

NATIONAL WEEKLY INFLUENZA BULLETIN OF THE RUSSIAN FEDERATION

week 10 of 2023 (06.03.23 - 12.03.23)

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 (64.3 per 10 000 of population) was lower than national baseline (70.0) by 8.1%.

Etiology of ILI & ARI. Among 6498 patients investigation 453 (7.0%) respiratory samples were positive for influenza, including 13 cases of influenza A(H1N1)pdm09 in 6 cities, 4 cases of influenza A(H3N2) in 3 cities, 3 cases of influenza A untyped in 3 cities and 433 cases of influenza B in 36 cities.

51 influenza viruses were isolated on MDCK cell culture, including: 7 influenza A(H1N1)pdm09 viruses in Veliky Novgorod (1), Vologda (2), Yekaterinburg (3), Krasnoyarsk (1); 1 influenza A(H3N2) virus in Yekaterinburg; 43 influenza B viruses in Astrakhan (2), Birobidzhan (8), Vologda (1), Yekaterinburg (5), Krasnoyarsk (1), Moscow (1), Novosibirsk (1), Saint-Petersburg (19), Khabarovsk (5). Since the beginning of the season 1031 influenza viruses were isolated on MDCK cell culture, including: 697 viruses A(H1N1)pdm09, 22 viruses A(H3N2) and 312 viruses B.

Antigenic characterization. Since the beginning of the season, 500 influenza A(H1N1)pdm09 viruses have been antigenically characterized by the NICs, including: Moscow (95) and Saint-Petersburg (405), 24 influenza A(H3N2) viruses in Saint-Petersburg and 87 influenza B, including: Moscow (8) and Saint-Petersburg (79). 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. 85 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 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 280 influenza viruses to neuraminidase inhibitors (oseltamivir, zanamivir) was studied in two NICs (Moscow, St. Petersburg), including 224 A(H1N1)pdm09 viruses and 6 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 **13.0%** (PCR).

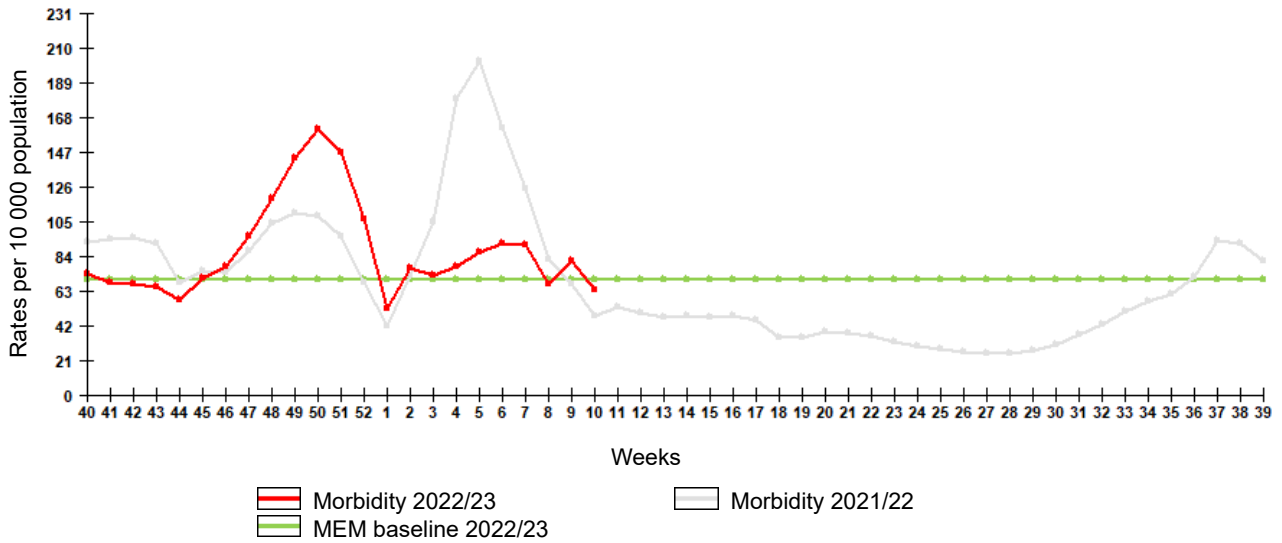
In sentinel surveillance system clinical samples from 78 SARI patients were investigated by rRT-PCR for influenza, among them 6 (7.7%) cases of influenza B. Among 68 SARI samples 14 (20.6%) cases positive for ARVI detected including 3 cases of ADV, 3 cases of RSV, 3 cases of RhV and 5 cases of MPV infection. 3 (4.4%) of 68 SARI patients were positive for coronavirus SARS-CoV-2.

