

## NATIONAL WEEKLY INFLUENZA BULLETIN OF THE RUSSIAN FEDERATION

*week 13 of 2023 (27.03.23 - 02.04.23)*

### 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 (58.7 per 10 000 of population) was lower than national baseline (70.0) by 16.1%.

**Etiology of ILI & ARI.** Among 7470 patients investigation 344 (4.6%) respiratory samples were positive for influenza, including 19 cases of influenza A(H1N1)pdm09 in 7 cities, 2 cases of influenza A untyped in 1 city and 316 cases of influenza B in 35 cities.

21 influenza viruses were isolated on MDCK cell culture, including: 6 influenza A(H1N1)pdm09 viruses in Nizhny Novgorod; 15 influenza B viruses in Moscow (1), Nizhny Novgorod (1), Novosibirsk (2), Saint-Petersburg (11). Since the beginning of the season 1181 influenza viruses were isolated on MDCK cell culture, including: 774 viruses A(H1N1)pdm09, 29 viruses A(H3N2) and 378 viruses B.

**Antigenic characterization.** Since the beginning of the season, 619 influenza A(H1N1)pdm09 viruses have been antigenically characterized by the NICs, including: Moscow (104) and Saint-Petersburg (515), 28 influenza A(H3N2) viruses in Moscow (1) and Saint-Petersburg (27) and 117 influenza B, including: Moscow (14) and Saint-Petersburg (103). 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. 115 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 were 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 11.2% (PCR).

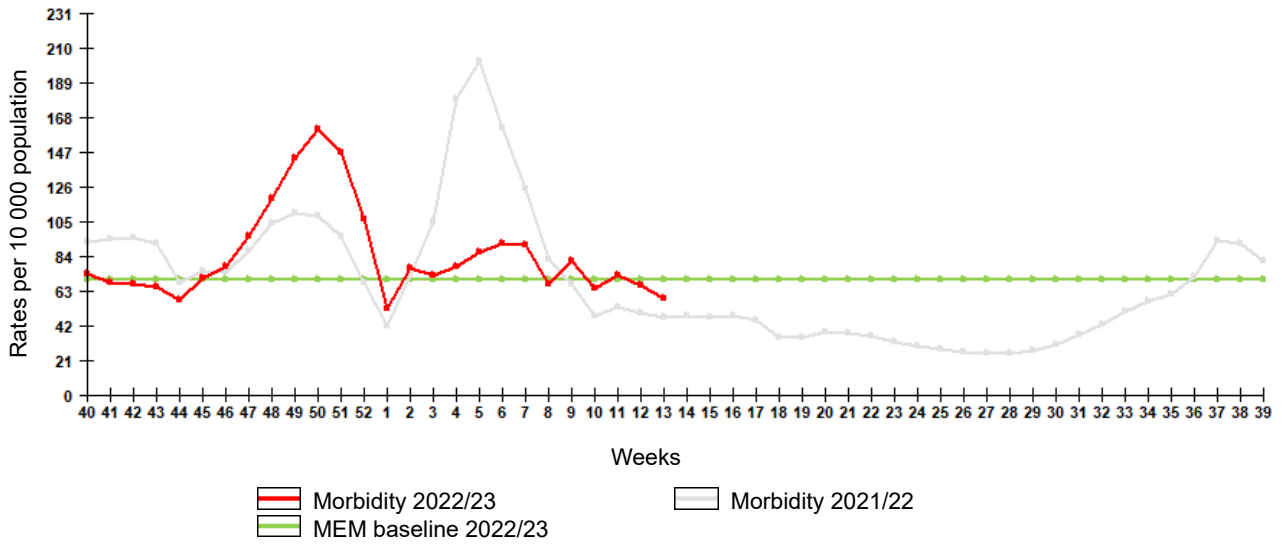
**In sentinel surveillance system** clinical samples from 54 SARI patients were investigated by rRT-PCR for influenza, among them 3 (5.6%) cases of influenza B. Among 44 SARI samples 9 (20.5%) cases positive for ARVI detected including 1 case of PIV, 1 case of ADV, 1 case of RSV, 2 cases of CoV and 4 cases of MPV infection. 5 (9.3%) of 54 SARI patients were positive for coronavirus SARS-CoV-2.

