

## NATIONAL WEEKLY INFLUENZA BULLETIN OF THE RUSSIAN FEDERATION

*week 45 of 2024 (04.11.24 - 10.11.24)*

### Summary.

**Influenza and ARI incidence data.** Influenza and other ARI activity in Russia decreased in comparison with previous week. The nationwide ILI and ARI morbidity level (56.0 per 10 000 of population) was lower than national baseline (70.0) by 20.0%.

**Etiology of ILI & ARI.** Among 9288 patients investigation 14 (0.2%) respiratory samples were positive for influenza, including 3 cases of untyped influenza A in 2 cities, 3 cases of influenza A(H3N2) in 2 cities and 8 cases of influenza B in 4 cities.

One influenza virus A(H3N2) was isolated on MDCK cell culture in Saint-Petersburg. Since the beginning of the season 2 influenza viruses were isolated on MDCK cell culture in Saint-Petersburg, including: 1 virus A(H1N1)pdm09 and 1 virus A(H3N2).

**Antigenic characterization.** The first influenza A(H1N1)pdm09 virus isolated in Saint-Petersburg (NIC) from a patient from the city of Volzhsk in the 2024-2025 epidemic season was antigenically characterized. The virus reacted to 1:8 homologous titer with serum to the reference strain A/Victoria/4897/22 recommended in the vaccines for the Northern Hemisphere countries for the 2024-2025 season.

**Genetic analysis.** Since the beginning of the season 2023-2024, sequencing of 6 A(H1N1)pdm09 influenza isolates, 1779 influenza viruses and isolates from primary clinical materials from patients and 50 B influenza isolates were performed. According to phylogenetic analysis, 6 A(H1N1)pdm09 influenza isolates were assigned to genetic clade 6B.1A.5a.2a and similar to the vaccine strain A/Victoria/2570/2019, 1762 influenza A(H3N2) viruses were assigned to genetic clade 3C.2a1b.2a.2a.3a.1 and similar to the reference strain A/Thailand/08/2022, 16 viruses were assigned to genetic clade 2a.3b and similar to the reference virus A/Sydney/732/2022 and 1 strain - assigned to clade 3C.2a.1b.2a.2a.2a.3b and similar to the reference virus A/Sydney/732/2022. 50 B influenza isolates were assigned to genetic subclade V1A.3a.2 and similar to the vaccine strain B/Austria/1359417/2021. All viruses were sensitive to neuraminidase inhibitors (oseltamivir, zanamivir).

**Susceptibility to antivirals.** Since the beginning of the season 2023-2024, the sensitivity of 616 influenza viruses to neuraminidase inhibitors (oseltamivir, zanamivir) was studied in two NICs (Moscow, Saint-Petersburg), including 4 A(H1N1)pdm09 influenza viruses, 604 A(H3N2) influenza viruses and 8 influenza B virus. All studied viruses were sensitive to neuraminidase inhibitors, except for 2 strain of A(H3N2) isolated in Moscow, which showed reduced sensitivity to oseltamivir.