Clinical samples from 43 ILI/ARI patients were investigated for influenza by rRT-PCR, among them 1 (2.3%) case of influenza B. Among 43 ILI/ARI samples 8 (18.6%) cases positive for ARVI detected including 1 case of ADV, 1 case of RSV, 3 cases of RhV, 2 cases of CoV and 1 case of MPV infection. 1 (2.3%) of 43 ILI/ARI patients were positive for coronavirus SARS-CoV-2.

COVID-19. Totally 22 467 942 cases and 396 734 deaths associated with COVID-19 were registered in Russia including 13 009 cases and 38 deaths in last 24 hours (on 12:00 of 16.03.2023). According to the data obtained by NIC in Saint-Petersburg totally 12 836 clinical samples were PCR investigated in last week. Among them coronavirus SARS-CoV-2 detected in 1751 (13.6%) cases.

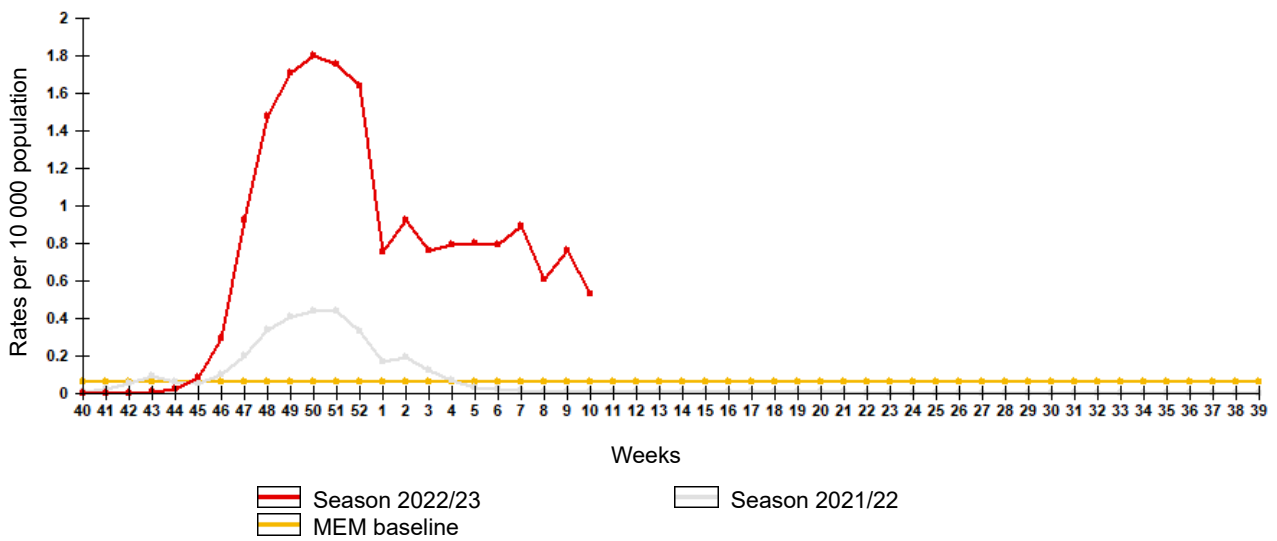
Influenza and ARI morbidity data

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



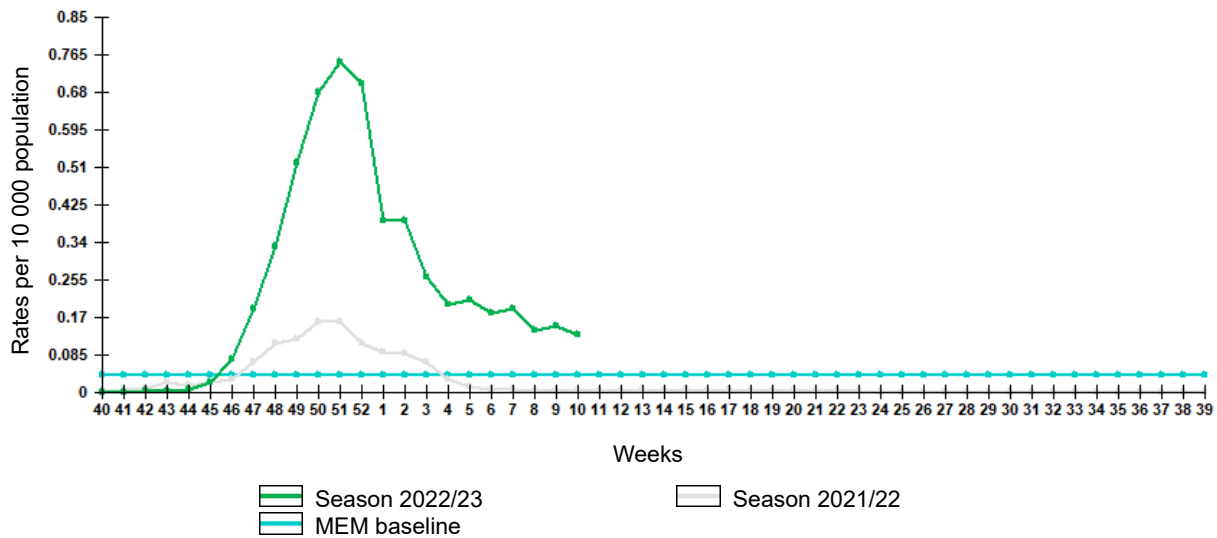