Clinical samples from 68 ILI/ARI patients were investigated for influenza by rRT-PCR, among them no positive cases recognized. Among 50 ILI/ARI samples 12 (24.0%) cases positive for ARVI detected including 3 cases of PIV, 5 cases of RhV, 3 cases of CoV and 1 case of MPV infection. 9 (13.2%) of 68 ILI/ARI patients were positive for coronavirus SARS-CoV-2.

**COVID-19.** Totally 22 689 110 cases and 397 459 deaths associated with COVID-19 were registered in Russia including 9 371 cases and 39 deaths in last 24 hours (on 12:00 of 06.04.2023). According to the data obtained by NIC in Saint-Petersburg totally 11 849 clinical samples were PCR investigated in last week. Among them coronavirus SARS-CoV-2 detected in 1637 (13.8%) cases.

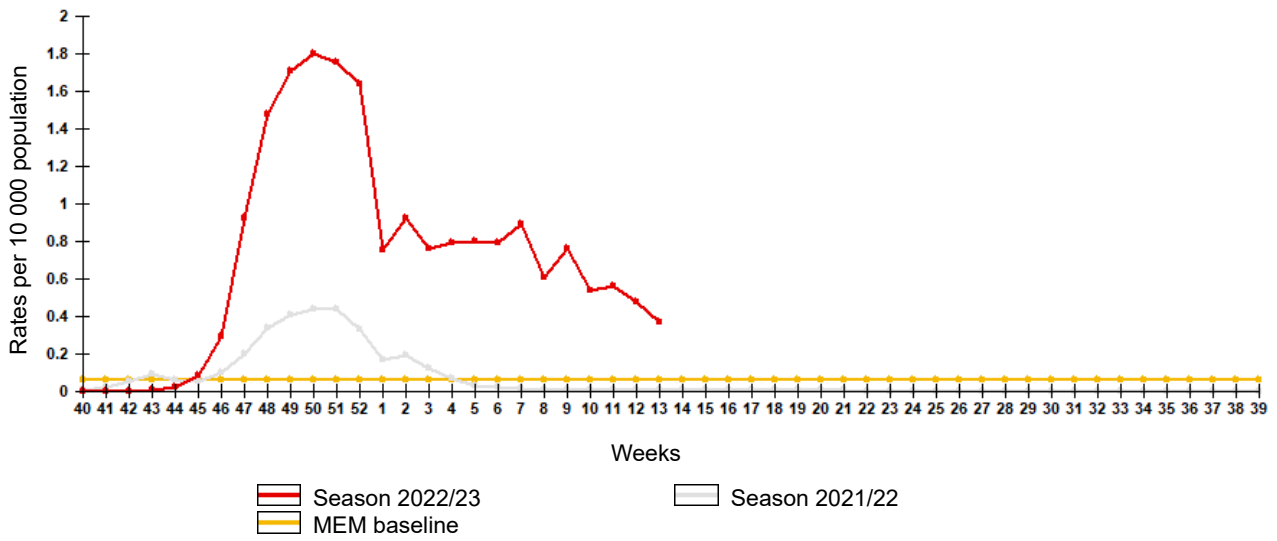
# Influenza and ARI morbidity data

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



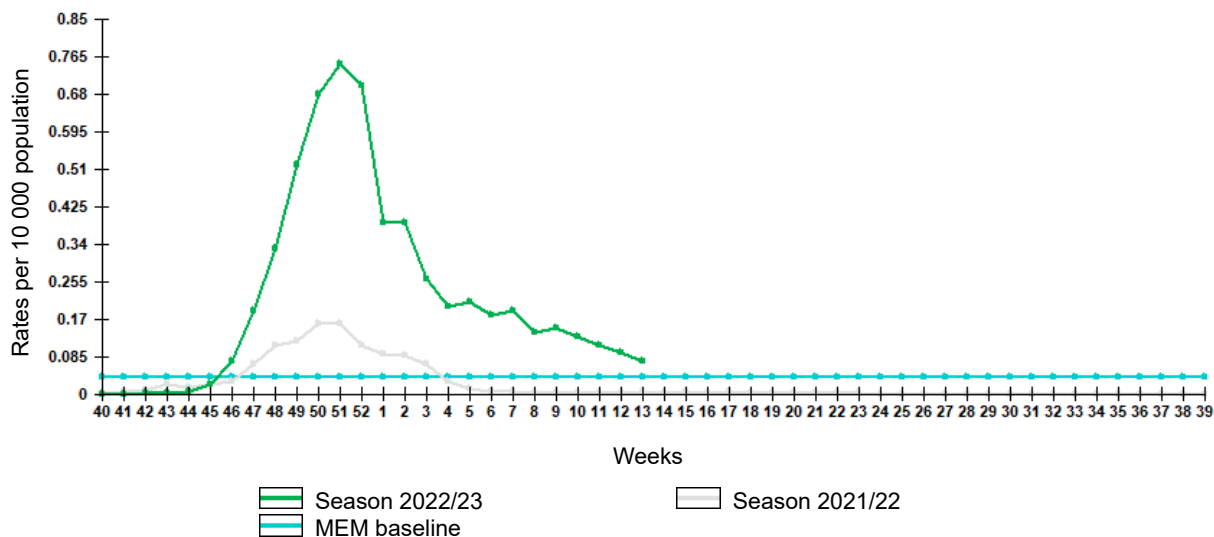
Epidemiological data showed decrease of influenza and other ARI activity in Russia in comparison with previous week. The nationwide IRI and ARI morbidity level (58.7 per 10 000 of population) was lower than national baseline (70.0) by 16.1%.

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 0.37 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 0.075 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 43 RBLs and two WHO NICs. According to these data as a result of 7470 patients investigation 344 (4.6%) respiratory samples were positive for influenza, including 19 cases of influenza A(H1N1)pdm09 in 7 cities, 2 cases of influenza A unsubtype in 1 city and 316 cases of influenza B in 35 cities.

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Fig. 4. Geographic distribution of RT-PCR detected influenza viruses in cities under surveillance in Russia, week 13 of 2023

