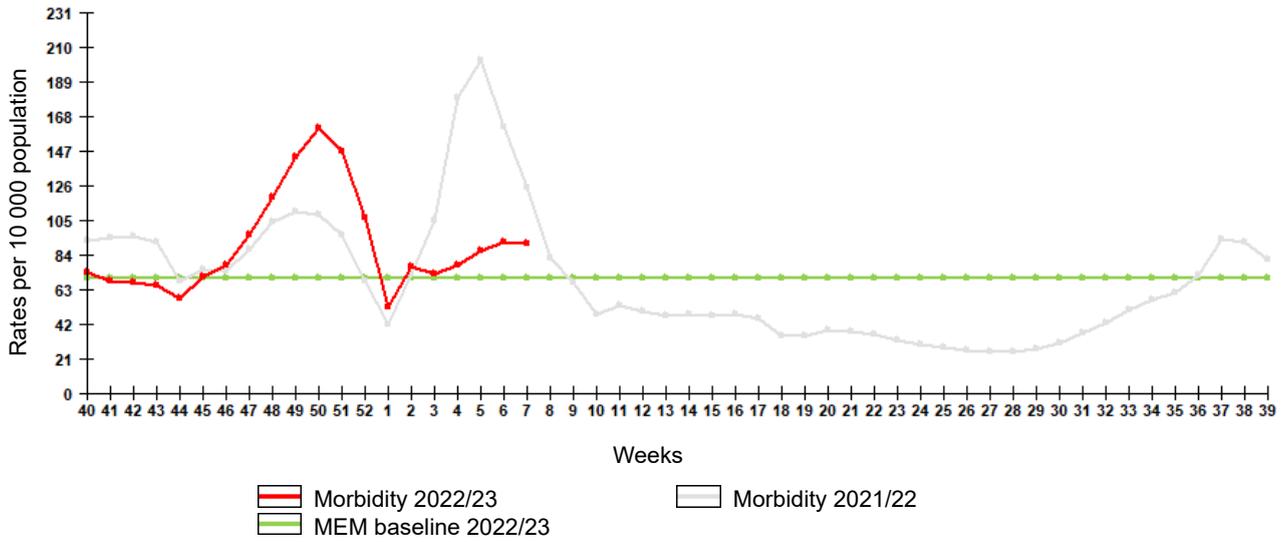
**In sentinel surveillance system** clinical samples from 75 SARI patients were investigated by rRT-PCR for influenza, among them 9 (12.0%) cases of influenza, including 8 cases of influenza B and 1 case of influenza A(H1N1)pdm09. Among 45 SARI samples 15 (33.3%) cases positive for ARVI detected including 2 cases of PIV, 6 cases of RSV, 4 cases of RhV, 2 cases of MPV and 1 case of BoV infection. 3 (5.5%) of 55 SARI patients were positive for coronavirus SARS-CoV-2.

Clinical samples from 73 ILI/ARI patients were investigated for influenza by rRT-PCR, among them 3 (4.1%) cases of influenza, including 2 cases of influenza A untyped and 1 case of influenza B. Among 63 ILI/ARI samples 17 (27.0%) cases positive for ARVI detected including 1 case of PIV, 6 cases of RhV, 2 cases of CoV and 8 cases of MPV infection. 6 (8.2%) of 73 ILI/ARI patients were positive for coronavirus SARS-CoV-2.

**COVID-19.** Totally 22 218 663 cases and 395 938 deaths associated with COVID-19 were registered in Russia including 14 721 cases and 37 deaths in last 24 hours (on 12:00 of 23.02.2023). According to the data obtained by NIC in Saint-Petersburg totally 12 505 clinical samples were PCR investigated in last week. Among them coronavirus SARS-CoV-2 detected in 1906 (15.2%) cases.