Epidemiological data showed decrease of influenza and other ARI activity in Russia in comparison with previous week. The nationwide IRI and ARI morbidity level (64.3 per 10 000 of population) was lower than national baseline (70.0) by 8.1%.

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 0.53 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 0.13 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 6498 patients investigation 453 (7.0%) respiratory samples were positive for influenza, including 13 cases of influenza A(H1N1)pdm09 in 6 cities, 4 cases of influenza A(H3N2) in 3 cities, 3 cases of influenza A untyped in 3 cities and 433 cases of influenza B in 36 cities.

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Fig. 4. Geographic distribution of RT-PCR detected influenza viruses in cities under surveillance in Russia, week 10 of 2023

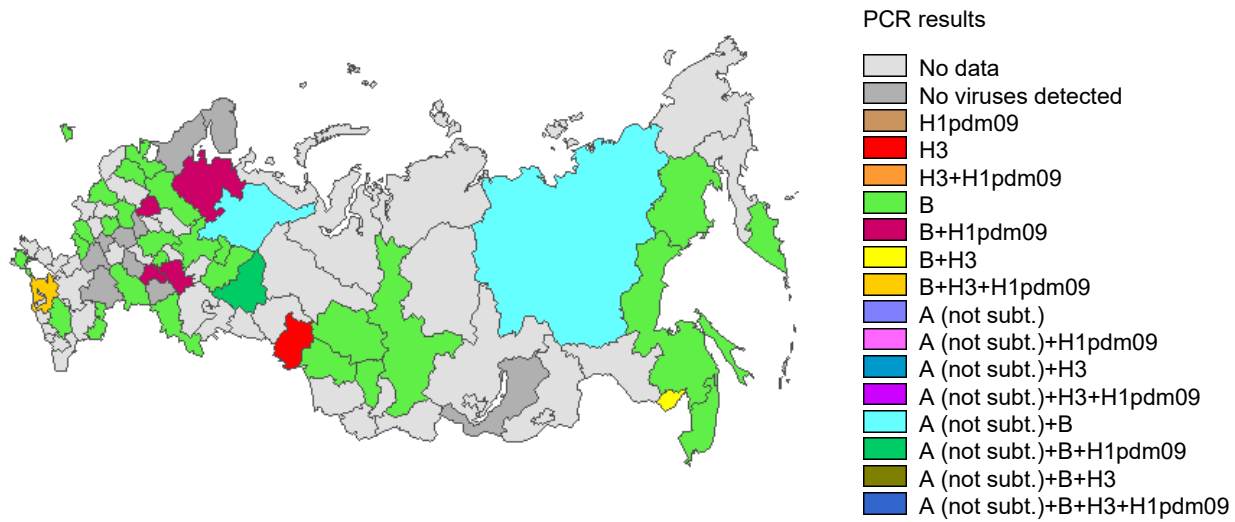


Fig. 5. Monitoring of influenza viruses detection by RT-PCR in Russia, season 2022/23

