

## NATIONAL WEEKLY INFLUENZA BULLETIN OF THE RUSSIAN FEDERATION

*week 12 of 2023 (20.03.23 - 26.03.23)*

### 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 (66.2 per 10 000 of population) was lower than national baseline (70.0) by 5.4%.

**Etiology of ILI & ARI.** Among 7562 patients investigation 364 (4.8%) respiratory samples were positive for influenza, including 12 cases of influenza A(H1N1)pdm09 in 5 cities, 3 cases of influenza A(H3N2) in 2 cities, 7 cases of influenza A untyped in 4 cities and 342 cases of influenza B in 34 cities.

10 influenza viruses were isolated on MDCK cell culture, including: 3 influenza A(H1N1)pdm09 viruses in Birobidzhan (1), Yekaterinburg (1), Saint-Petersburg (1); 7 influenza B viruses in Astrakhan (4), Vologda (1), Saint-Petersburg (2). Since the beginning of the season 1160 influenza viruses were isolated on MDCK cell culture, including: 768 viruses A(H1N1)pdm09, 29 viruses A(H3N2) and 363 viruses B.

**Antigenic characterization.** Since the beginning of the season, 565 influenza A(H1N1)pdm09 viruses have been antigenically characterized by the NICs, including: Moscow (104) and Saint-Petersburg (461), 28 influenza A(H3N2) viruses in Moscow (1) and Saint-Petersburg (27) and 115 influenza B, including: Moscow (12) 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. 113 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 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 **13.6%** (PCR).

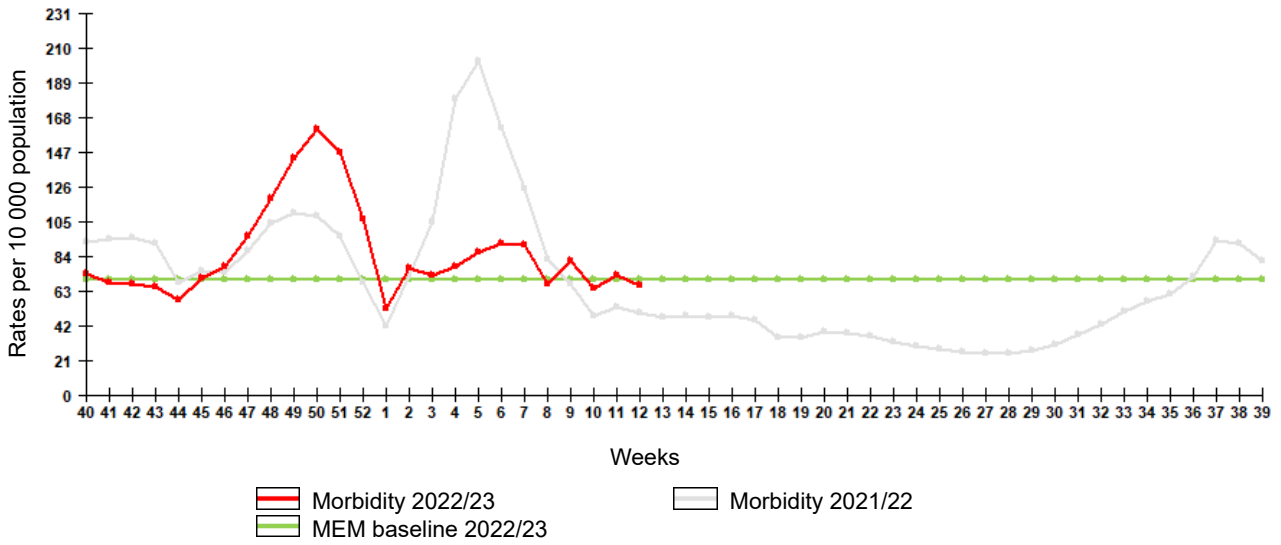
**In sentinel surveillance system** clinical samples from 59 SARI patients were investigated by rRT-PCR for influenza, among them 4 (6.8%) cases of influenza B. Among 45 SARI samples 5 (11.1%) cases positive for ARVI detected including 3 cases of RSV, 1 case of MPV and 1 case of BoV infection. 2 (4.4%) of 45 SARI patients were positive for coronavirus SARS-CoV-2.