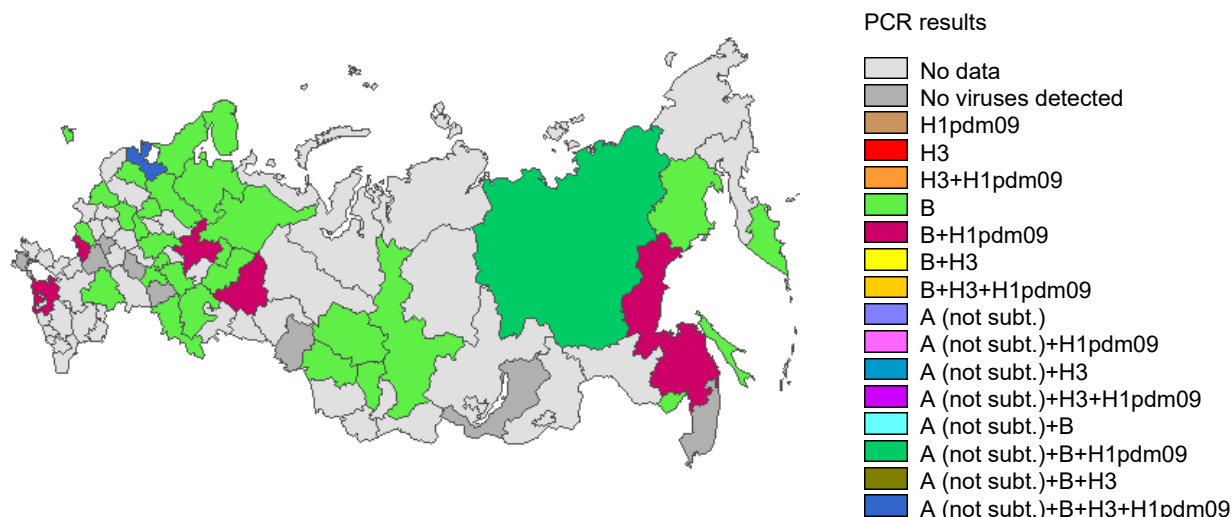


Fig. 5. Monitoring of influenza viruses detection by RT-PCR in