

NATIONAL WEEKLY INFLUENZA BULLETIN OF THE RUSSIAN FEDERATION

week 6 of 2023 (06.02.23 - 12.02.23)

Summary.

Influenza and ARI incidence data. Influenza and other ARI activity increase of influenza and other ARI activity in Russia in comparison with previous week. The nationwide ILI and ARI morbidity level (91.5 per 10 000 of population) was higher than national baseline (70.0) by 30.7%.

Etiology of ILI & ARI. Among 8284 patients investigation 909 (11.0%) respiratory samples were positive for influenza, including 188 cases of influenza A(H1N1)pdm09 in 34 cities, 3 cases of influenza A(H3N2) in 1 city, 69 cases of influenza A untyped in 7 cities and 649 cases of influenza B in 40 cities.

67 influenza viruses were isolated on MDCK cell culture, including: 42 influenza A(H1N1)pdm09 viruses in Vladivostok (1), Yekaterinburg (3), Moscow (10), Orenburg (5), Saint-Petersburg (5), Stavropol (15), Tomsk (3); 25 influenza B viruses in Astrakhan (3), Vladivostok (10), Saint-Petersburg (10), Orenburg (2). Since the beginning of the season 822 influenza viruses were isolated on MDCK cell culture, including: 650 viruses A(H1N1)pdm09, 19 viruses A(H3N2) and 153 viruses B.

Antigenic characterization. Since the beginning of the season, 333 influenza A(H1N1)pdm09 viruses have been antigenically characterized by the NICs, including: Moscow (81) and Saint-Petersburg (252), 10 influenza A(H3N2) viruses in Saint-Petersburg and 58 influenza B, including: Moscow (7) and Saint-Petersburg (51). All viruses A(H1N1)pdm09 were antigenically similar to reference strain A/Victoria/2570/2019 (H1N1)pdm09. All A(H3N2) strains were similar to the reference virus A/Darwin/9/2021. 56 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. All 58 influenza A(H1N1)pdm09 viruses analysed by the NIC (Saint-Petersburg) were susceptible 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 16.5% (PCR).

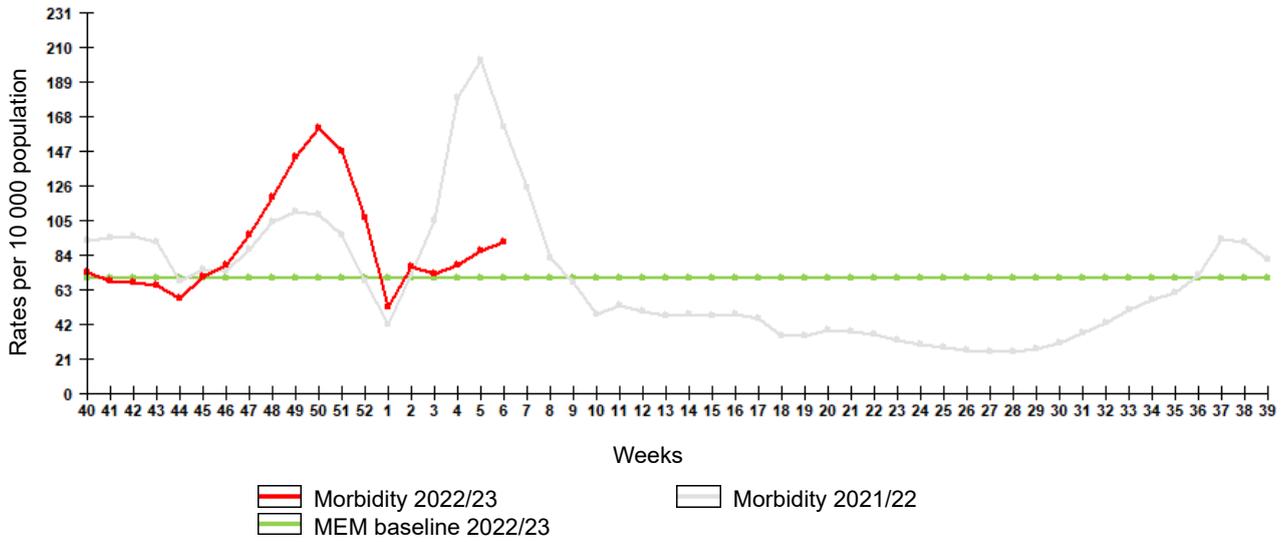
In sentinel surveillance system clinical samples from 72 SARI patients were investigated by rRT-PCR for influenza, among them 14 (19.4%) cases of influenza, including 12 cases of influenza B and 2 cases of influenza A untyped. Among 62 SARI samples 14 (22.6%) cases positive for ARVI detected including 7 cases of RSV, 4 cases of RhV, 2 cases of CoV and 1 case of BoV infection. 2 (2.8%) of 72 SARI patients were positive for coronavirus SARS-CoV-2.