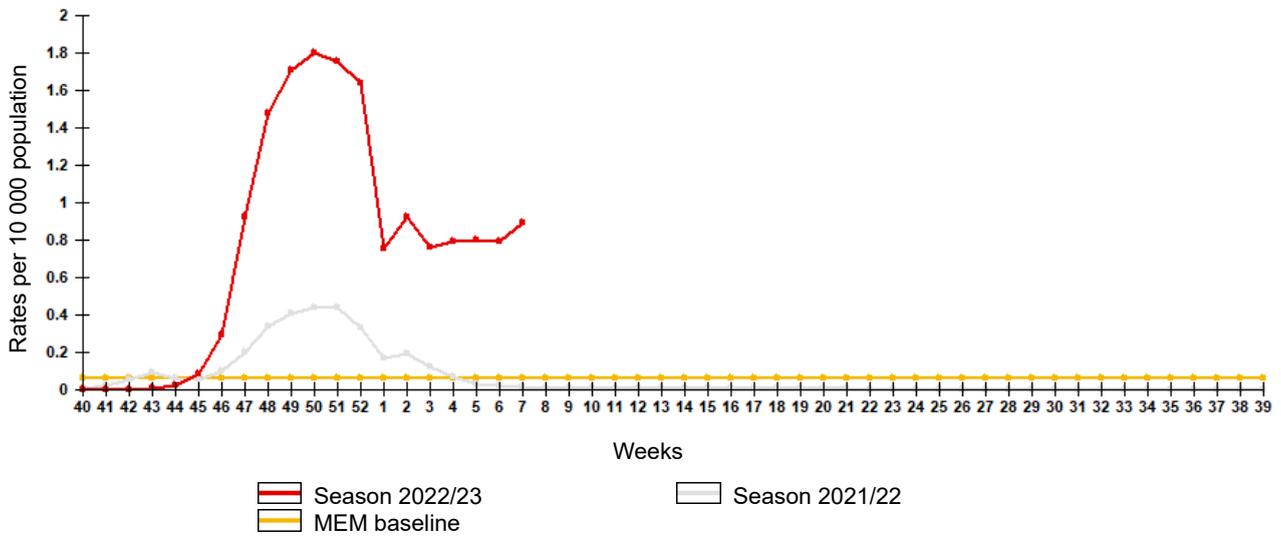
# Influenza and ARI morbidity data

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



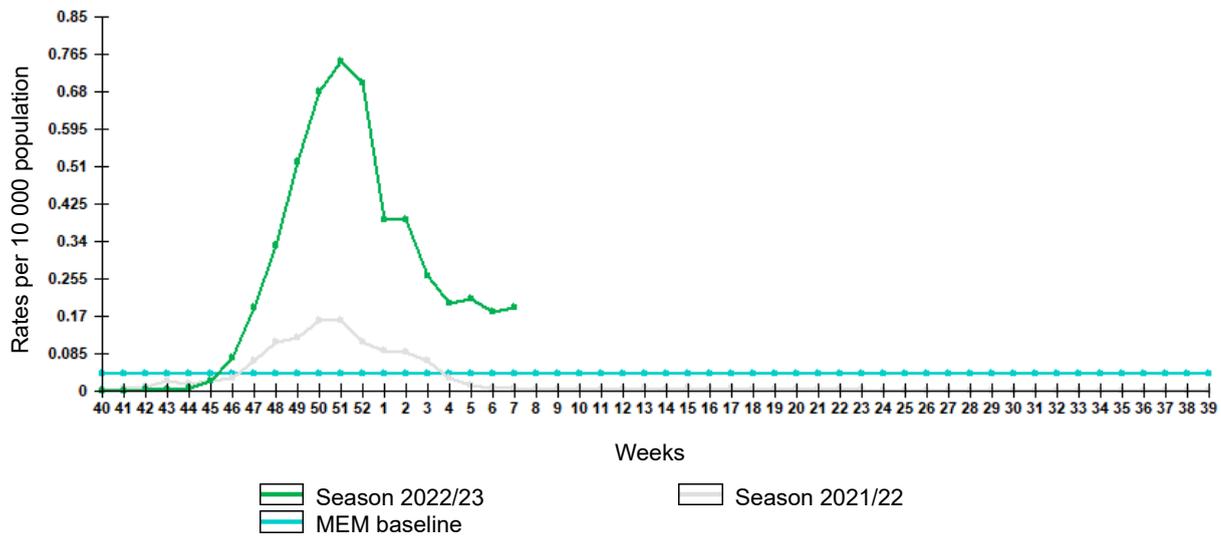
Epidemiological data showed decrease of influenza and other ARI activity in Russia in comparison with previous week. The nationwide IRI and ARI morbidity level (91.4 per 10 000 of population) was higher than national baseline (70.0) by 30.6%.