Russia, season 2022/23

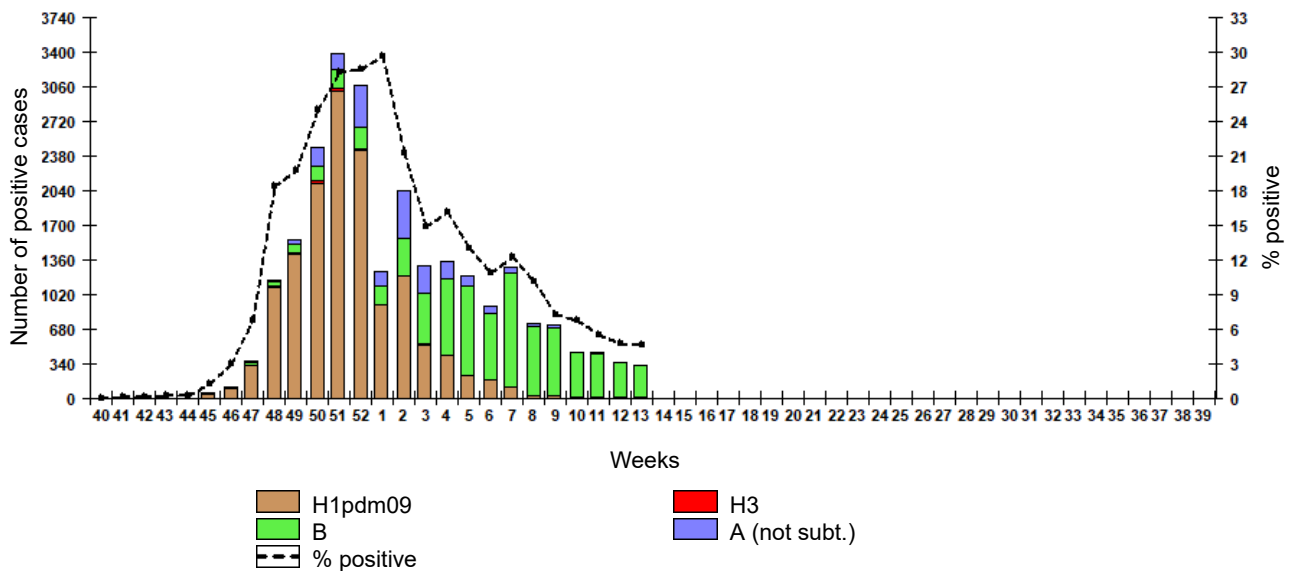
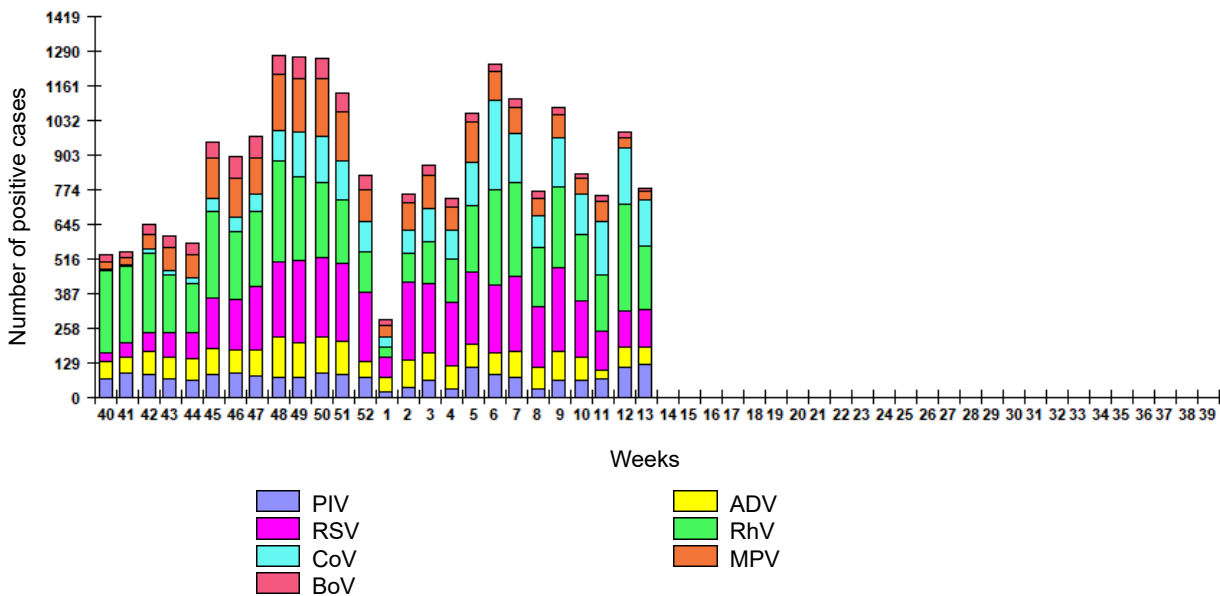