Clinical samples from 40 ILI/ARI patients were investigated for influenza by rRT-PCR, among them 3 (7.5%) cases of influenza B. Among 35 ILI/ARI samples 5 (14.3%) cases positive for ARVI detected including 1 case of ADV, 3 cases of RhV and 1 case of MPV infection. 4 (10.0%) of 40 ILI/ARI patients were positive for coronavirus SARS-CoV-2.

COVID-19. Totally 22 121 725 cases and 395 689 deaths associated with COVID-19 were registered in Russia including 14 740 cases and 37 deaths in last 24 hours (on 12:00 of 16.02.2023). According to the data obtained by NIC in Saint-Petersburg totally 11 656 clinical samples were PCR investigated in last week. Among them coronavirus SARS-CoV-2 detected in 1480 (12.7%) cases.

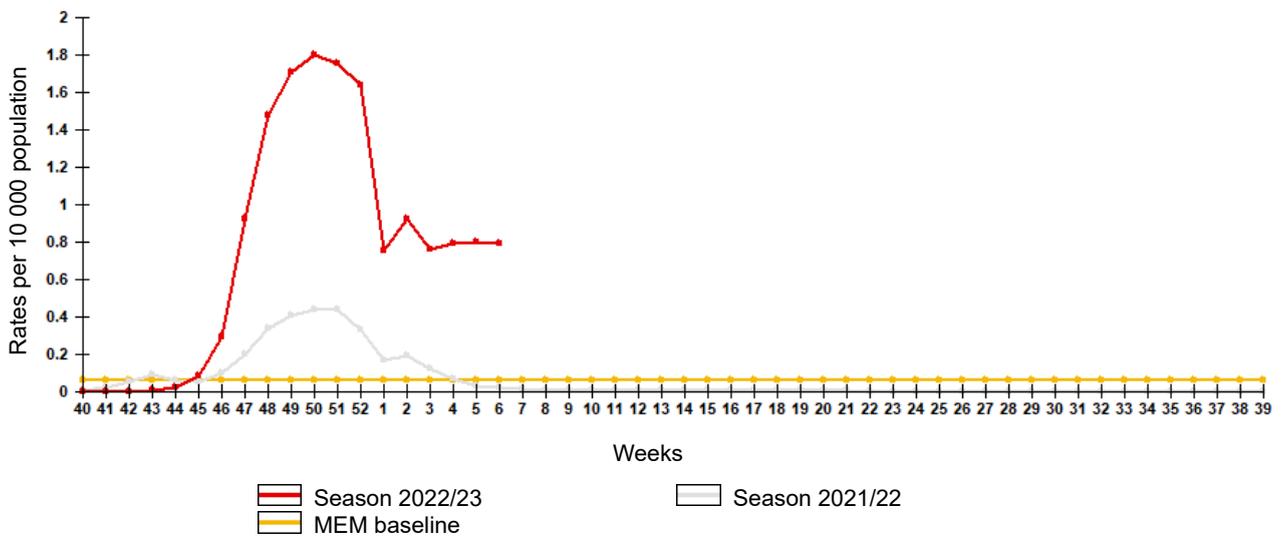
Influenza and ARI morbidity data

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



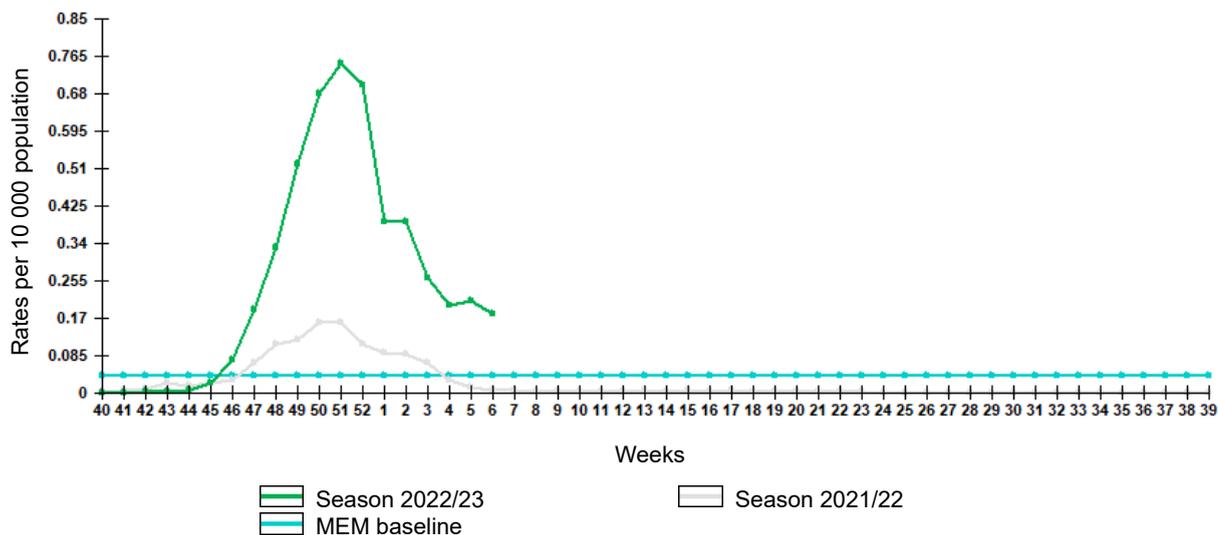
