NATIONAL WEEKLY INFLUENZA BULLETIN
OF THE RUSSIAN FEDERATION

week 16 of 2023 (17.04.23 - 23.04.23)

Summary

Influenza and ARI incidence data. Influenza and other ARI activity in Russia increase in comparison with previous week. The nationwide ILI and ARI morbidity level (56.9 per 10 000 of population) was lower than national baseline (70.0) by 18.7%.

Etiology of ILI & ARI. Among 6671 patients investigation 97 (**1.5%**) respiratory samples were positive for influenza, including 2 cases of influenza A(H1N1)pdm09 in 2 cities, 5 cases of influenza A unsubtyped in 3 cities and 90 cases of influenza B in 18 cities.

2 influenza viruses were isolated on MDCK cell culture, including: 1 influenza A(H3N2) virus in Moscow and 1 influenza B virus in Astrakhan. Since the beginning of the season 1201 influenza viruses were isolated on MDCK cell culture, including: 775 viruses A(H1N1)pdm09, 30 viruses A(H3N2) and 396 viruses B.

Antigenic characterization. Since the beginning of the season, 650 influenza A(H1N1)pdm09 viruses have been antigenically characterized by the NICs, including: Moscow (105) and Saint-Petersburg (545), 29 influenza A(H3N2) viruses in Moscow (2) and Saint-Petersburg (27) and 185 influenza B, including: Moscow (15) and Saint-Petersburg (170). All viruses A(H1N1)pdm09 were antigenically similar to reference strain A/Victoria/2570/2019 (H1N1)pdm09. 27 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. 183 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 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 **11.0%** (PCR).

In sentinel surveillance system clinical samples from 74 SARI patients were investigated by rRT-PCR for influenza, among them 1 (**1.4%**) case of influenza B. Among 66 SARI samples 9 (**13.6%**) cases positive for ARVI detected including 2 cases of PIV, 1 case of ADV, 2 cases of RhV, 3 cases of MPV and 1 case of BoV infection. 3 (**4.3%**) of 69 SARI patients were positive for coronavirus SARS-CoV-2.

Clinical samples from 44 ILI/ARI patients were investigated for influenza by rRT-PCR, among them no positive cases recognized. Among 38 ILI/ARI samples 11 (**28.9%**) cases positive for ARVI detected including 2 cases of PIV, 4 case of RhV and 5 cases of CoV infection. 3 (**6.8%**) of 44 ILI/ARI patients were positive for coronavirus SARS-CoV-2.

COVID-19. Totally 22 833 330 cases and 398 208 deaths associated with COVID-19 were registered in Russia including 6 503 cases and 33 deaths in last 24 hours (on 12:00 of 27.04.2023). According to the data obtained by NIC in Saint-Petersburg totally 9489 clinical samples were PCR investigated in last week. Among them coronavirus SARS-CoV-2 detected in 989 (**10.4%**) cases.

Influenza and ARI morbidity data

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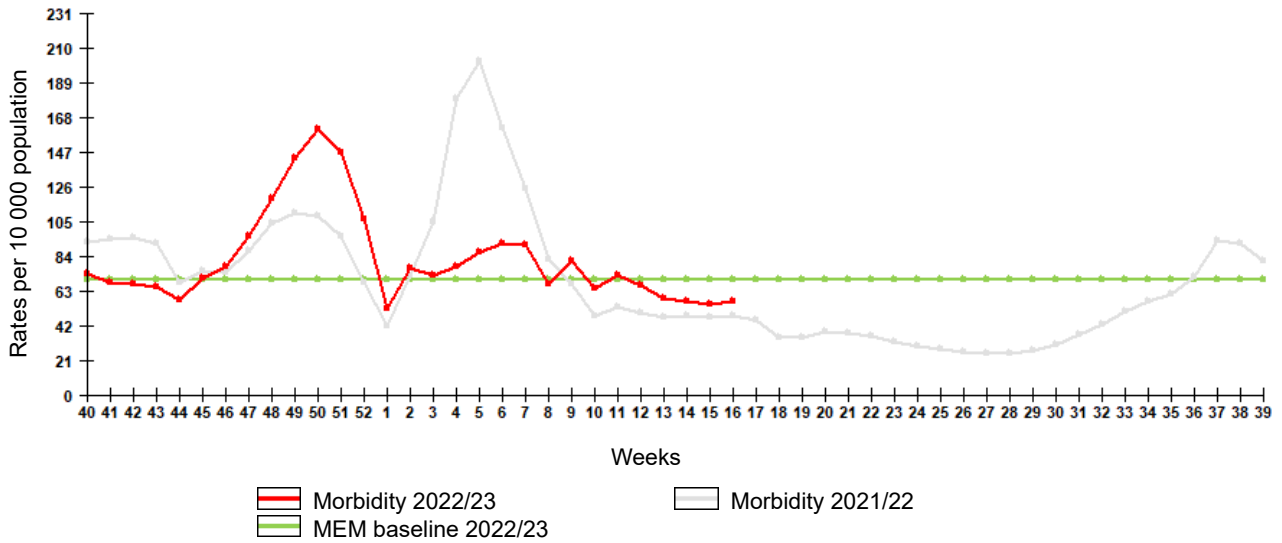