Fig. 6. Monitoring of ARVI detection by RT-PCR in Russia, season 2022/23



**ARVI detections.** The overall proportion of respiratory samples tested positive for other ARVI (PIV, ADV, RSV, RhV, CoV, MPV, BoV) estimated as **11.2%** of investigated samples by PCR.

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

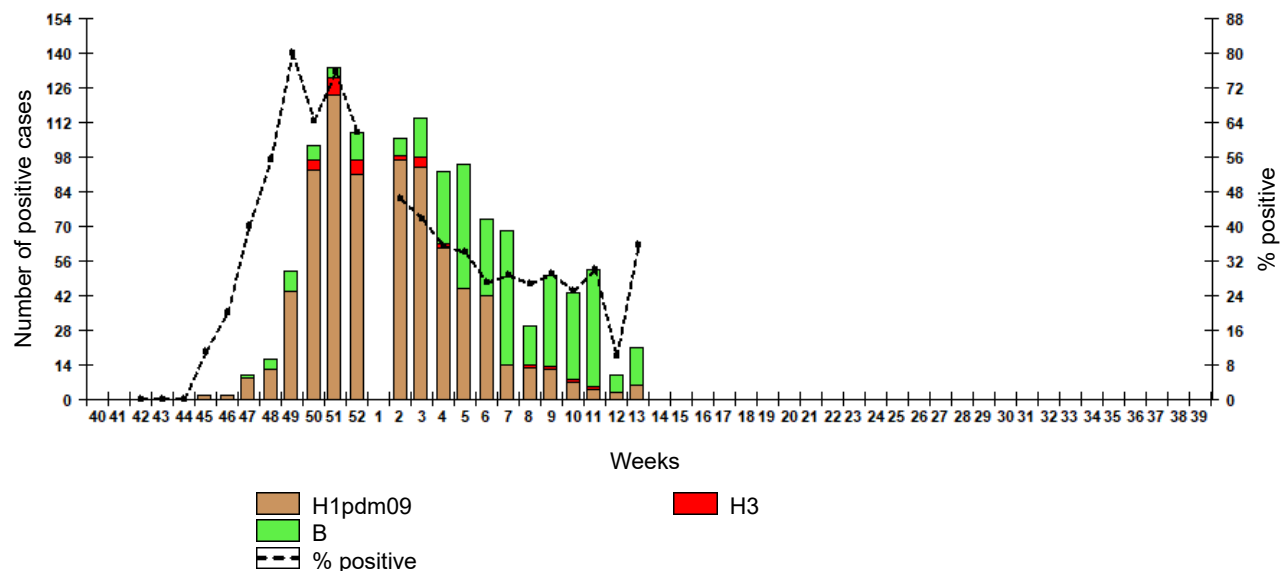
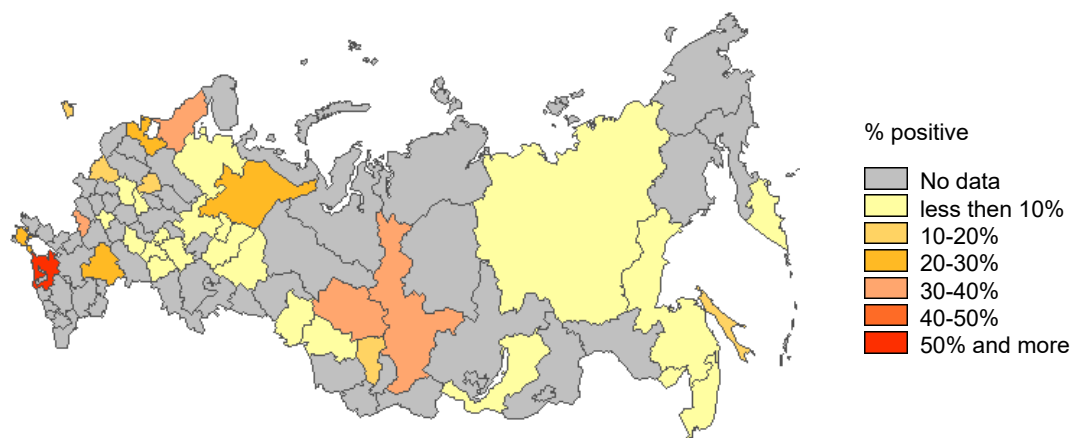


Table 1. Results of influenza and other ARVI detection by RT-PCR in Russia, week 13 of 2023

	Number of specimens / number of positive cases	% positive
<u>Influenza</u>		
Number of specimens tested for influenza	7470	-
Influenza A (not subt.)	7	0,09%
Influenza A(H1)pdm09	19	0,3%
Influenza A(H3)	2	0,03%
Influenza B	316	4,2%
All influenza	344	4,6%
<u>Other ARVI</u>		
Number of specimens tested for ARVI	6953	-
PIV	123	1,8%
ADV	62	0,9%
RSV	141	2,0%
RhV	237	3,4%
CoV	172	2,5%
MPV	33	0,5%
BoV	12	0,2%
All ARVI	780	11,2%
<u>SARS-CoV-2 (COVID-19)</u>		
Number of specimens tested for SARS-CoV-2	11849	-
SARS-CoV-2	1637	13,8%

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



**COVID-19.** Totally 22 689 110 cases and 397 459 deaths associated with COVID-19 were registered in Russia including 9 371 cases and 39 deaths in last 24 hours (on 12:00 of 06.04.2023). According to the data obtained by NIC in Saint-Petersburg totally 11 849 clinical samples were PCR investigated in last week. Among them coronavirus SARS-CoV-2 detected in 1637 (13.8%) cases.