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



Incidence rate of clinically diagnosed influenza increased comparing to previous week and amounted to 0.89 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 increased comparing to previous week and amounted to 0.19 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 47 RBLs and two WHO NICs. According to these data as a result of 10365 patients investigation 1287 (12.4%) respiratory samples were positive for influenza, including 114 cases of influenza A(H1N1)pdm09 in 25 cities, 6 cases of influenza A(H3N2) in 2 cities, 55 cases of influenza A untyped in 6 cities and 1112 cases of influenza B in 47 cities.

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Fig. 4. Geographic distribution of RT-PCR detected influenza viruses in cities under surveillance in Russia, week 7 of 2023

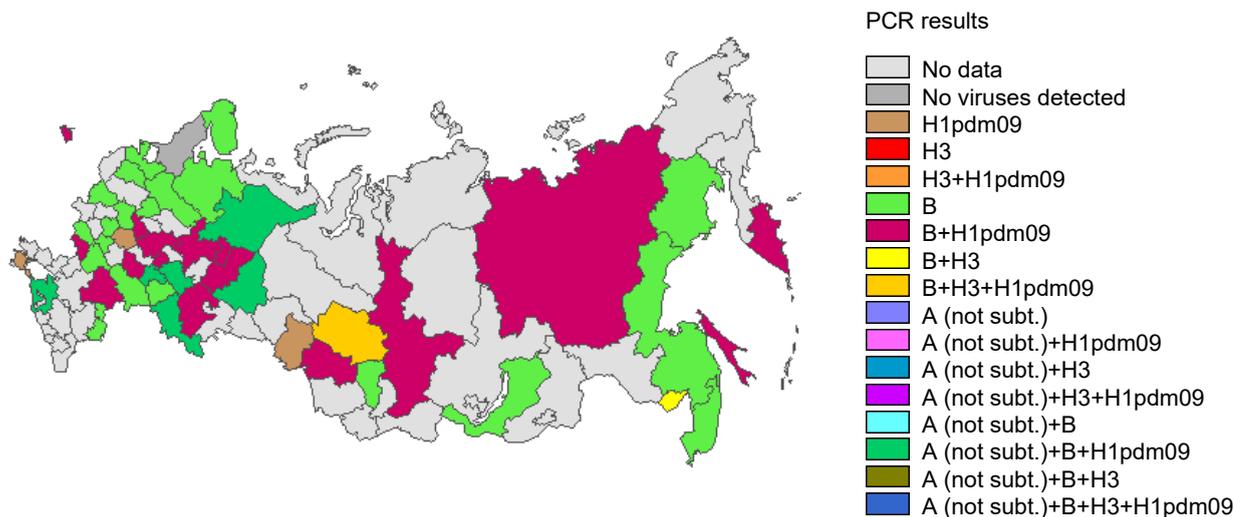


Fig. 5. Monitoring of influenza viruses detection by RT-PCR in Russia, season 2022/23