Epidemiological data showed increase of influenza and other ARI activity in Russia in comparison with previous week. The nationwide ILI and ARI morbidity level (56.9 per 10 000 of population) was lower than national baseline (70.0) by 18.7%.

Fig. 2. Comparative data on incidence rate of clinically diagnosed influenza, seasons 2021/22 and 2022/23
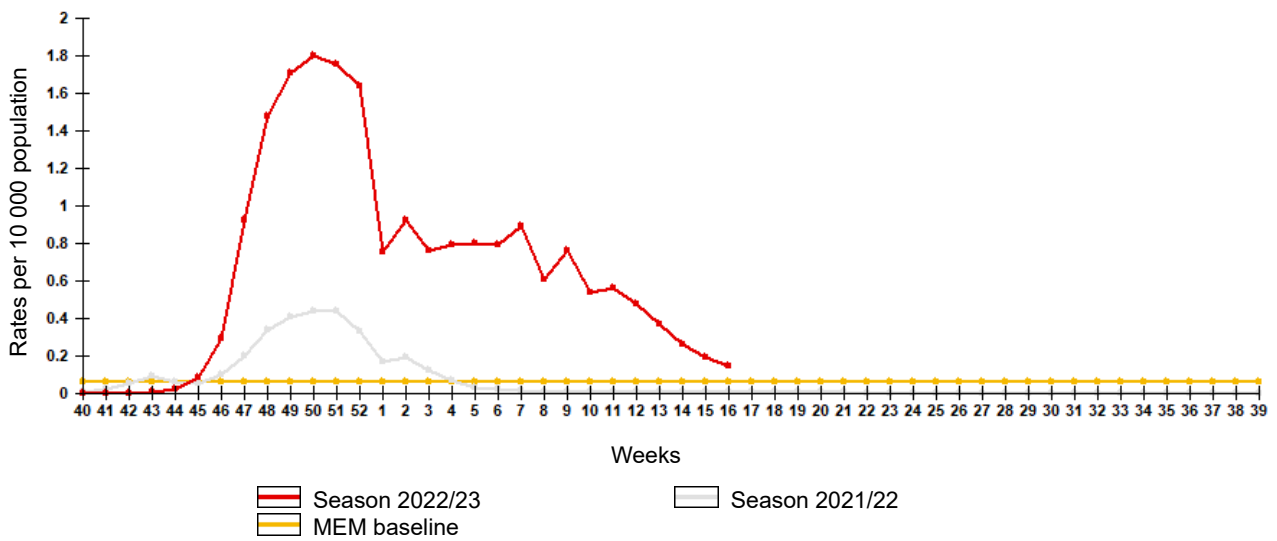
Incidence rate of clinically diagnosed influenza decreased comparing to previous week and amounted to 0.15 per 10 000 of population, it was higer than pre-epidemic MEM baseline (0.060).