Clinical samples from 56 ILI/ARI patients were investigated for influenza by rRT-PCR, among them 2 (3.6%) cases of influenza B. Among 48 ILI/ARI samples 14 (29.2%) cases positive for ARVI detected including 4 cases of RhV, 1 case of CoV and 9 cases of MPV infection. 8 (12.9%) of 62 ILI/ARI patients were positive for coronavirus SARS-CoV-2.

**COVID-19.** Totally 22 625 524 cases and 397 211 deaths associated with COVID-19 were registered in Russia including 10 750 cases and 32 deaths in last 24 hours (on 12:00 of 30.03.2023). According to the data obtained by NIC in Saint-Petersburg totally 11 733 clinical samples were PCR investigated in last week. Among them coronavirus SARS-CoV-2 detected in 1763 (15.0%) cases.

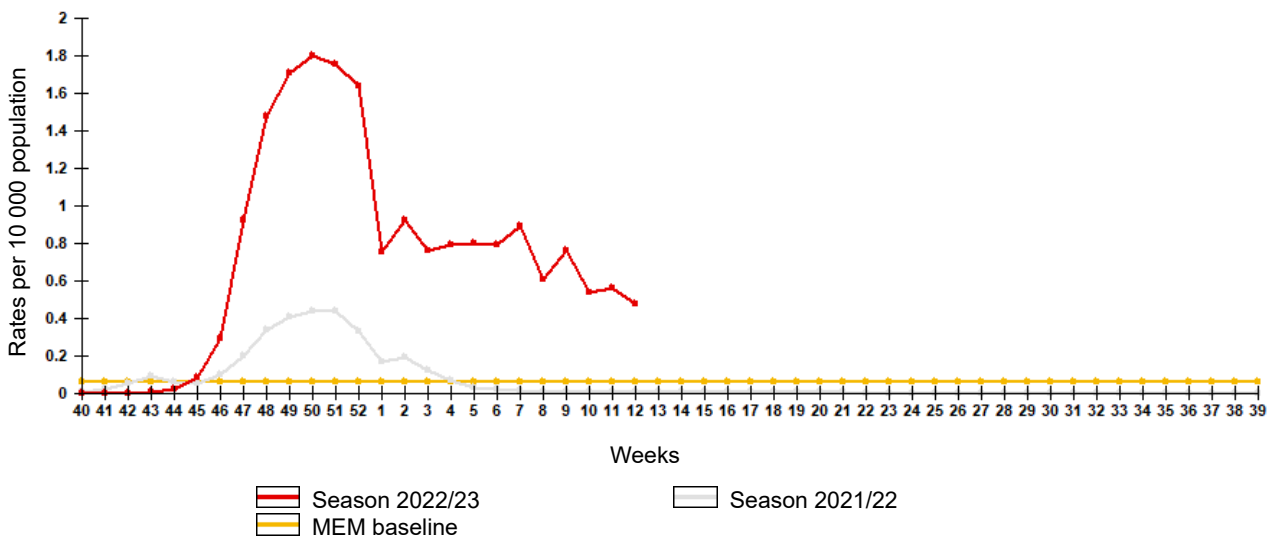
# Influenza and ARI morbidity data

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



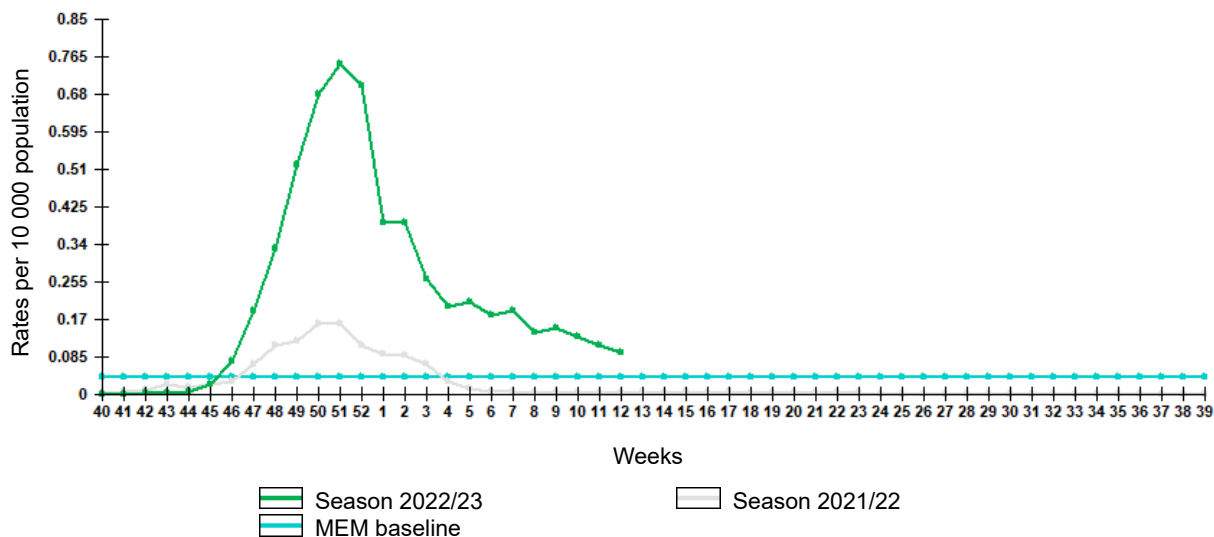
Epidemiological data showed decrease of influenza and other ARI activity in Russia in comparison with previous week. The nationwide IRI and ARI morbidity level (66.2 per 10 000 of population) was lower than national baseline (70.0) by 5.4%.

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 0.48 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 0.096 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 44 RBLs and two WHO NICs. According to these data as a result of 7562 patients investigation 364 (4.8%) respiratory samples were positive for influenza, including 12 cases of influenza A(H1N1)pdm09 in 5 cities, 3 cases of influenza A(H3N2) in 2 cities, 7 cases of influenza A untyped in 4 cities and 342 cases of influenza B in 34 cities.

10 influenza viruses were isolated on MDCK cell culture, including: 3 influenza A(H1N1)pdm09 viruses in Birobidzhan (1), Yekaterinburg (1), Saint-Petersburg (1); 7 influenza B viruses in Astrakhan (4), Vologda (1), Saint-Petersburg (2). Since the beginning of the season 1160 influenza viruses were isolated on MDCK cell culture, including: 768 viruses A(H1N1)pdm09, 29 viruses A(H3N2) and 363 viruses B.

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Fig. 4. Geographic distribution of RT-PCR detected influenza viruses in cities under surveillance in Russia, week 12 of 2023