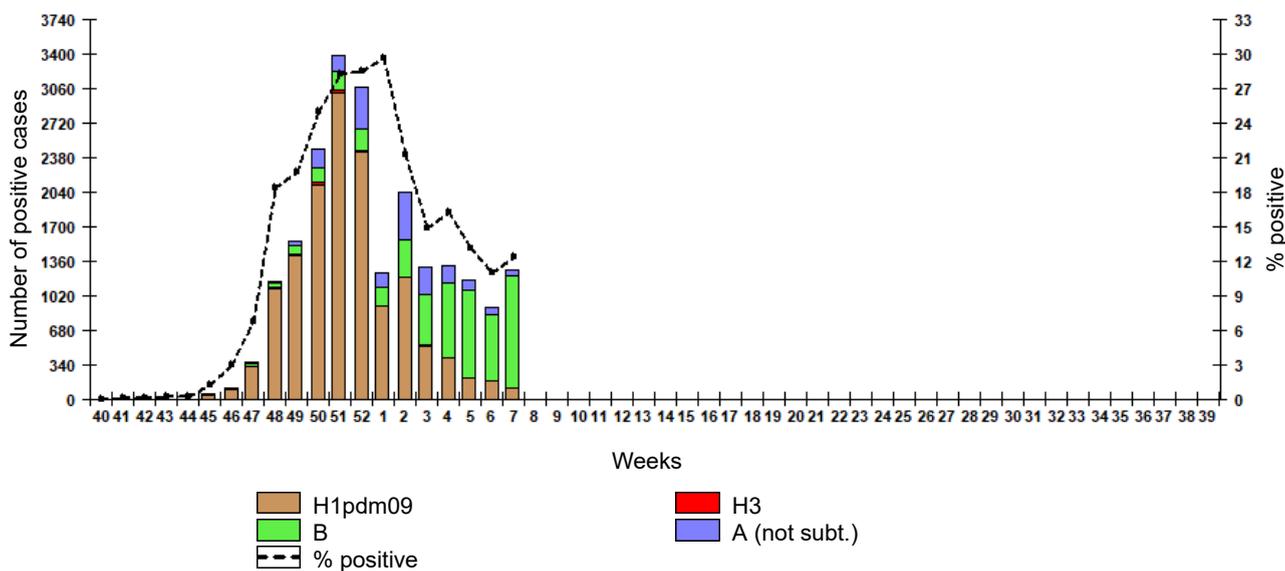
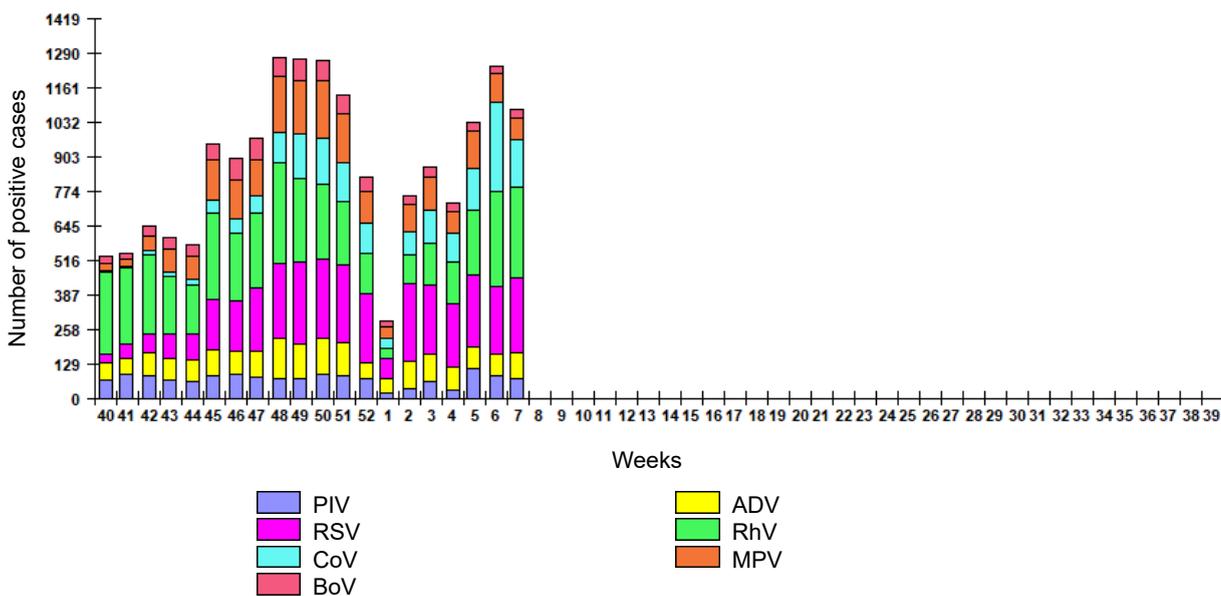


Fig. 6. Monitoring of ARVI detection by RT-PCR in Russia, season 2022/23



**ARVI detections.** The overall proportion of respiratory samples tested positive for other ARVI (PIV, ADV, RSV, RhV, CoV, MPV, BoV) estimated as 11.1% of investigated samples by PCR.