**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 15.1% (PCR).

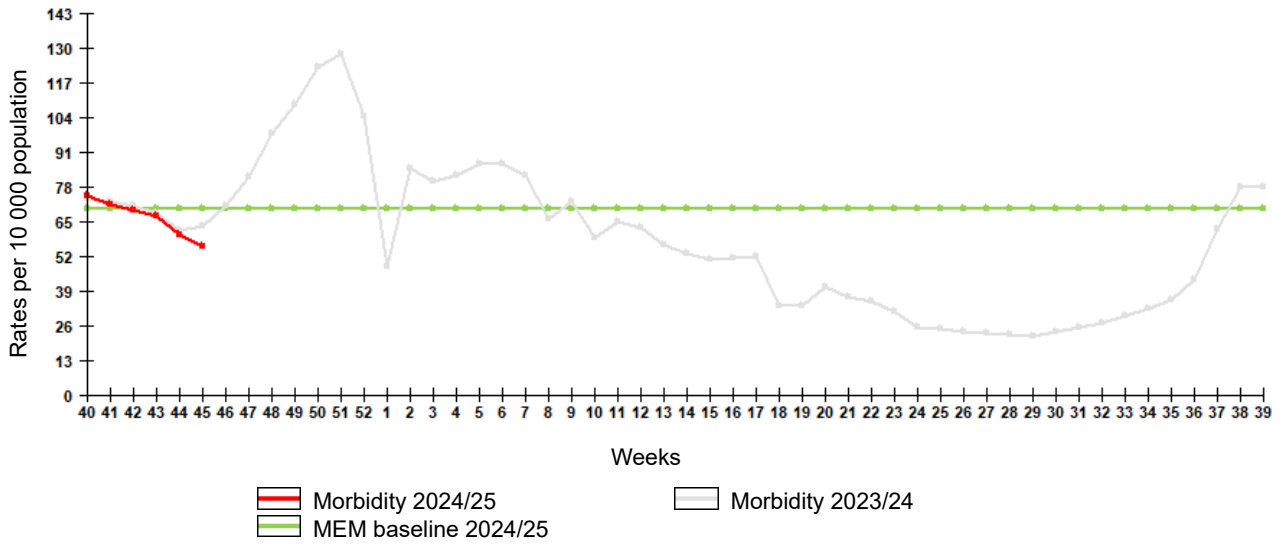
**In sentinel surveillance system** clinical samples from 20 SARI patients were investigated by rRT-PCR for influenza, among them no positive cases recognized. Among 20 SARI patients no positive cases of coronavirus SARS-CoV-2 recognized. Among 20 SARI samples 3 (15.0%) cases positive for ARVI were detected including: 1 case of PIV and 2 cases of RhV infection.

Clinical samples from 19 ILI/ARI patients were investigated by rRT-PCR for influenza, among them no positive cases recognized. Among 19 ILI/ARI samples 3 (15.8%) cases positive for ARVI were detected including: 1 case of PIV and 2 cases of RhV infection. Among 19 ILI/ARI patients no positive cases of coronavirus SARS-CoV-2 recognized.

**COVID-19.** Totally 24 645 303 cases and 403 839 deaths associated with COVID-19 were registered in Russia including 22 398 cases and 45 deaths in week 45. According to the data obtained by NIC in Saint-Petersburg totally 16949 clinical samples were PCR investigated in last week. Among them coronavirus SARS-CoV-2 detected in 690 (4.1%) cases.

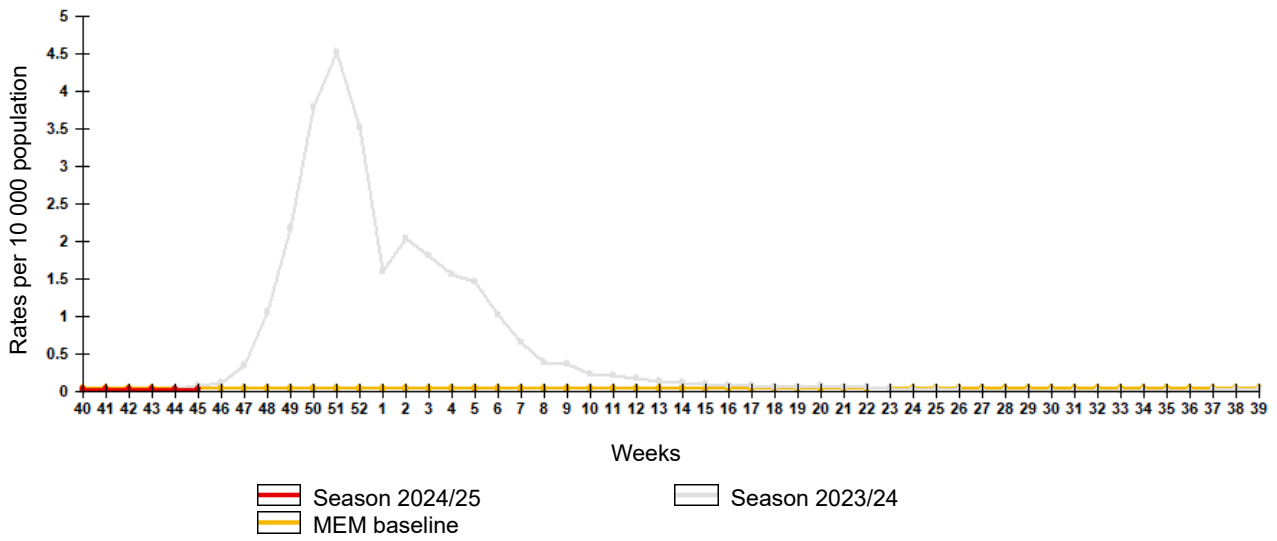
# Influenza and ARI morbidity data

Fig. 1. Influenza and ARI morbidity in 61 cities under surveillance in Russia, seasons 2023/24 and 2024/25