Fig. 3. Comparison of hospitalization rate with clinical diagnosis of influenza, seasons 2021/22 and 2022/23

Season 2022/23
MEM baseline
Season 2021/22
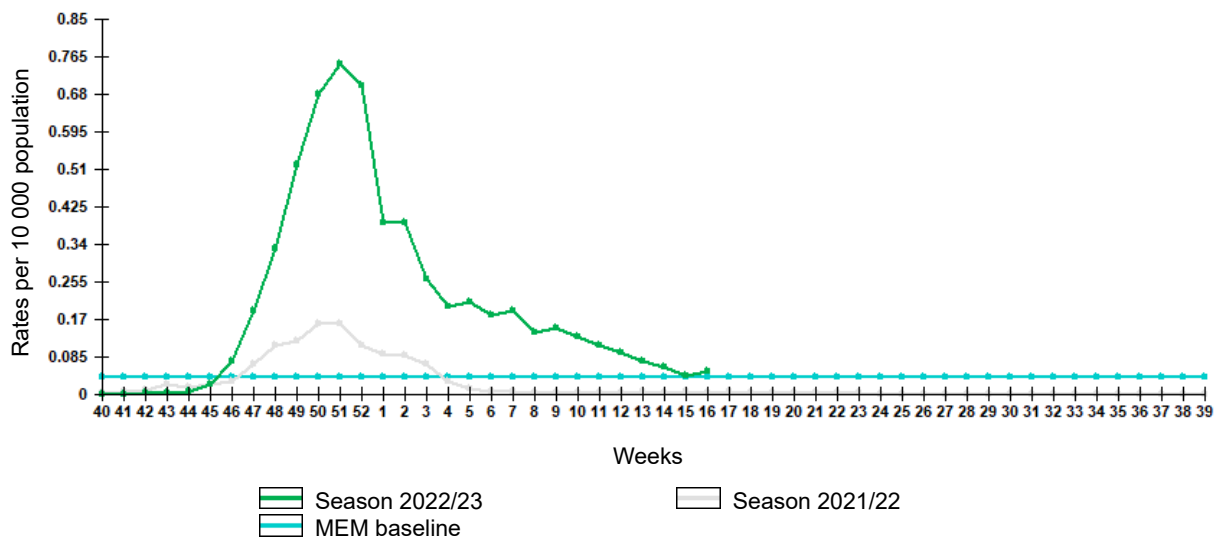
Hospitalization rate of clinically diagnosed influenza increased comparing to previous week and amounted to 0.053 per 10 000 of population, it was higer than pre-epidemic MEM baseline (0.040).

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 6671 patients investigation 97 (**1.5%**) respiratory samples were positive for influenza, including 2 cases of influenza A(H1N1)pdm09 in 2 cities, 5 cases of influenza A unsubtyped in 3 cities and 90 cases of influenza B in 18 cities.

2 influenza viruses were isolated on MDCK cell culture, including: 1 influenza A(H3N2) virus in Moscow and 1 influenza B virus in Astrakhan. Since the beginning of the season 1201 influenza viruses were isolated on MDCK cell culture, including: 775 viruses A(H1N1)pdm09, 30 viruses A(H3N2) and 396 viruses B.