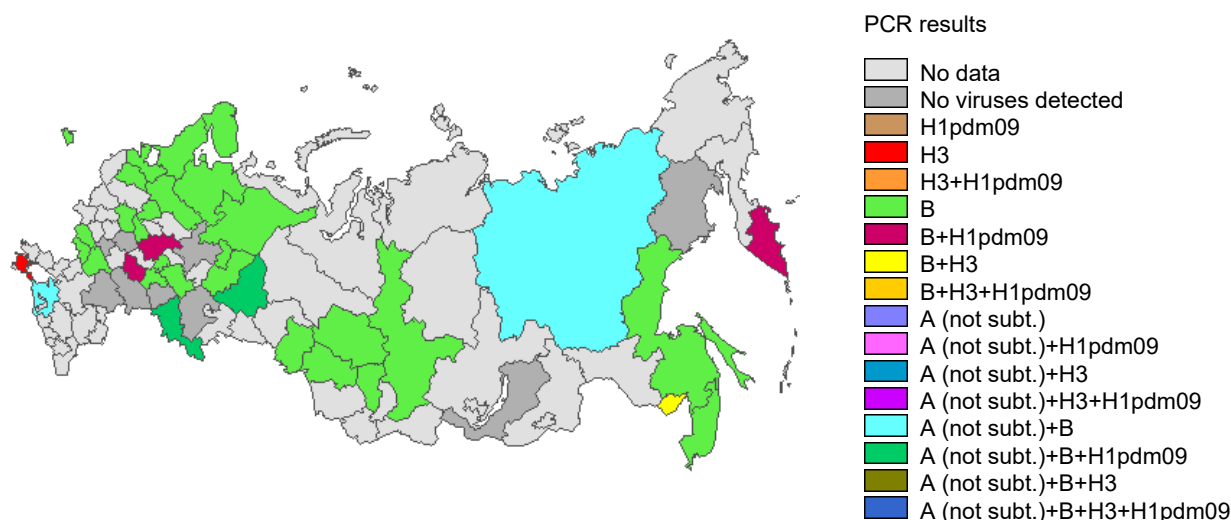


Fig. 5. Monitoring of influenza viruses detection by RT-PCR in