Epidemiological data showed increase of influenza and other ARI activity in Russia in comparison with previous week. The nationwide ILI and ARI morbidity level (91.5 per 10 000 of population) was higher than national baseline (70.0) by 30.7%.

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 0.79 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 0.18 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 8284 patients investigation 909 (11.0%) respiratory samples were positive for influenza, including 188 cases of influenza A(H1N1)pdm09 in 34 cities, 3 cases of influenza A(H3N2) in 1 city, 69 cases of influenza A untyped in 7 cities and 649 cases of influenza B in 40 cities.

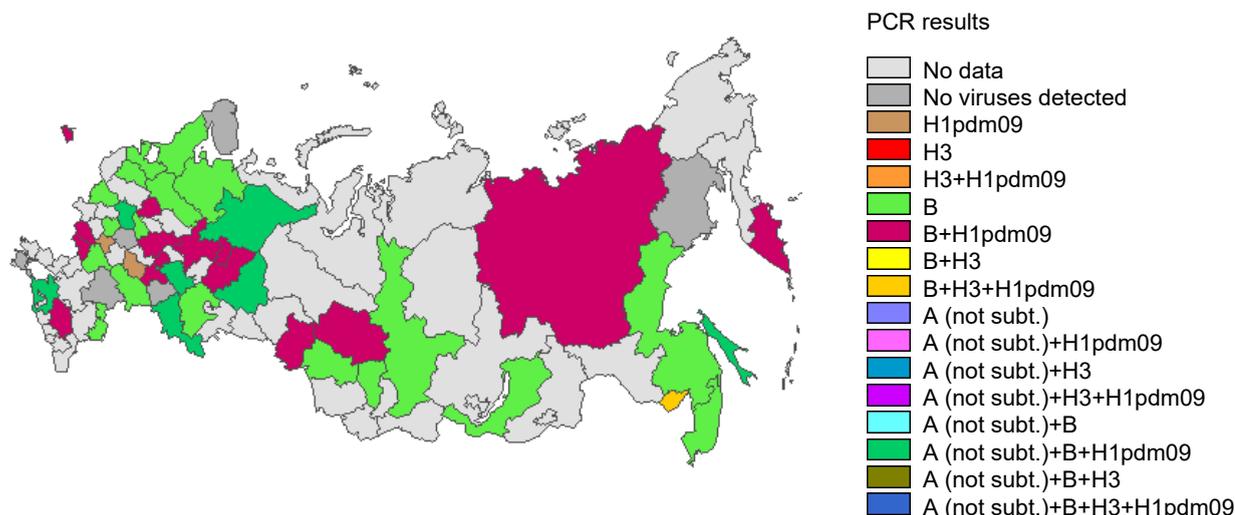
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Susceptibility to antivirals. All 58 influenza A(H1N1)pdm09 viruses analysed by the NIC (Saint-Petersburg) were susceptible to oseltamivir and zanamivir.