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

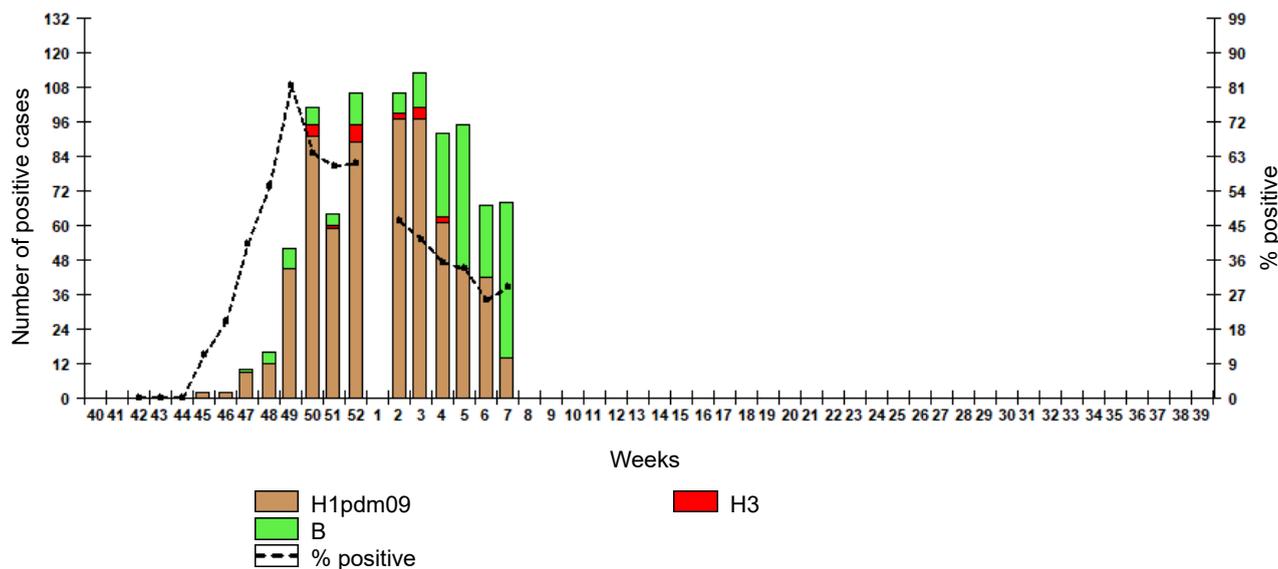
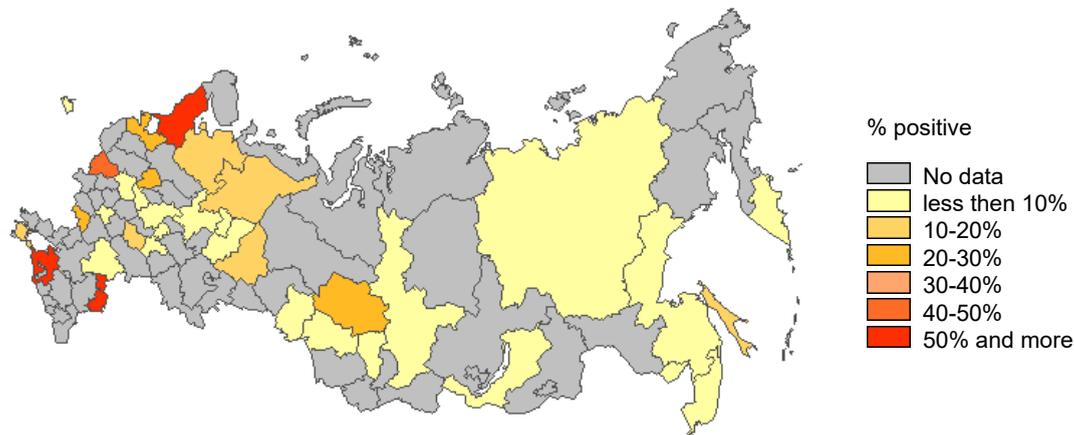


Table 1. Results of influenza and other ARVI detection by RT-PCR in Russia, week 7 of 2023

	Number of specimens / number of positive cases	% positive
<u>Influenza</u>		
Number of specimens tested for influenza	10365	-
Influenza A (not subt.)	55	0,5%
Influenza A(H1)pdm09	114	1,1%
Influenza A(H3)	6	0,06%
Influenza B	1112	10,7%
All influenza	1287	12,4%
<u>Other ARVI</u>		
Number of specimens tested for ARVI	9771	-
PIV	75	0,8%
ADV	95	1,0%
RSV	281	2,9%
RhV	341	3,5%
CoV	179	1,8%
MPV	82	0,8%
BoV	31	0,3%
All ARVI	1084	11,1%
<u>SARS-CoV-2 (COVID-19)</u>		
Number of specimens tested for SARS-CoV-2	12505	-
SARS-CoV-2	1906	15,2%