Russia, season 2022/23

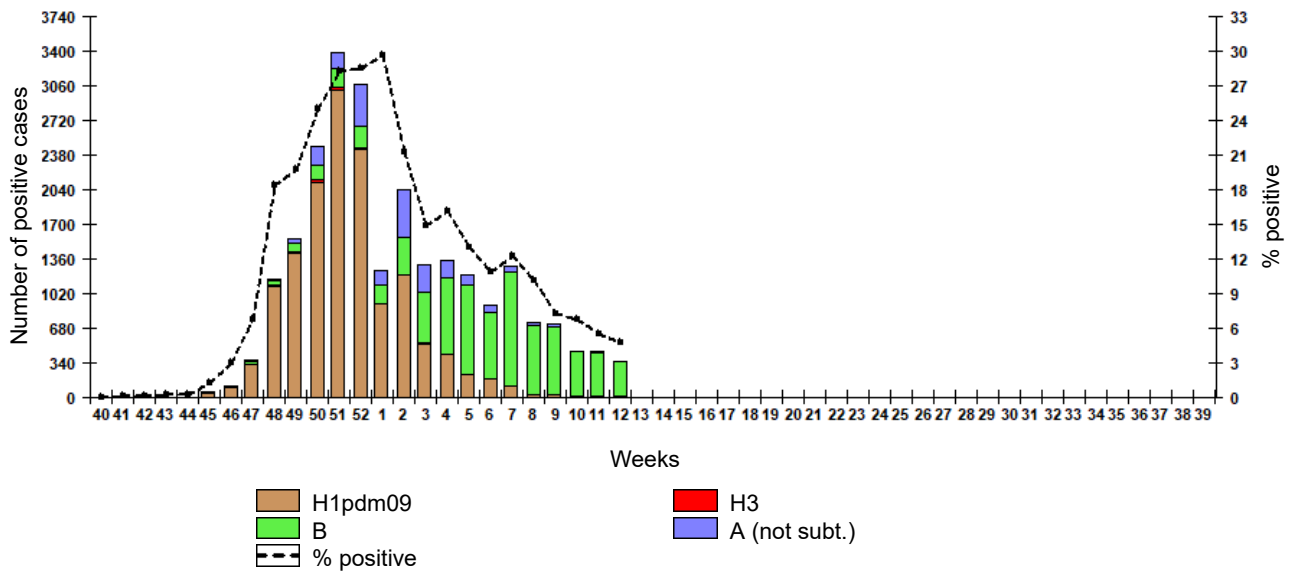
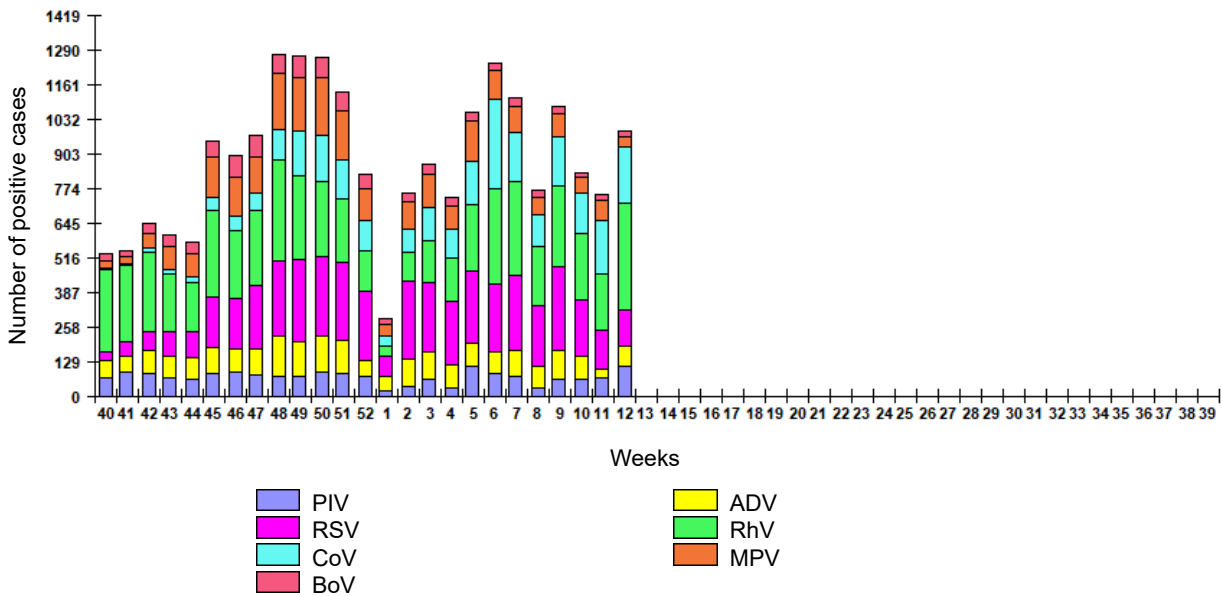