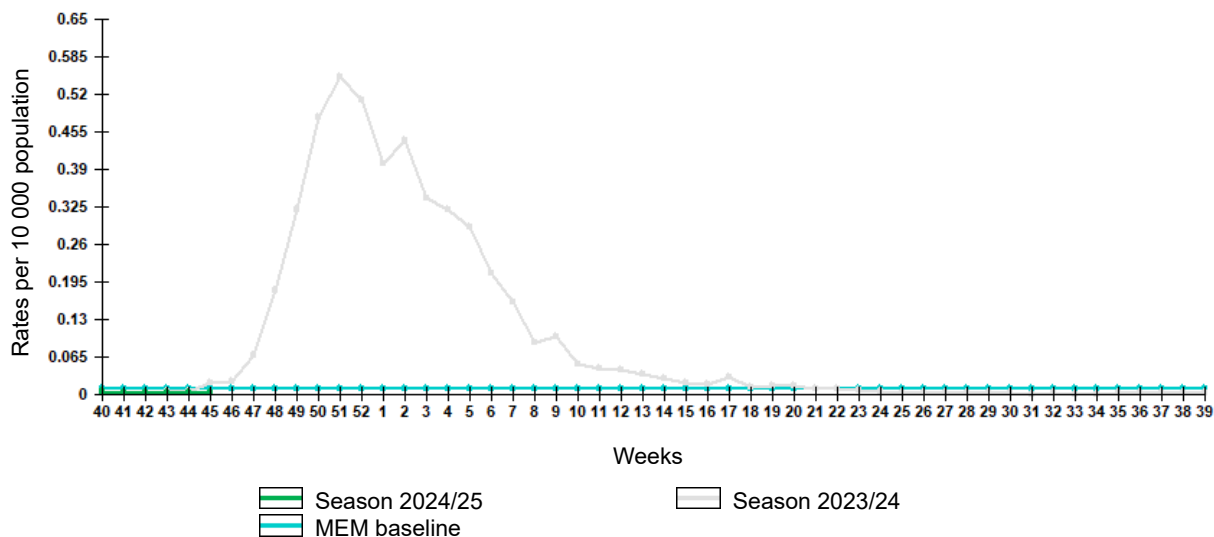
Epidemiological data decreased of influenza and other ARI activity in Russia in comparison with previous week. The nationwide ILI and ARI morbidity level (56.0 per 10 000 of population) was lower than national baseline (70.0) by 20.0%.

Fig. 2. Comparative data on incidence rate of clinically diagnosed influenza, seasons 2023/24 and 2024/25



Incidence rate of clinically diagnosed influenza decreased comparing to previous week and amounted to 0.018 per 10 000 of population, it was lower than pre-epidemic MEM baseline (0.040).

Fig. 3. Comparison of hospitalization rate with clinical diagnosis of influenza, seasons 2023/24 and 2024/25



Hospitalization rate of clinically diagnosed influenza increased comparing to previous week and amounted to 0.0034 per 10 000 of population, it was lower than pre-epidemic MEM baseline (0.010).

## Influenza and ARVI laboratory testing results

Cumulative results of influenza laboratory diagnosis by rRT-PCR were submitted by 46 RBLs and two WHO NICs. According to these data as a result of 9288 patients investigation 14 (0.2%) respiratory samples were positive for influenza, including 3 cases of unsubtyped influenza A in 2 cities, 3 cases of influenza A(H3N2) in 2 cities and 8 cases of influenza B in 4 cities.

One influenza virus A(H3N2) was isolated on MDCK cell culture in Saint-Petersburg. Since the beginning of the season 2 influenza viruses were isolated on MDCK cell culture in Saint-Petersburg, including: 1 virus A(H1N1)pdm09 and 1 virus A(H3N2).