Table 2. Results of influenza viruses isolation in Russia, week 13 of 2023

	Number of specimens / number of viruses	% isolated viruses
Number of specimens	59	-
Influenza A(H1)pdm09	6	10,2%
Influenza A(H3)	0	0,0%
Influenza B	15	25,4%
All influenza	21	35,6%

## Sentinel influenza surveillance

Clinical samples from 54 SARI patients were investigated by rRT-PCR for influenza, among them 3 (5.6%) cases of influenza B. Among 44 SARI samples 9 (20.5%) cases positive for ARVI detected including 1 case of PIV, 1 case of ADV, 1 case of RSV, 2 cases of CoV and 4 cases of MPV infection. 5 (9.3%) of 54 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

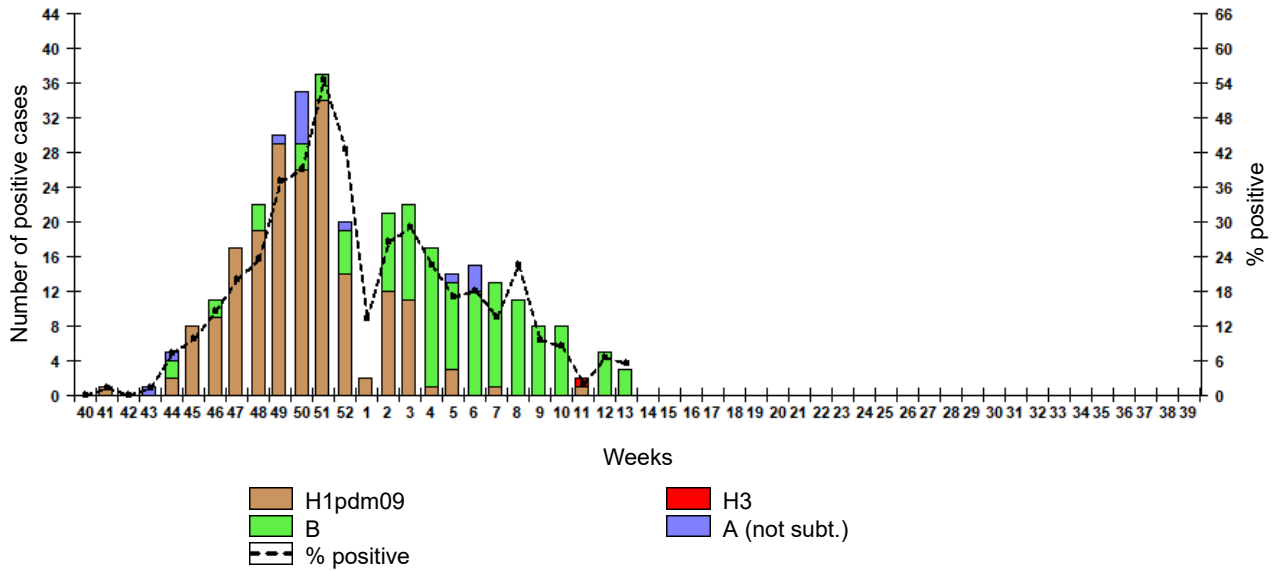


Fig. 10. Monitoring of influenza viruses detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2022/23