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Fig. 4. Geographic distribution of RT-PCR detected influenza viruses in cities under surveillance in Russia, week 16 of 2023
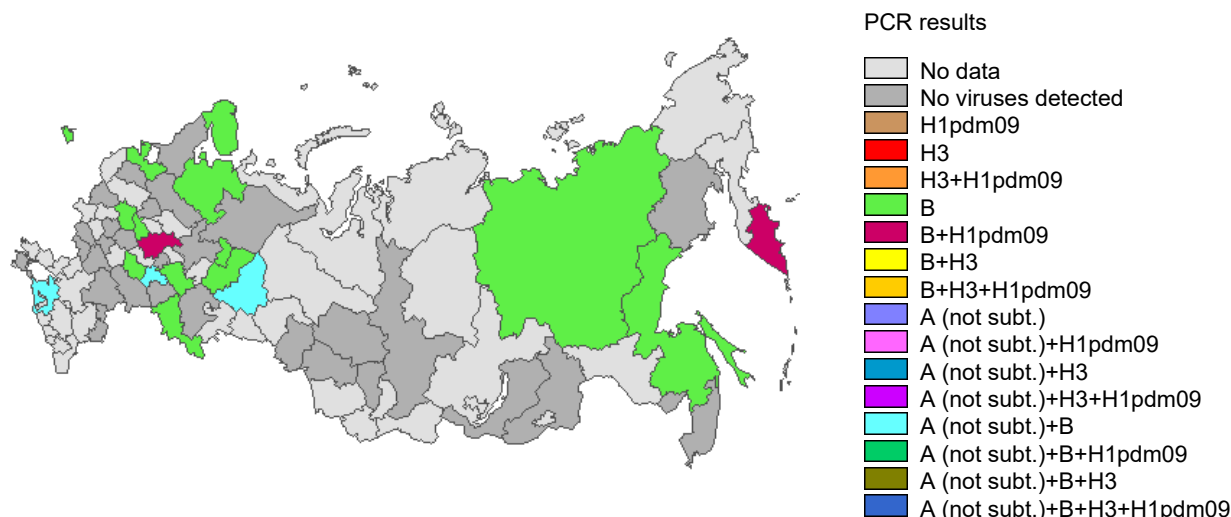

PCR results

- 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

- H1pdm09
- B
- % positive
- H3
- A (not subt.)

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

- PIV
- RSV
- CoV
- BoV
- ADV
- RhV
- MPV
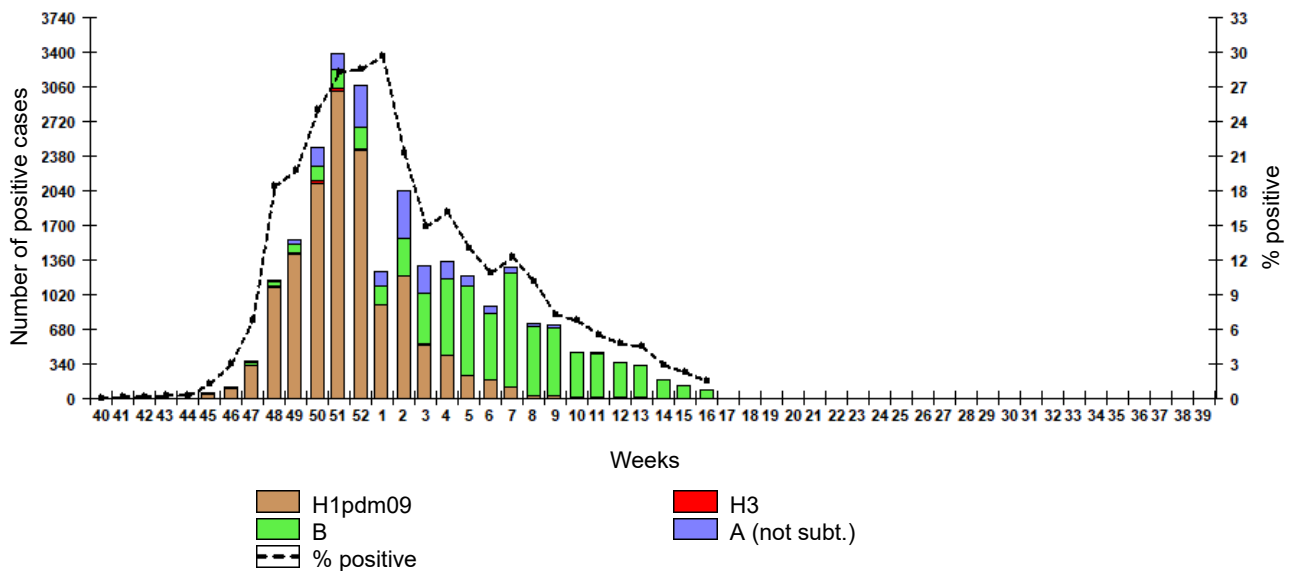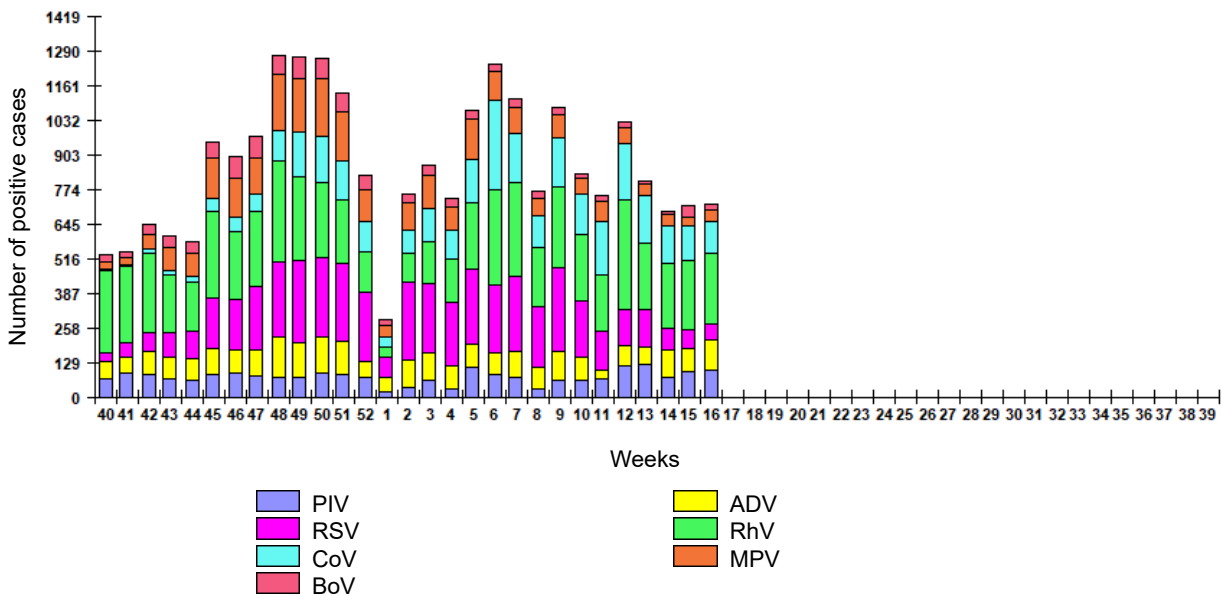
ARVI detections. The overall proportion of respiratory samples tested positive for other ARVI (PIV, ADV, RSV, RhV, CoV, MPV, BoV) estimated as **11.0%** of investigated samples by PCR.