**Antigenic characterization.** The first influenza A(H1N1)pdm09 virus isolated in Saint-Petersburg (NIC) of the a patient from the city of Volzhsk in the 2024-2025 epidemic season was antigenically characterized. The virus reacted to 1:8 homologous titer with serum to the reference strain A/Victoria/4897/22 recommended in the vaccines for the Northern Hemisphere countries for the 2024-2025 season.

**Genetic analysis.** Since the beginning of the season 2023-2024, sequencing of 6 A(H1N1)pdm09 influenza isolates, 1779 influenza viruses and isolates from primary clinical materials from patients and 50 B influenza isolates were performed. According to phylogenetic analysis, 6 A(H1N1)pdm09 influenza isolates were assigned to genetic clade 6B.1A.5a.2a and similar to the vaccine strain A/Victoria/2570/2019, 1762 influenza A(H3N2) viruses were assigned to genetic clade 3C.2a1b.2a.2a.3a.1 and similar to the reference strain A/Thailand/08/2022, 16 viruses were assigned to genetic clade 2a.3b and similar to the reference virus A/Sydney/732/2022 and 1 strain - assigned to clade 3C.2a.1b.2a.2a.2a.3b and similar to the reference virus A/Sydney/732/2022. 50 B influenza isolates were assigned to genetic subclade V1A.3a.2 and similar to the vaccine strain B/Austria/1359417/2021. All viruses were sensitive to neuraminidase inhibitors (oseltamivir, zanamivir).

**Susceptibility to antivirals.** Since the beginning of the season 2023-2024, the sensitivity of 616 influenza viruses to neuraminidase inhibitors (oseltamivir, zanamivir) was studied in two NICs (Moscow, Saint-Petersburg), including 4 A(H1N1)pdm09 influenza viruses, 604 A(H3N2) influenza viruses and 8 influenza B virus. All studied viruses were sensitive to neuraminidase inhibitors, except for 2 strain of A(H3N2) isolated in Moscow, which showed reduced sensitivity to oseltamivir.

Fig. 4. Geographic distribution of RT-PCR detected influenza viruses in cities under surveillance in Russia, week 45 of 2024

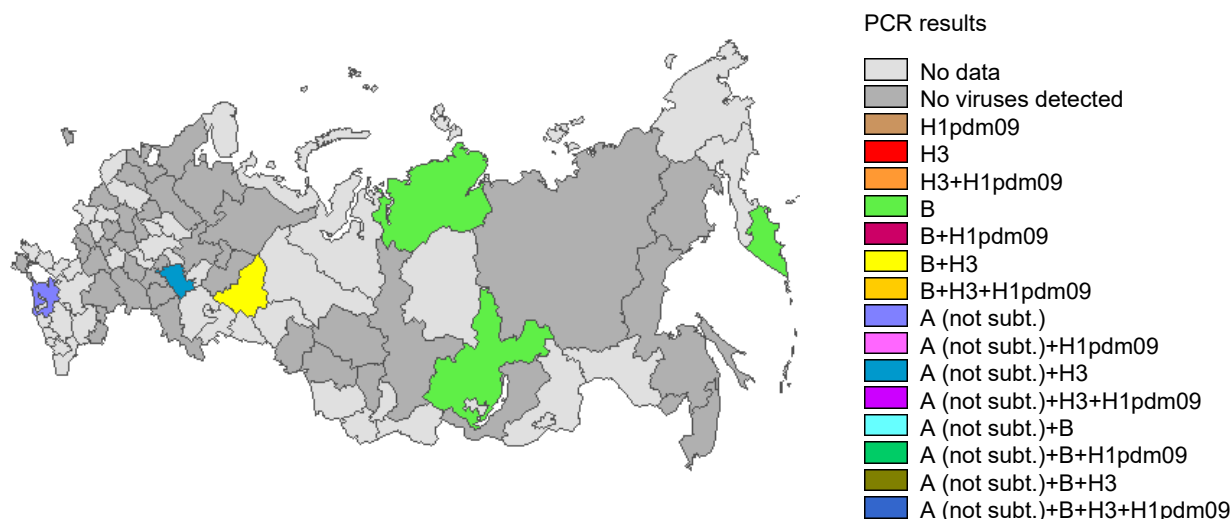


Fig. 5. Monitoring of influenza viruses detection by RT-PCR in Russia, season 2024/25