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



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Table 2. Results of influenza viruses isolation in Russia, week 7 of 2023

	Number of specimens / number of viruses	% isolated viruses
Number of specimens	237	-
Influenza A(H1)pdm09	14	5,9%
Influenza A(H3)	0	0,0%
Influenza B	54	22,8%
All influenza	68	28,7%

## Sentinel influenza surveillance

Clinical samples from 75 SARI patients were investigated by rRT-PCR for influenza, among them 9 (12.0%) cases of influenza, including 8 cases of influenza B and 1 case of influenza A(H1N1)pdm09. Among 45 SARI samples 15 (33.3%) cases positive for ARVI detected including 2 cases of PIV, 6 cases of RSV, 4 cases of RhV, 2 cases of MPV and 1 case of BoV infection. 3 (5.5%) of 55 SARI patients were positive for coronavirus SARS-CoV-2.

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

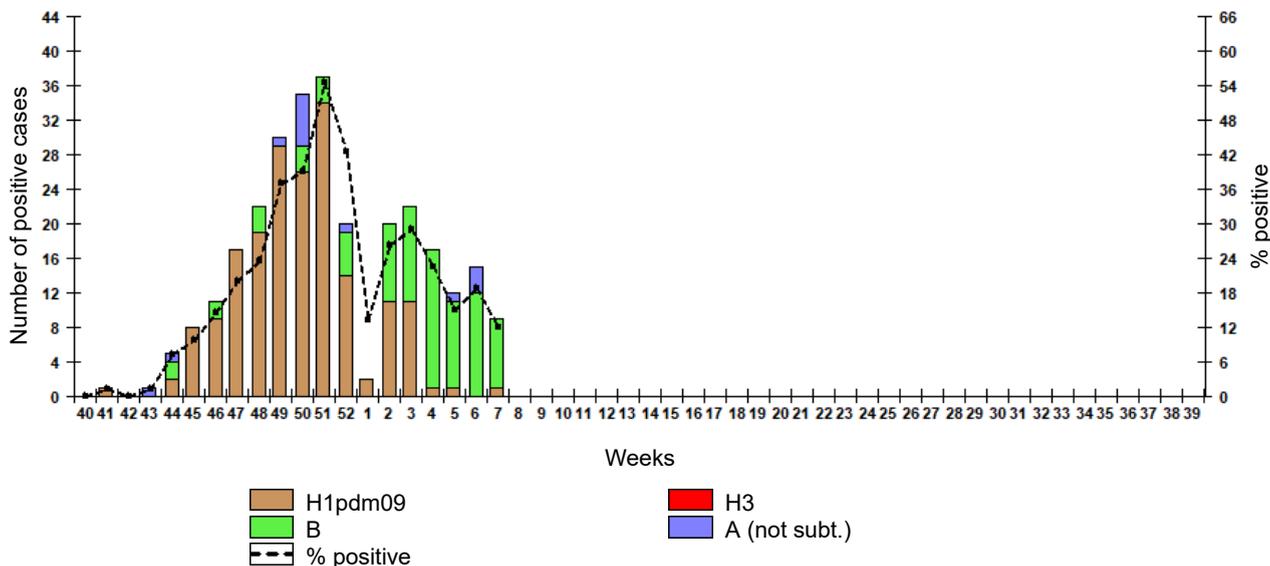


Fig. 10. Monitoring of influenza viruses detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2022/23