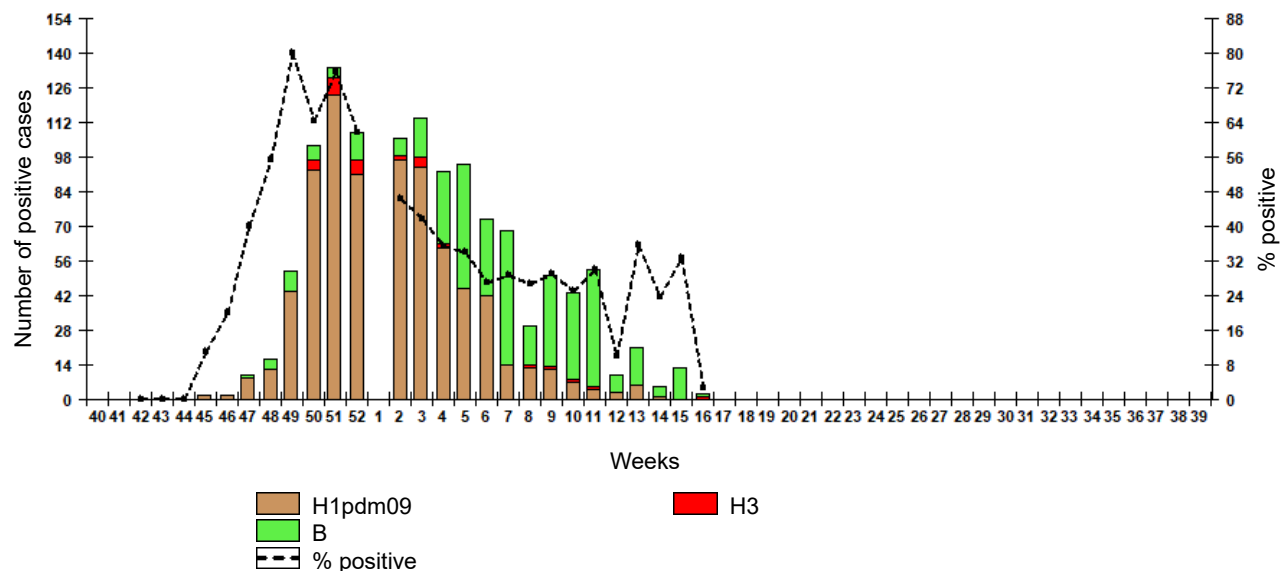*Fig. 7. Monitoring of influenza viruses isolation in Russia, season 2022/23*