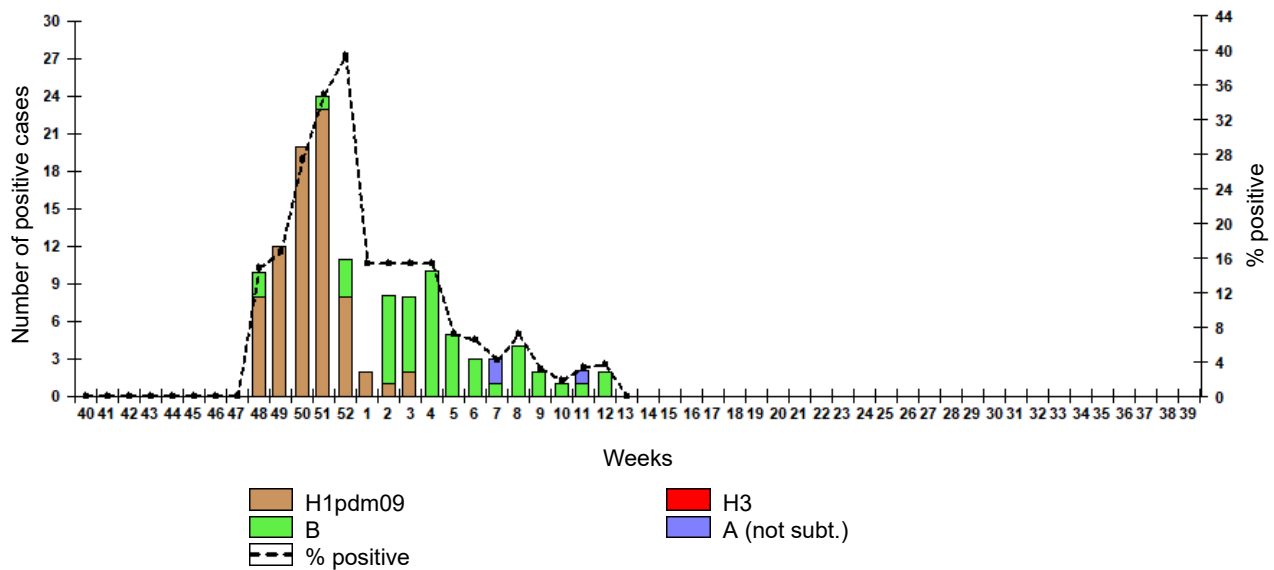


Fig. 11. Monitoring of ARVI detection by RT-PCR among SARI patients in sentinel hospitals, season 2022/23

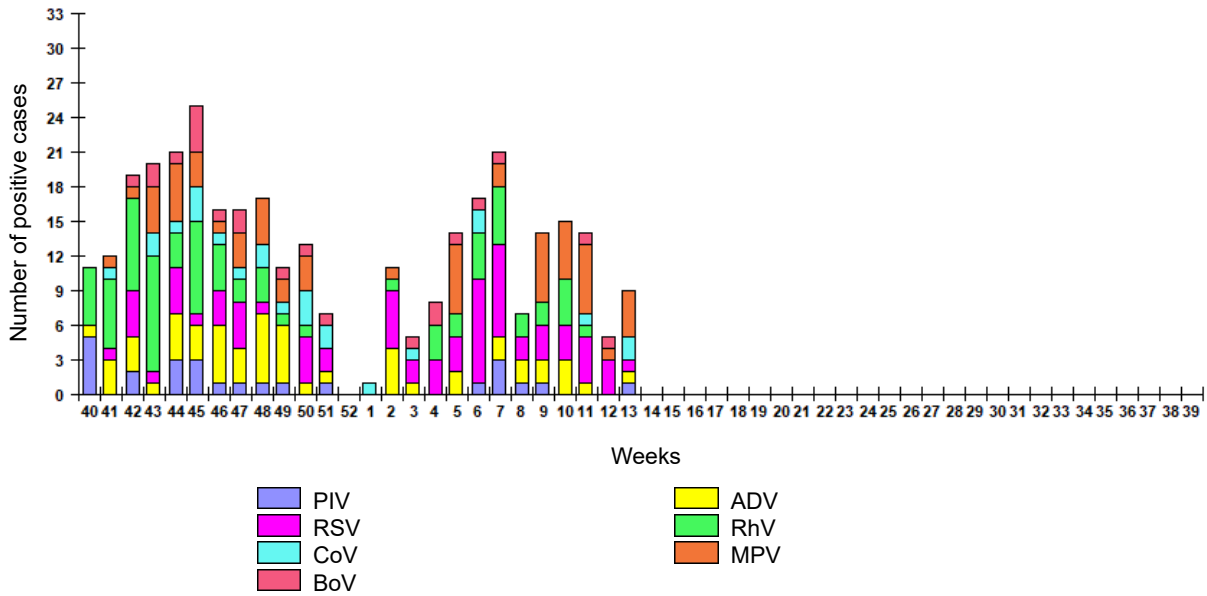


Fig. 12. Monitoring of ARVI detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2022/23