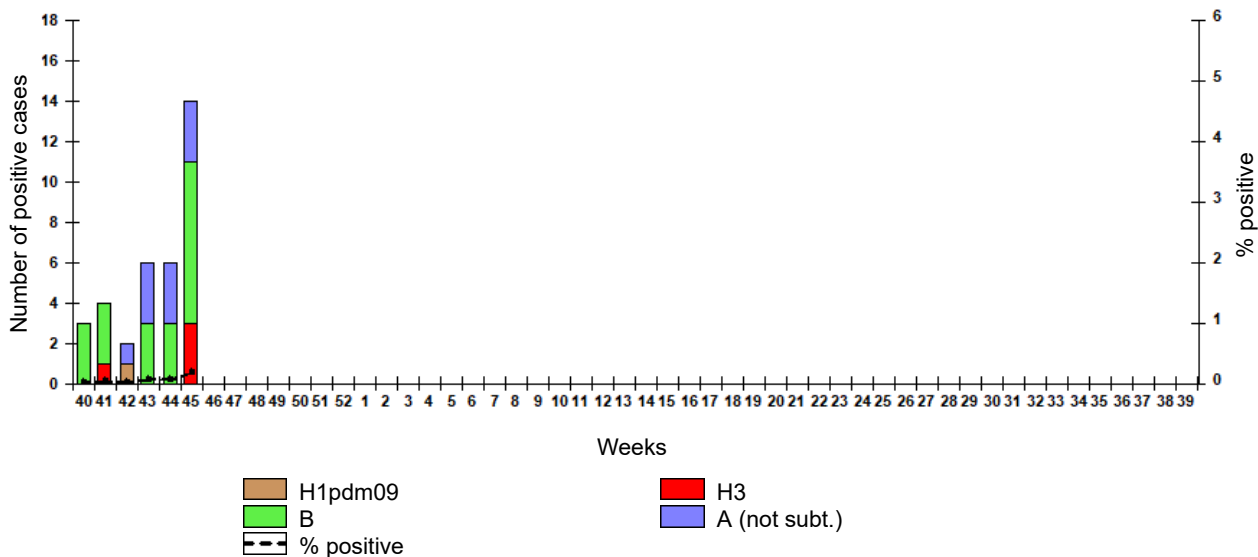
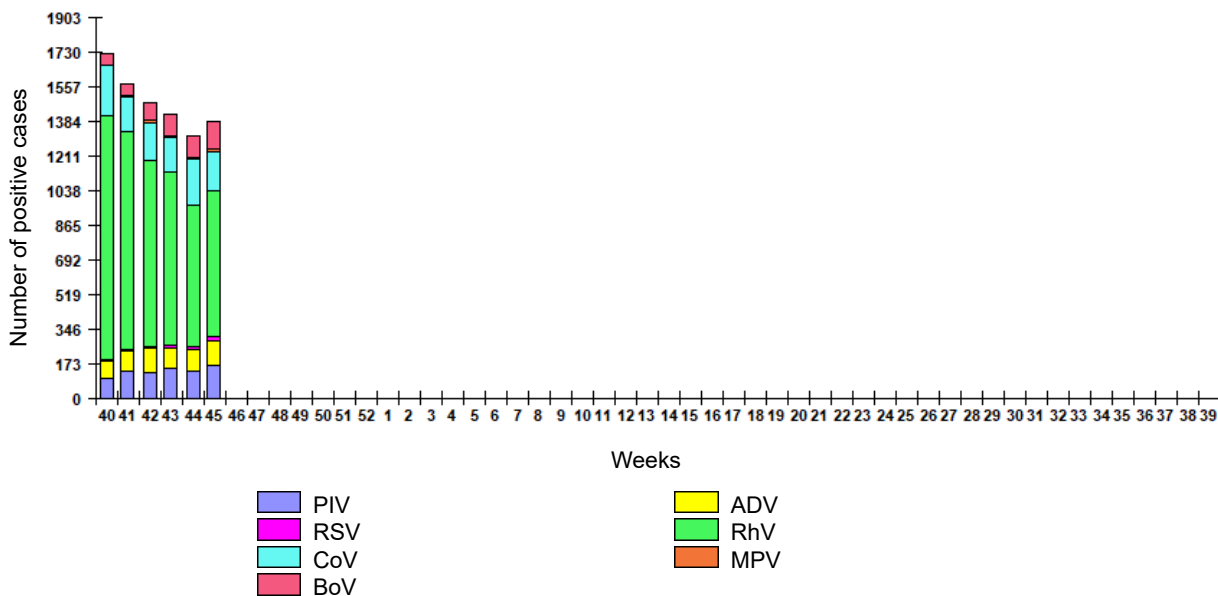