- H1pdm09
- B
- % positive
- H3

Table 1. Results of influenza and other ARVI detection by RT-PCR in Russia, week 16 of 2023

	Number of specimens / number of positive cases	% positive
Influenza		
Number of specimens tested for influenza	6671	-
Influenza A (not subt.)	5	0,07%
Influenza A(H1)pdm09	2	0,03%
Influenza A(H3)	0	0,0%
Influenza B	90	1,3%
All influenza	97	1,5%
Other ARVI		
Number of specimens tested for ARVI	6532	-
PIV	104	1,6%
ADV	112	1,7%
RSV	57	0,9%
RhV	263	4,0%
CoV	118	1,8%
MPV	45	0,7%
BoV	20	0,3%
All ARVI	719	11,0%
SARS-CoV-2 (COVID-19)		
Number of specimens tested for SARS-CoV-2	9489	-
SARS-CoV-2	989	10,4%

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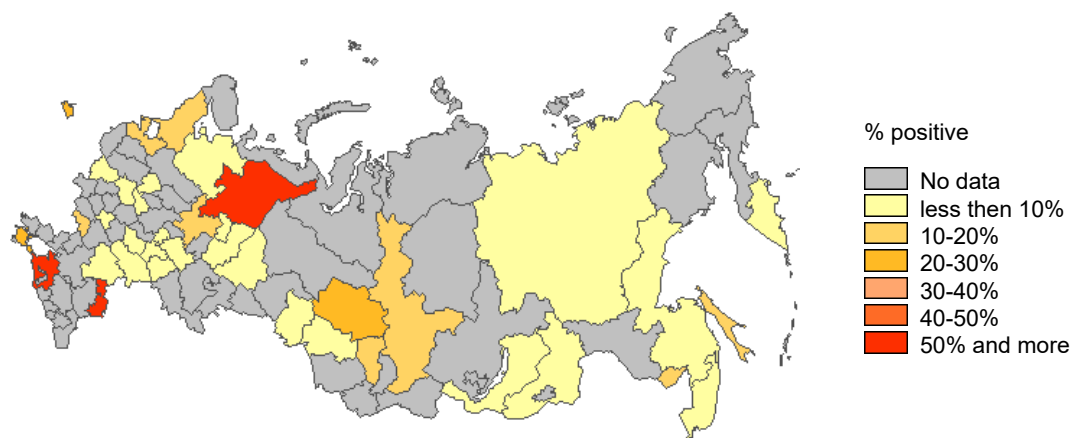
% positive

- No data
- less then 10%
- 10-20%
- 20-30%
- 30-40%
- 40-50%
- 50% and more

COVID-19. Totally 22 833 330 cases and 398 208 deaths associated with COVID-19 were registered in Russia including 6 503 cases and 33 deaths in last 24 hours (on 12:00 of 27.04.2023). According to the data obtained by NIC in Saint-Petersburg totally 9489 clinical samples were PCR investigated in last week. Among them coronavirus SARS-CoV-2 detected in 989 (**10.4%**) cases.