Fig. 6. Monitoring of ARVI detection by RT-PCR in Russia, season 2022/23



**ARVI detections.** The overall proportion of respiratory samples tested positive for other ARVI (PIV, ADV, RSV, RhV, CoV, MPV, BoV) estimated as **13.6%** of investigated samples by PCR.

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

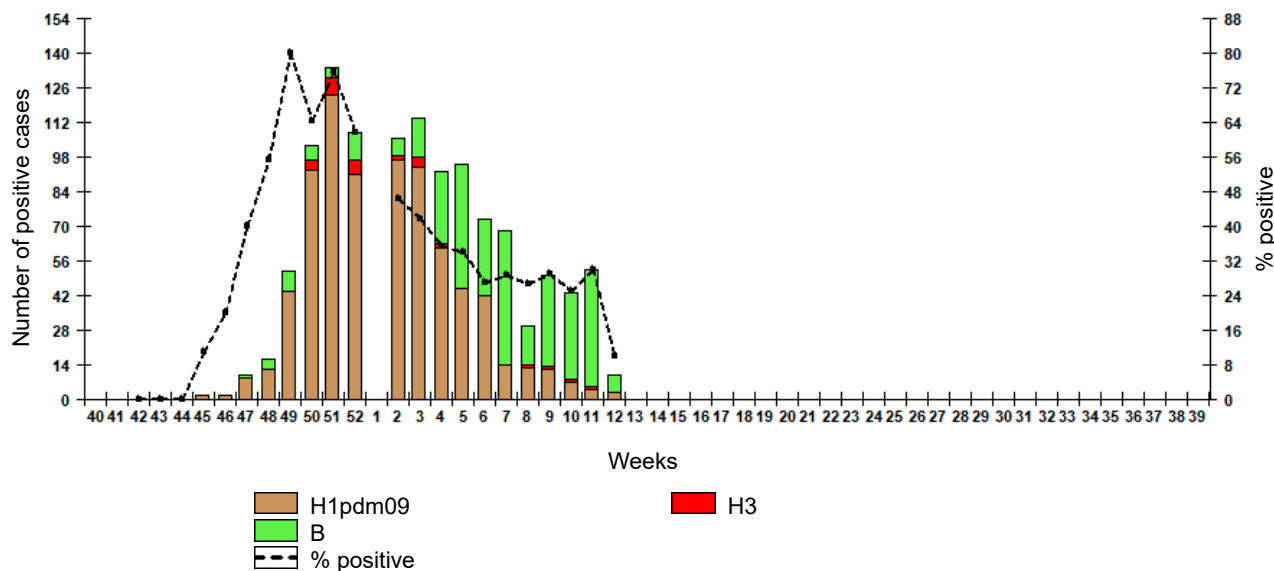
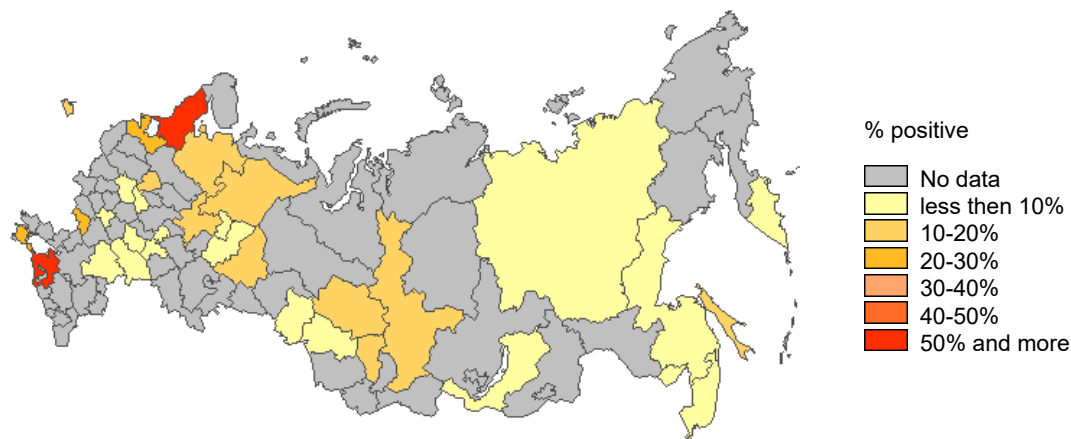


Table 1. Results of influenza and other ARVI detection by RT-PCR in Russia, week 12 of 2023

	Number of specimens / number of positive cases	% positive
<u>Influenza</u>		
Number of specimens tested for influenza	7562	-
Influenza A (not subt.)	7	0,09%
Influenza A(H1)pdm09	12	0,2%
Influenza A(H3)	3	0,04%
Influenza B	342	4,5%
All influenza	364	4,8%
<u>Other ARVI</u>		
Number of specimens tested for ARVI	7236	-
PIV	115	1,6%
ADV	73	1,0%
RSV	137	1,9%
RhV	396	5,5%
CoV	207	2,9%
MPV	35	0,5%
BoV	19	0,3%
All ARVI	982	13,6%
<u>SARS-CoV-2 (COVID-19)</u>		
Number of specimens tested for SARS-CoV-2	11733	-
SARS-CoV-2	1763	15,0%

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



**COVID-19.** Totally 22 625 524 cases and 397 211 deaths associated with COVID-19 were registered in Russia including 10 750 cases and 32 deaths in last 24 hours (on 12:00 of 30.03.2023). According to the data obtained by NIC in Saint-Petersburg totally 11 733 clinical samples were PCR investigated in last week. Among them coronavirus SARS-CoV-2 detected in 1763 (15.0%) cases.