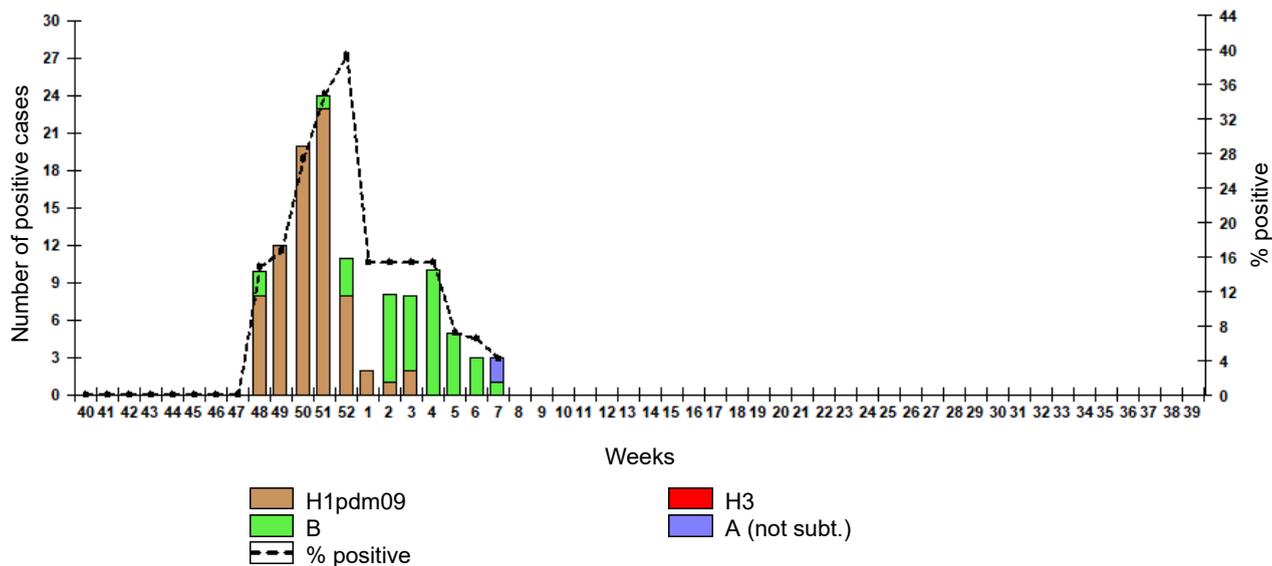


Fig. 11. Monitoring of ARVI detection by RT-PCR among SARI patients in sentinel hospitals, season 2022/23

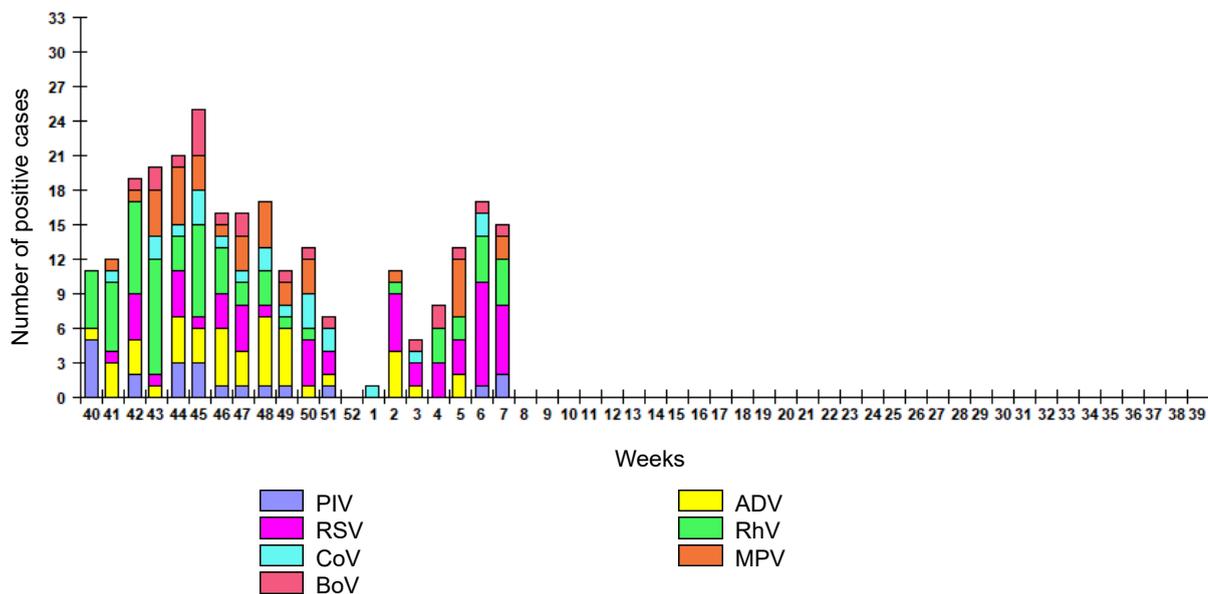


Fig. 12. Monitoring of ARVI detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2022/23