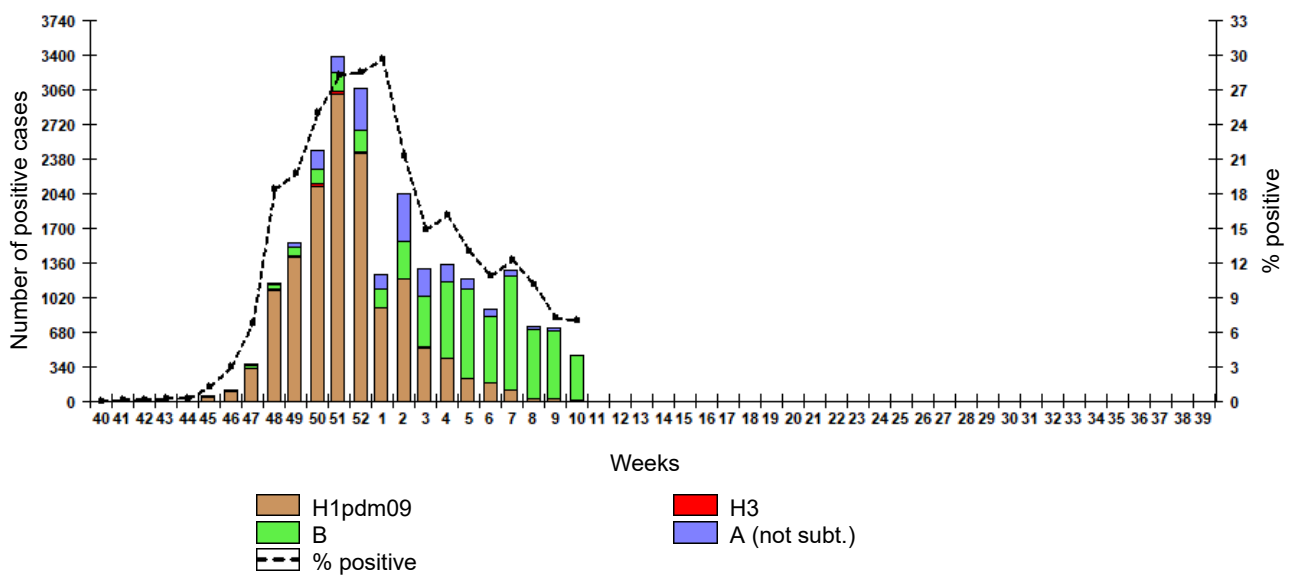
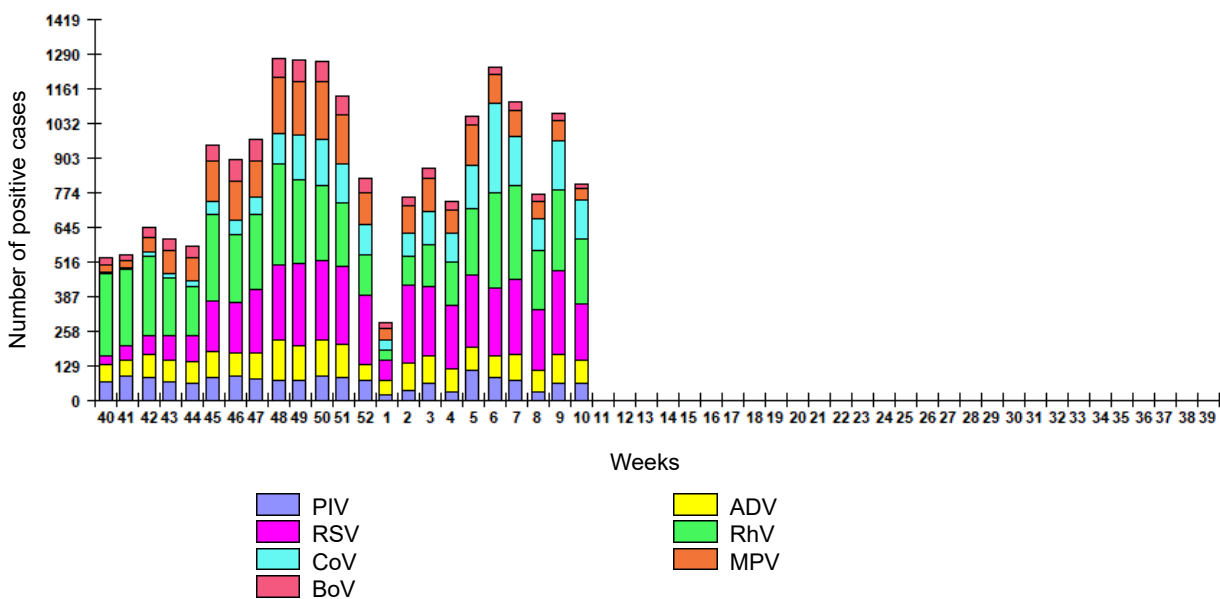