Table 2. Results of influenza viruses isolation in Russia, week 12 of 2023

	Number of specimens / number of viruses	% isolated viruses
Number of specimens	101	-
Influenza A(H1)pdm09	3	3,0%
Influenza A(H3)	0	0,0%
Influenza B	7	6,9%
All influenza	10	9,9%

## Sentinel influenza surveillance

Clinical samples from 59 SARI patients were investigated by rRT-PCR for influenza, among them 4 (6.8%) cases of influenza B. Among 45 SARI samples 5 (11.1%) cases positive for ARVI detected including 3 cases of RSV, 1 case of MPV and 1 case of BoV infection. 2 (4.4%) of 45 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

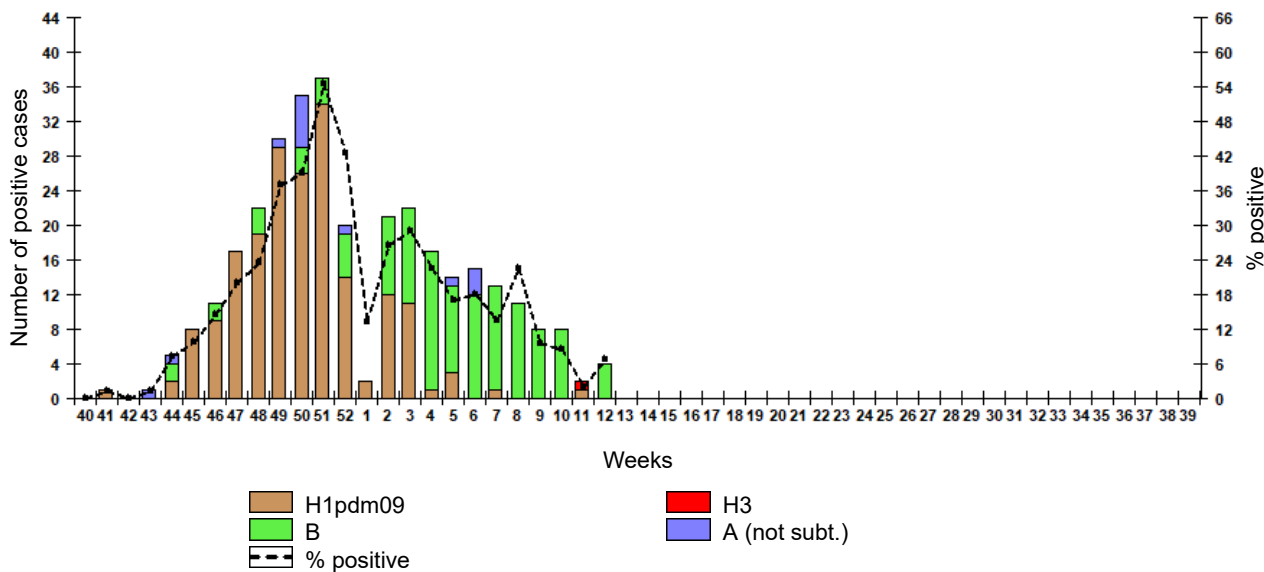


Fig. 10. Monitoring of influenza viruses detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2022/23