Table 2. Results of influenza viruses isolation in Russia, week 16 of 2023

	Number of specimens / number of viruses	% isolated viruses
Number of specimens	71	-
Influenza A(H1)pdm09	0	0,0%
Influenza A(H3)	1	1,4%
Influenza B	1	1,4%
All influenza	2	2,8%

Sentinel influenza surveillance

Clinical samples from 74 SARI patients were investigated by rRT-PCR for influenza, among them 1 (**1.4%**) case of influenza B. Among 66 SARI samples 9 (**13.6%**) cases positive for ARVI detected including 2 cases of PIV, 1 case of ADV, 2 cases of RhV, 3 cases of MPV and 1 case of BoV infection. 3 (**4.3%**) of 69 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
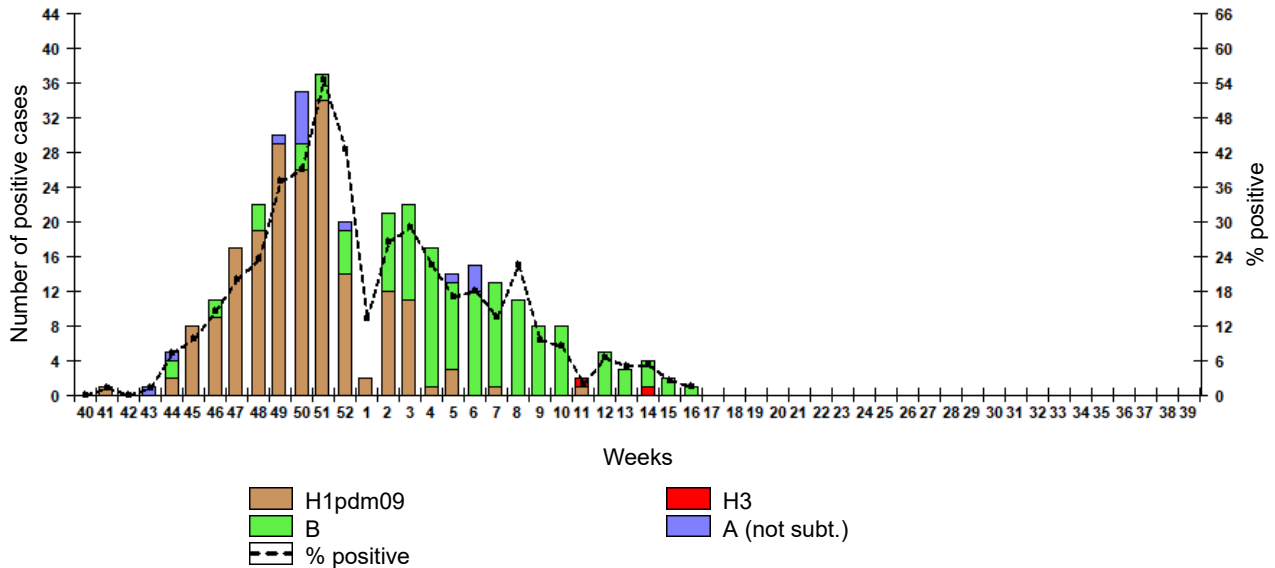