Fig. 4. Geographic distribution of RT-PCR detected influenza viruses in cities under surveillance in Russia, week 6 of 2023



- PCR results
- No data
 - No viruses detected
 - H1pdm09
 - H3
 - H3+H1pdm09
 - B
 - B+H1pdm09
 - B+H3
 - B+H3+H1pdm09
 - A (not subt.)
 - A (not subt.)+H1pdm09
 - A (not subt.)+H3
 - A (not subt.)+H3+H1pdm09
 - A (not subt.)+B
 - A (not subt.)+B+H1pdm09
 - A (not subt.)+B+H3
 - A (not subt.)+B+H3+H1pdm09

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

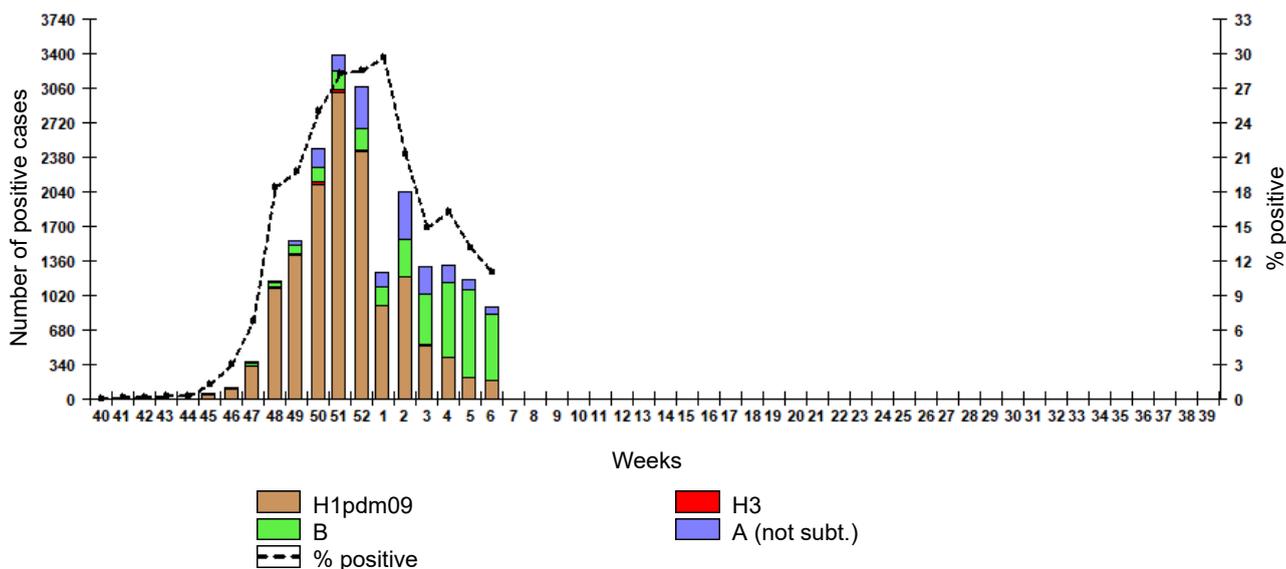
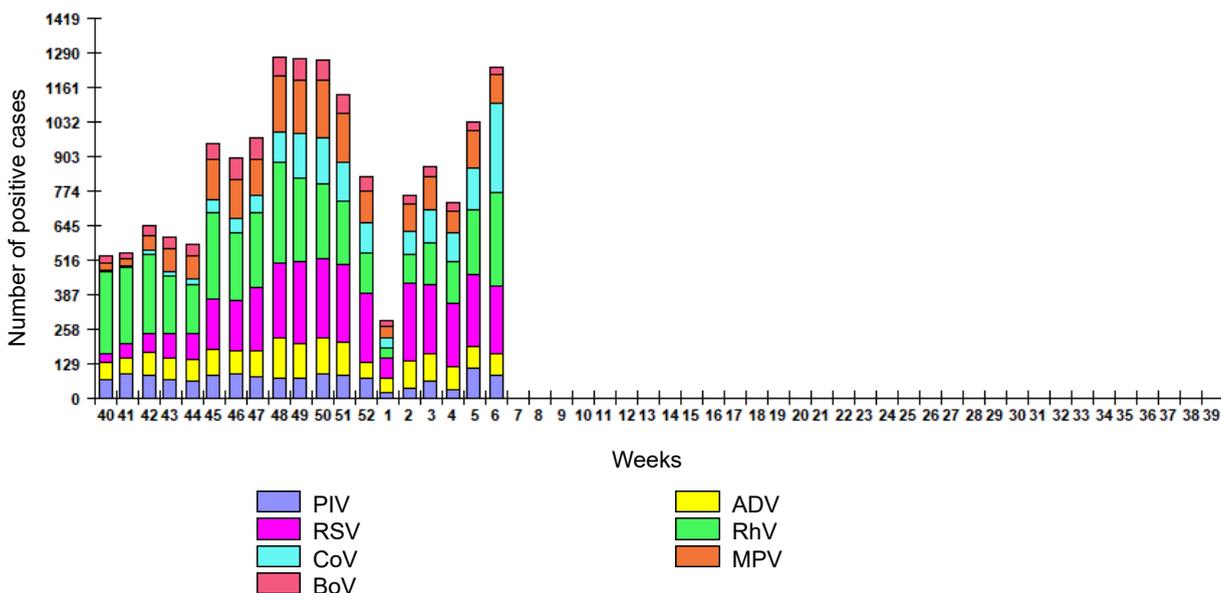