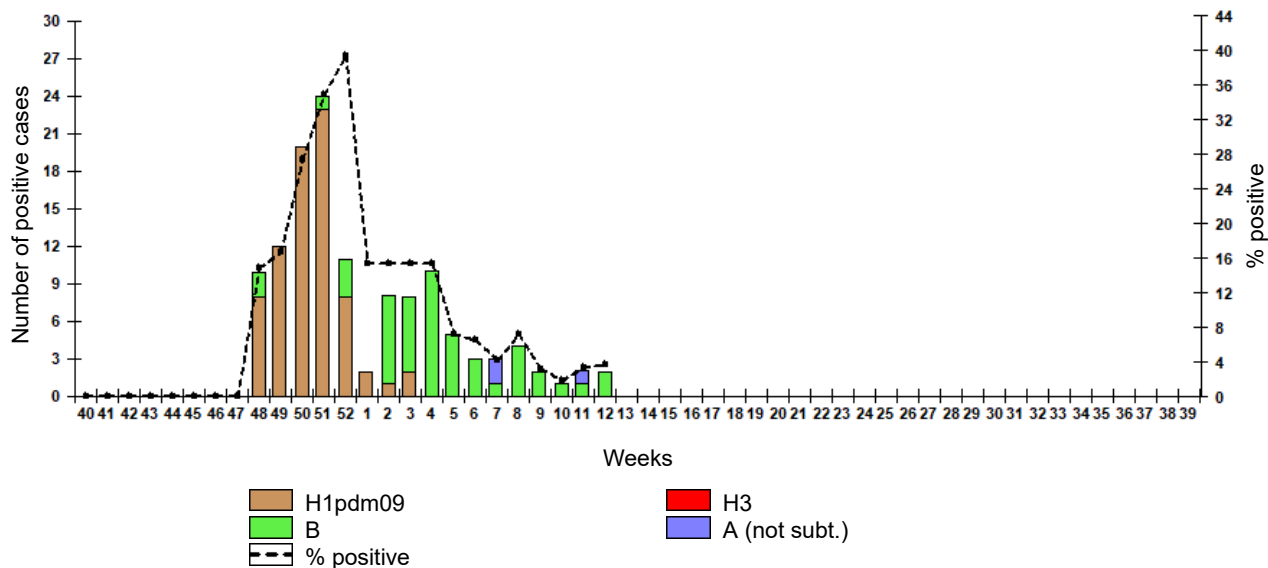


Fig. 11. Monitoring of ARVI detection by RT-PCR among SARI patients in sentinel hospitals, season 2022/23

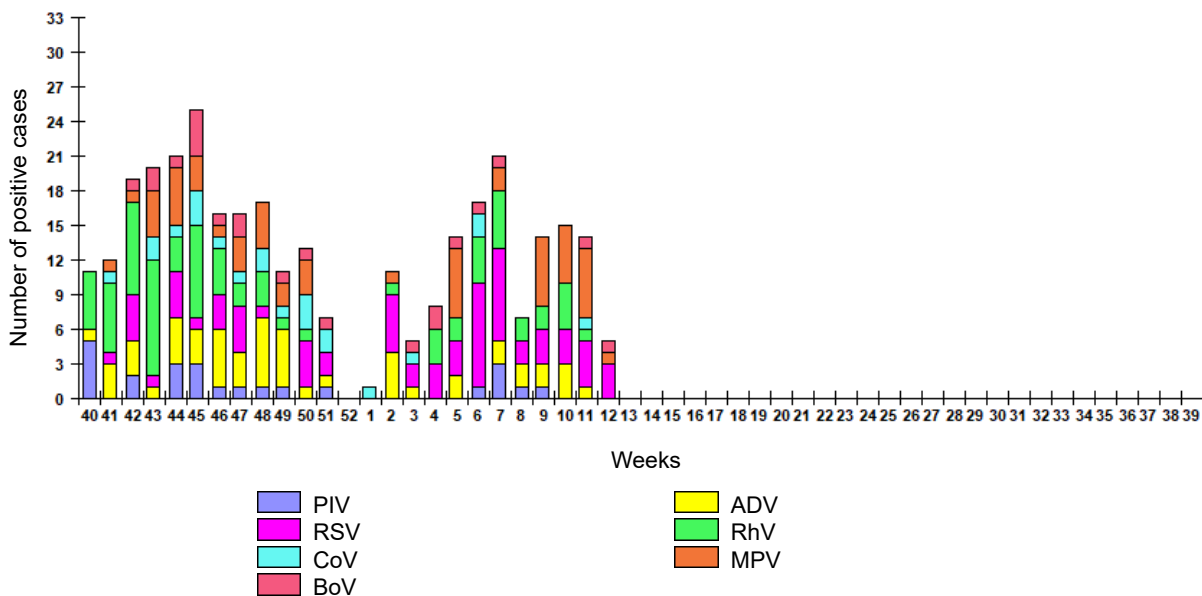


Fig. 12. Monitoring of ARVI detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2022/23