Fig. 6. Monitoring of ARVI detection by RT-PCR in Russia, season 2024/25



**ARVI detections.** The overall proportion of respiratory samples tested positive for other ARVI (PIV, ADV, RSV, RhV, CoV, MPV, BoV) estimated as **15.1%** of investigated samples by PCR.

Fig. 7. Monitoring of influenza viruses isolation in Russia, season 2024/25

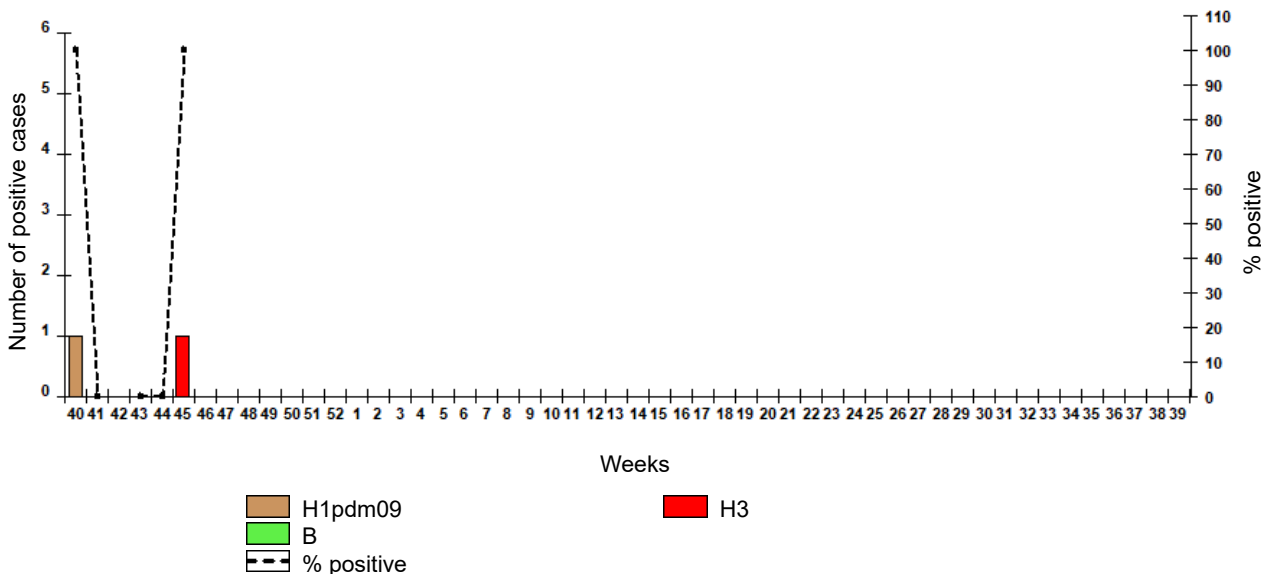


Table 1. Results of influenza and other ARVI detection by RT-PCR in Russia, week 45 of 2024

	Number of specimens / number of positive cases	% positive
<u>Influenza</u>		
Number of specimens tested for influenza	9288	-
Influenza A (not subt.)	3	0,03%
Influenza A(H1)pdm09	0	0,0%
Influenza A(H3)	3	0,03%
Influenza B	8	0,09%
All influenza	14	0,2%
<u>Other ARVI</u>		
Number of specimens tested for ARVI	9210	-
PIV	167	1,8%
ADV	124	1,3%
RSV	23	0,2%
RhV	730	7,9%
CoV	195	2,1%
MPV	14	0,2%
BoV	135	1,5%
All ARVI	1388	15,1%
<u>SARS-CoV-2 (COVID-19)</u>		
Number of specimens tested for SARS-CoV-2	16949	-
SARS-CoV-2	690	4,1%

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



**COVID-19.** Totally 24 645 303 cases and 403 839 deaths associated with COVID-19 were registered in Russia including 22 398 cases and 45 deaths in week 45. According to the data obtained by NIC in Saint-Petersburg totally 16949 clinical samples were PCR investigated in last week. Among them coronavirus SARS-CoV-2 detected in 690 (4.1%) cases.