Fig. 6. Monitoring of ARVI detection by RT-PCR in Russia, season 2022/23



ARVI detections. The overall proportion of respiratory samples tested positive for other ARVI (PIV, ADV, RSV, RhV, CoV, MPV, BoV) estimated as **16.5%** of investigated samples by PCR.

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

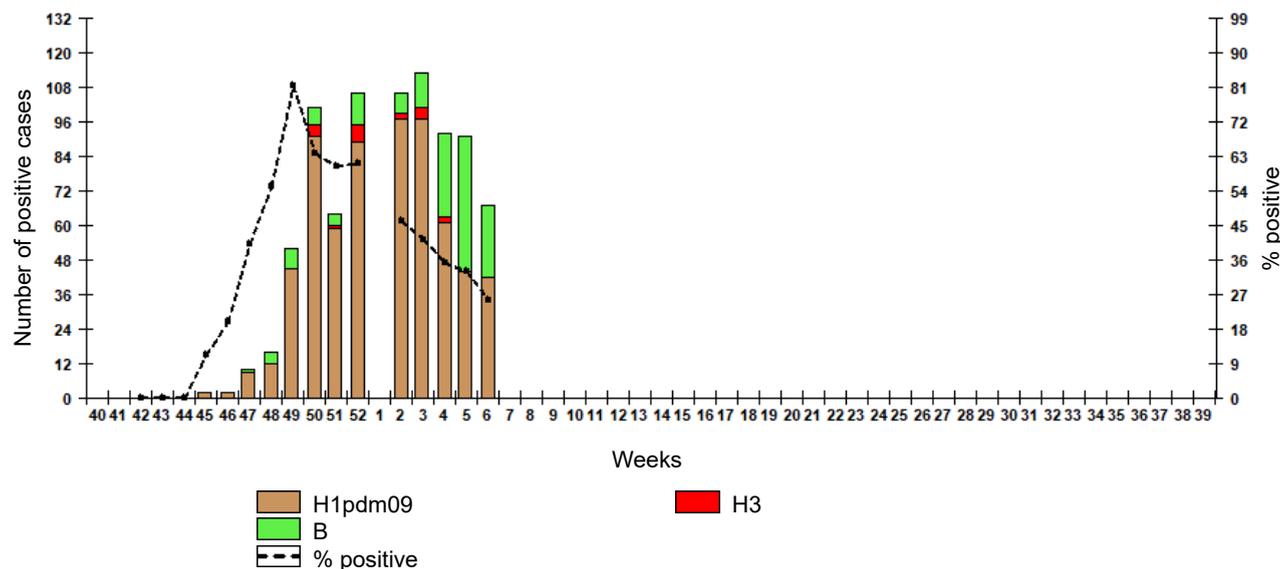
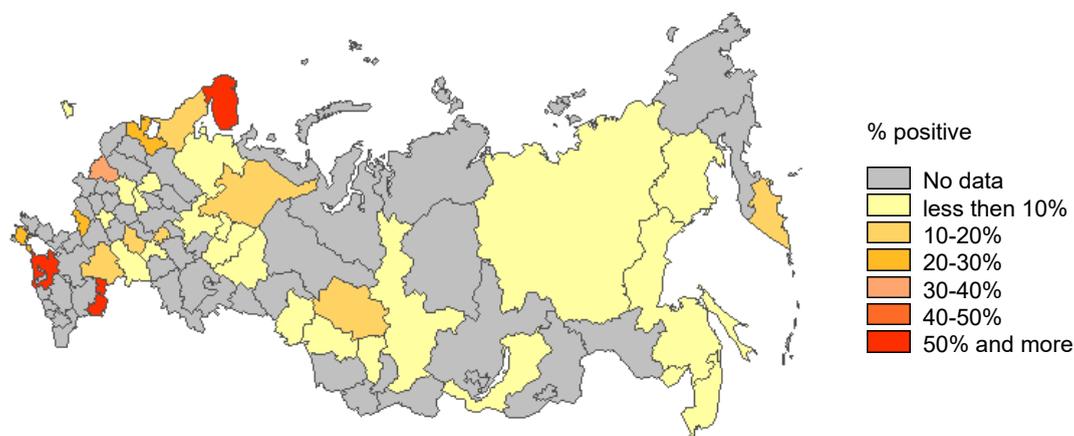


Table 1. Results of influenza and other ARVI detection by RT-PCR in Russia, week 6 of 2023

	Number of specimens / number of positive cases	% positive
<u>Influenza</u>		
Number of specimens tested for influenza	8284	-
Influenza A (not subt.)	69	0,8%
Influenza A(H1)pdm09	188	2,3%
Influenza A(H3)	3	0,04%
Influenza B	649	7,8%
All influenza	909	11,0%
<u>Other ARVI</u>		
Number of specimens tested for ARVI	7468	-
PIV	84	1,1%
ADV	82	1,1%
RSV	252	3,4%
RhV	349	4,7%
CoV	331	4,4%
MPV	106	1,4%
BoV	28	0,4%
All ARVI	1232	16,5%
<u>SARS-CoV-2 (COVID-19)</u>		
Number of specimens tested for SARS-CoV-2	11656	-
SARS-CoV-2	1480	12,7%

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



COVID-19. Totally 22 121 725 cases and 395 689 deaths associated with COVID-19 were registered in Russia including 14 740 cases and 37 deaths in last 24 hours (on 12:00 of 16.02.2023). According to the data obtained by NIC in Saint-Petersburg totally 11 656 clinical samples were PCR investigated in last week. Among them coronavirus SARS-CoV-2 detected in 1480 (12.7%) cases.