Fig. 6. Monitoring of ARVI detection by RT-PCR in Russia, season 2022/23



ARVI detections. The overall proportion of respiratory samples tested positive for other ARVI (PIV, ADV, RSV, RhV, CoV, MPV, BoV) estimated as **13.0%** of investigated samples by PCR.

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

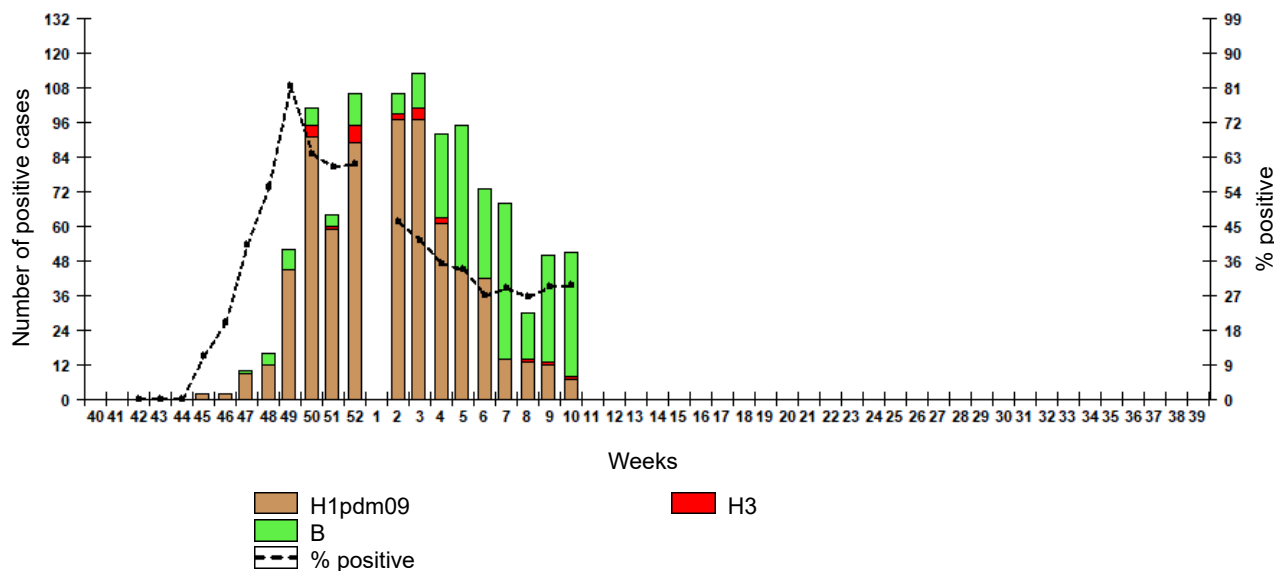


Table 1. Results of influenza and other ARVI detection by RT-PCR in Russia, week 10 of 2023

	Number of specimens / number of positive cases	% positive
<u>Influenza</u>		
Number of specimens tested for influenza	6498	-
Influenza A (not subt.)	3	0,05%
Influenza A(H1)pdm09	13	0,2%
Influenza A(H3)	4	0,06%
Influenza B	433	6,7%
All influenza	453	7,0%
<u>Other ARVI</u>		
Number of specimens tested for ARVI	6247	-
PIV	63	1,0%
ADV	88	1,4%
RSV	212	3,4%
RhV	243	3,9%
CoV	144	2,3%
MPV	44	0,7%
BoV	16	0,3%
All ARVI	810	13,0%
<u>SARS-CoV-2 (COVID-19)</u>		
Number of specimens tested for SARS-CoV-2	12836	-
SARS-CoV-2	1751	13,6%

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



COVID-19. Totally 22 467 942 cases and 396 734 deaths associated with COVID-19 were registered in Russia including 13 009 cases and 38 deaths in last 24 hours (on 12:00 of 16.03.2023). According to the data obtained by NIC in Saint-Petersburg totally 12 836 clinical samples were PCR investigated in last week. Among them coronavirus SARS-CoV-2 detected in 1751 (13.6%) cases.