Fig. 10. Monitoring of influenza viruses detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2022/23
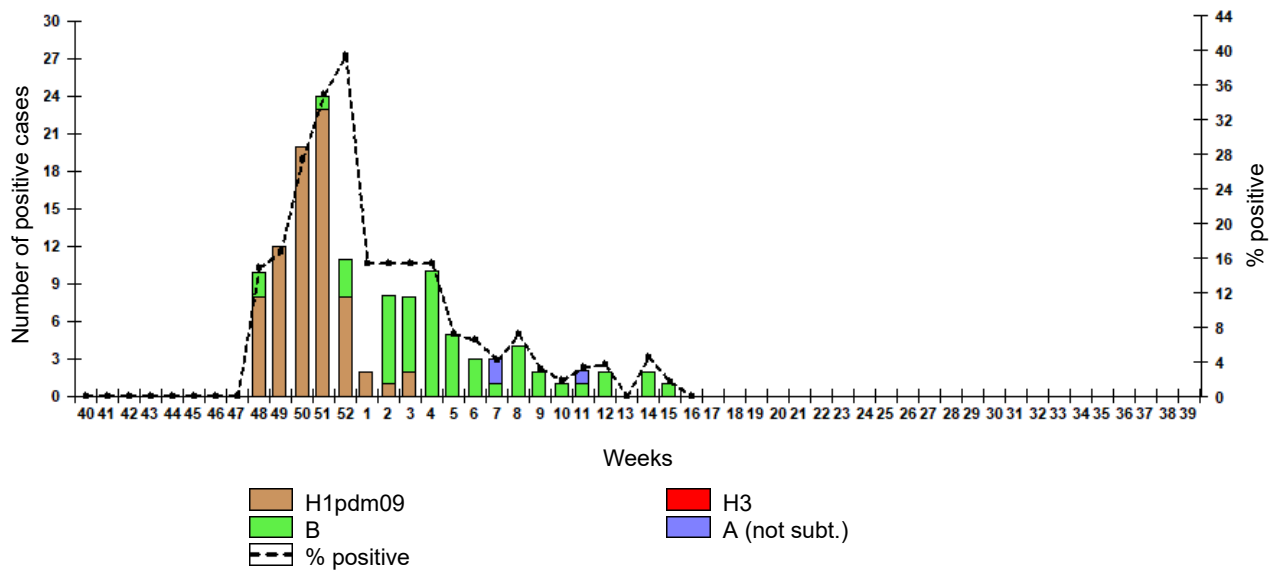
Fig. 11. Monitoring of ARVI detection by RT-PCR among SARI patients in sentinel hospitals, season 2022/23
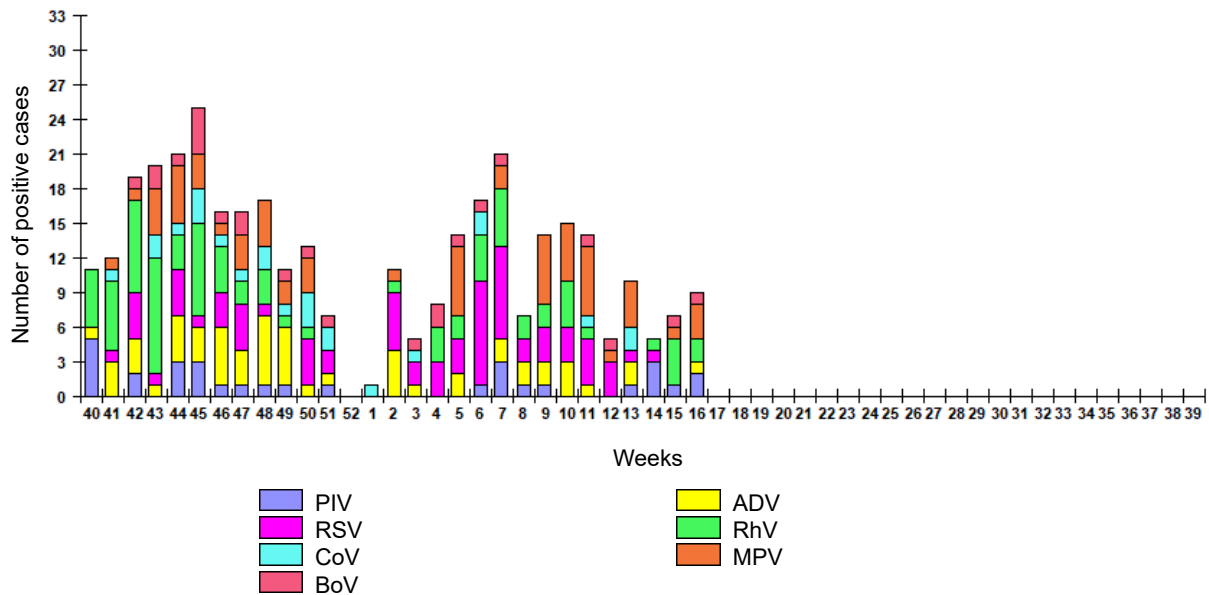

Fig. 12. Monitoring of ARVI detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2022/23