Table 2. Results of influenza viruses isolation in Russia, week 6 of 2023

	Number of specimens / number of viruses	% isolated viruses
Number of specimens	264	-
Influenza A(H1)pdm09	42	15,9%
Influenza A(H3)	0	0,0%
Influenza B	25	9,5%
All influenza	67	25,4%

Sentinel influenza surveillance

Clinical samples from 72 SARI patients were investigated by rRT-PCR for influenza, among them 14 (19.4%) cases of influenza, including 12 cases of influenza B and 2 cases of influenza A untyped. Among 62 SARI samples 14 (22.6%) cases positive for ARVI detected including 7 cases of RSV, 4 cases of RhV, 2 cases of CoV and 1 case of BoV infection. 2 (2.8%) of 72 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

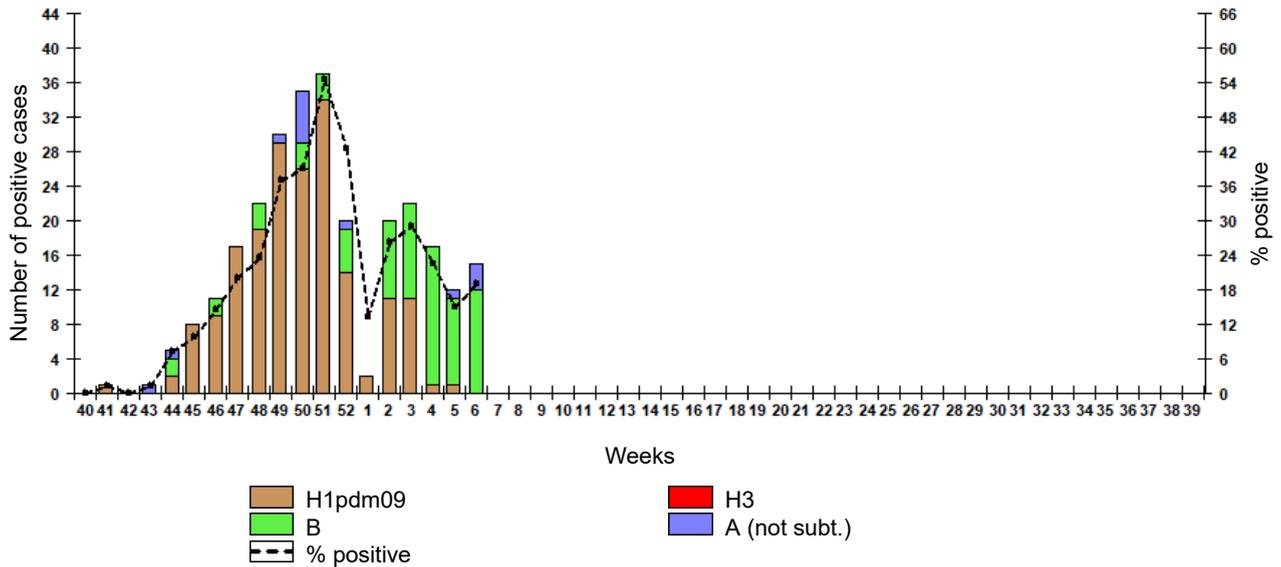


Fig. 10. Monitoring of influenza viruses detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2022/23