Table 2. Results of influenza viruses isolation in Russia, week 10 of 2023

	Number of specimens / number of viruses	% isolated viruses
Number of specimens	172	-
Influenza A(H1)pdm09	7	4,1%
Influenza A(H3)	1	0,6%
Influenza B	43	25,0%
All influenza	51	29,7%

Sentinel influenza surveillance

Clinical samples from 78 SARI patients were investigated by rRT-PCR for influenza, among them 6 (7.7%) cases of influenza B. Among 68 SARI samples 14 (20.6%) cases positive for ARVI detected including 3 cases of ADV, 3 cases of RSV, 3 cases of RhV and 5 cases of MPV infection. 3 (4.4%) of 68 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

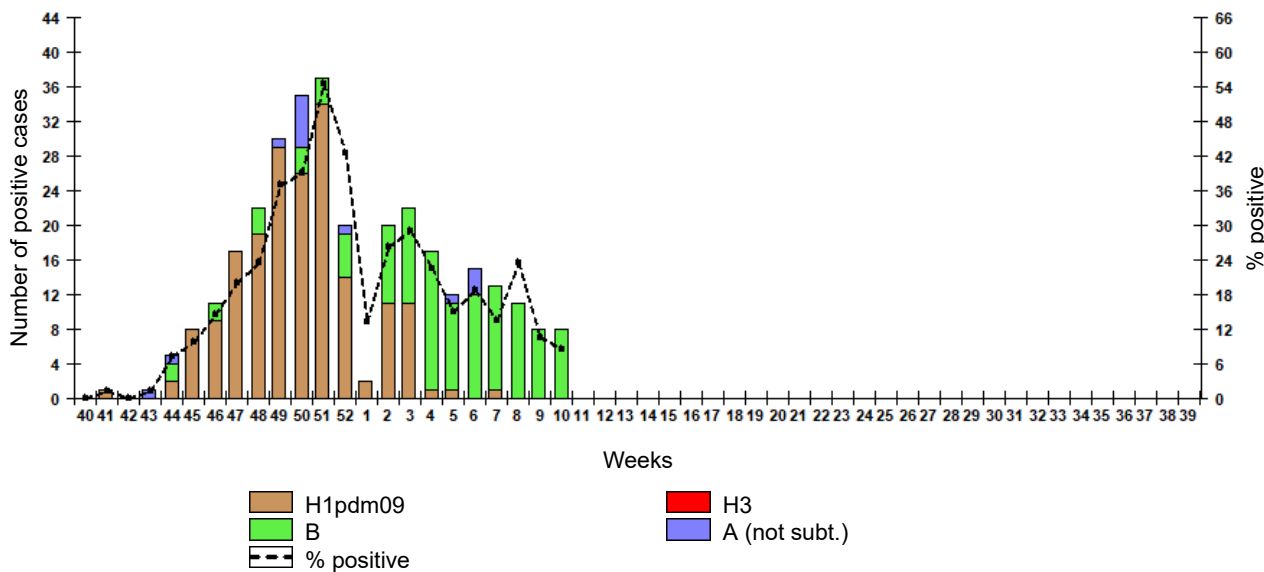


Fig. 10. Monitoring of influenza viruses detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2022/23