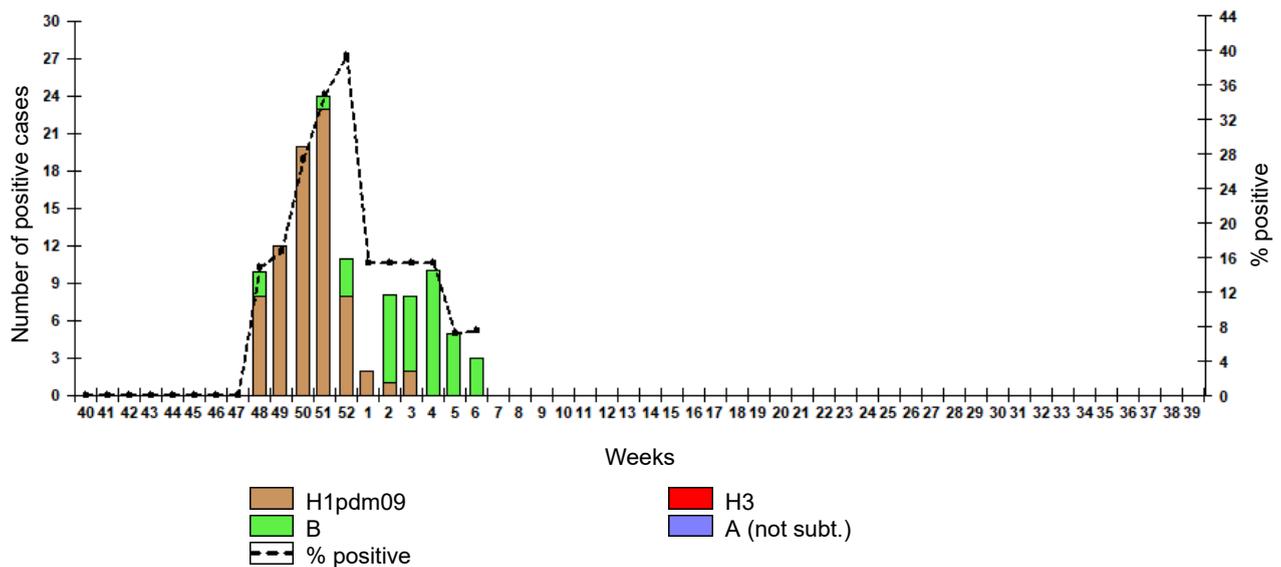


Fig. 11. Monitoring of ARVI detection by RT-PCR among SARI patients in sentinel hospitals, season 2022/23

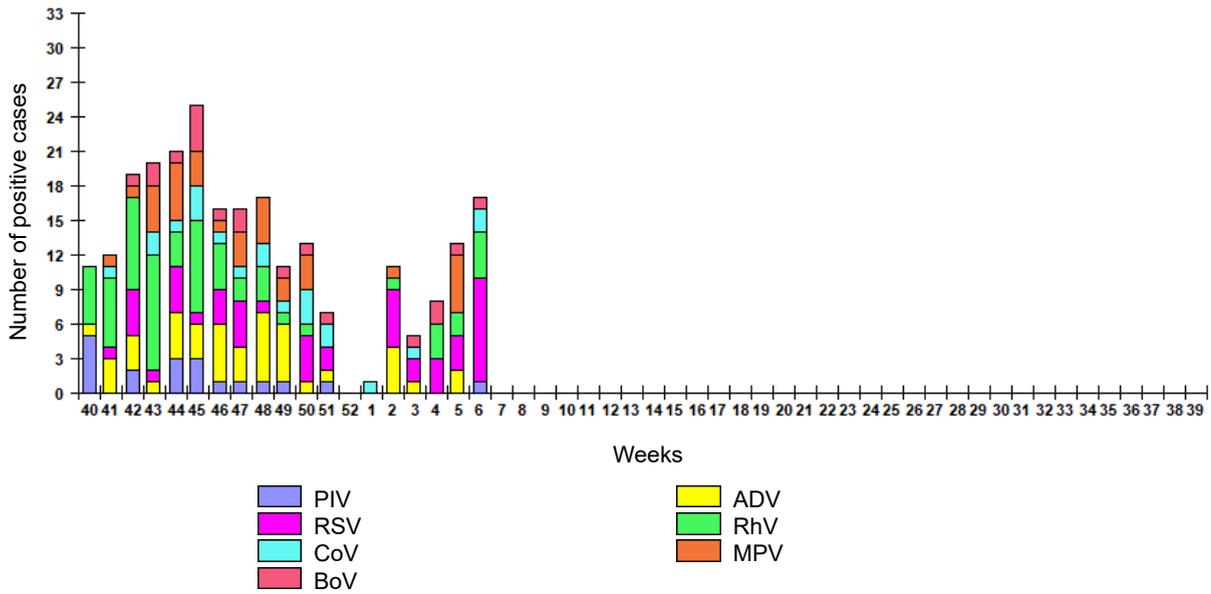


Fig. 12. Monitoring of ARVI detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2022/23