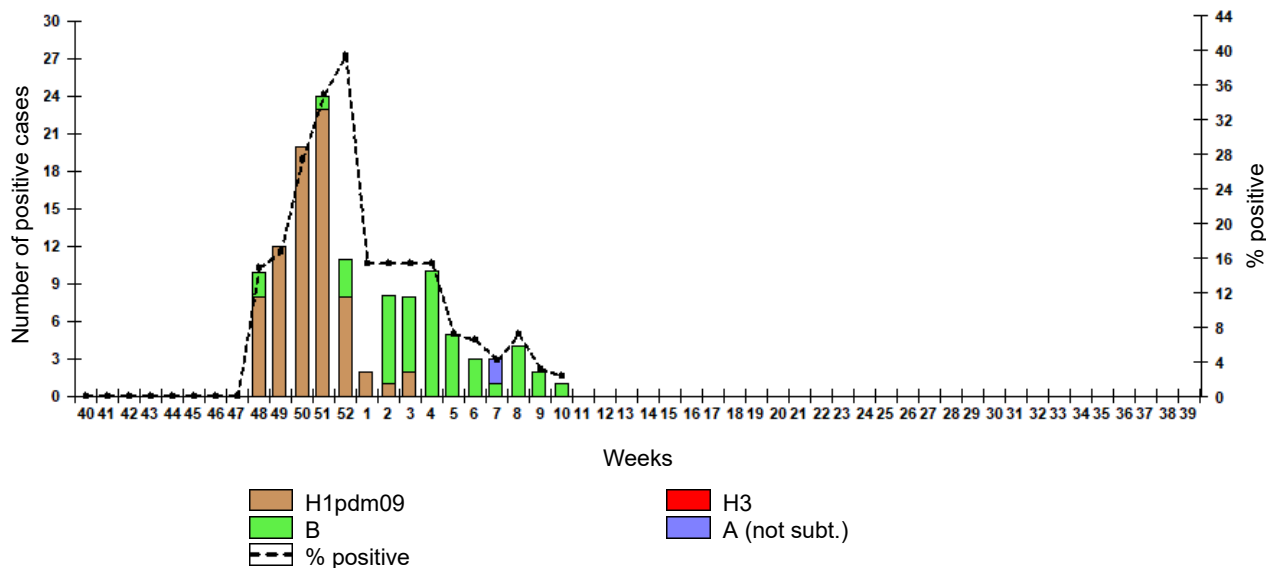


Fig. 11. Monitoring of ARVI detection by RT-PCR among SARI patients in sentinel hospitals, season 2022/23

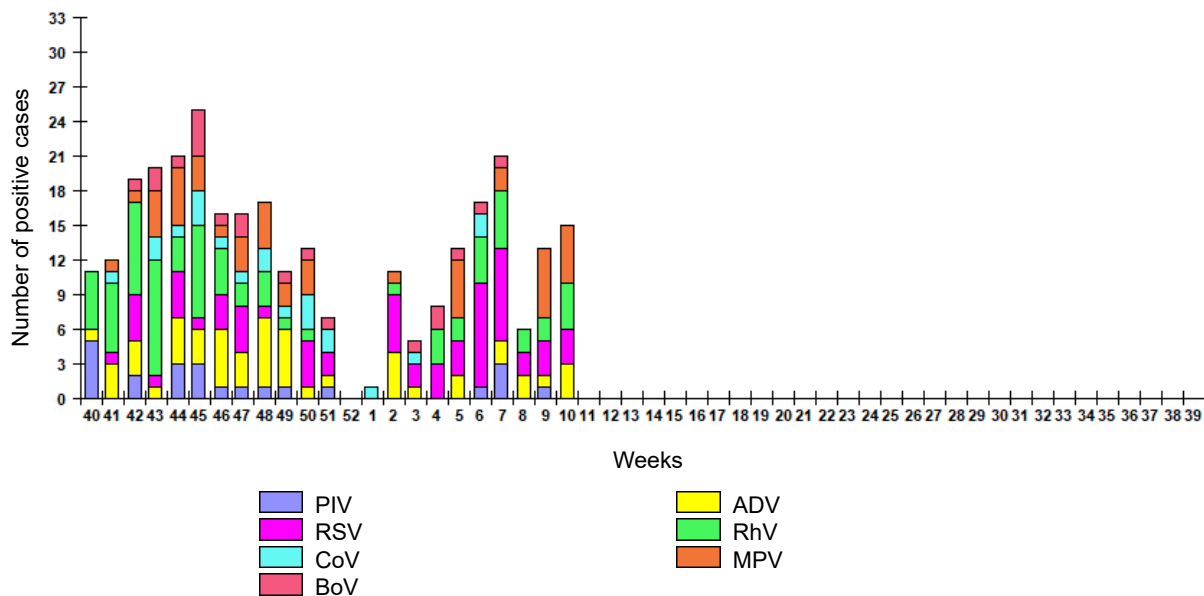


Fig. 12. Monitoring of ARVI detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2022/23