Table 2. Results of influenza viruses isolation in Russia, week 45 of 2024

	Number of specimens / number of viruses	% isolated viruses
Number of specimens	1	-
Influenza A(H1)pdm09	0	0,0%
Influenza A(H3)	1	100,0%
Influenza B	0	0,0%
All influenza	1	100,0%

## Sentinel influenza surveillance

Clinical samples from 20 SARI patients were investigated by rRT-PCR for influenza, among them no positive cases recognized. Among 20 SARI patients no positive cases of coronavirus SARS-CoV-2 recognized. Among 20 SARI samples 3 (15.0%) cases positive for ARVI were detected including: 1 case of PIV and 2 cases of RhV infection.

Clinical samples from 19 ILI/ARI patients were investigated by rRT-PCR for influenza, among them no positive cases recognized. Among 19 ILI/ARI samples 3 (15.8%) cases positive for ARVI were detected including: 1 case of PIV and 2 cases of RhV infection. Among 19 ILI/ARI patients no positive cases of coronavirus SARS-CoV-2 recognized.

Fig. 9. Monitoring of influenza viruses detection by RT-PCR among SARI patients in sentinel hospitals, season 2024/25

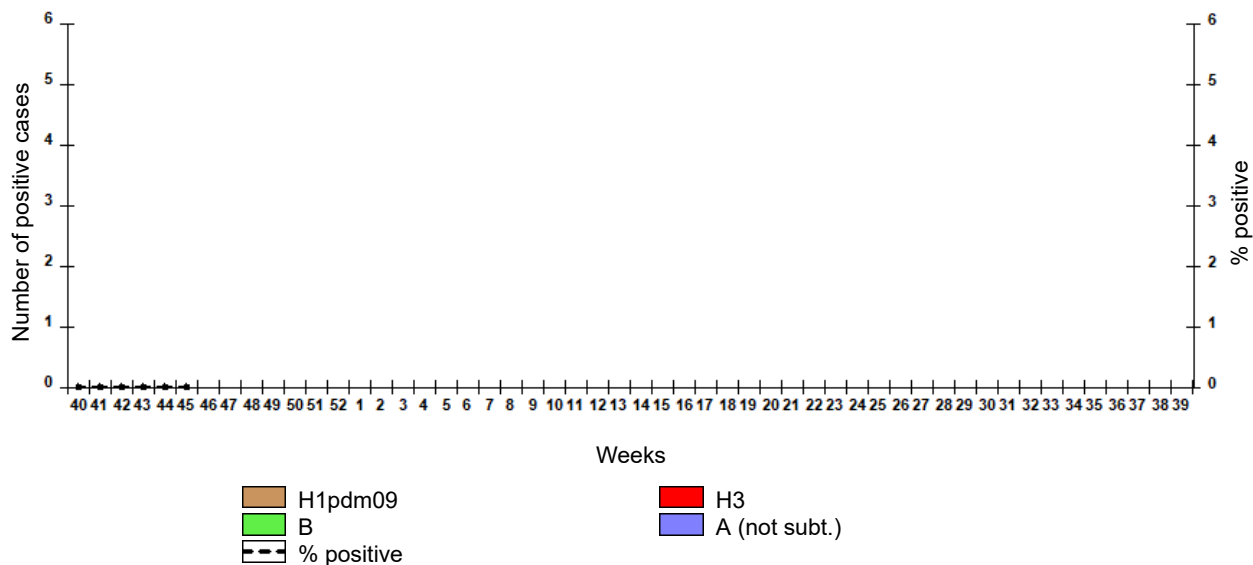


Fig. 10. Monitoring of influenza viruses detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2024/25

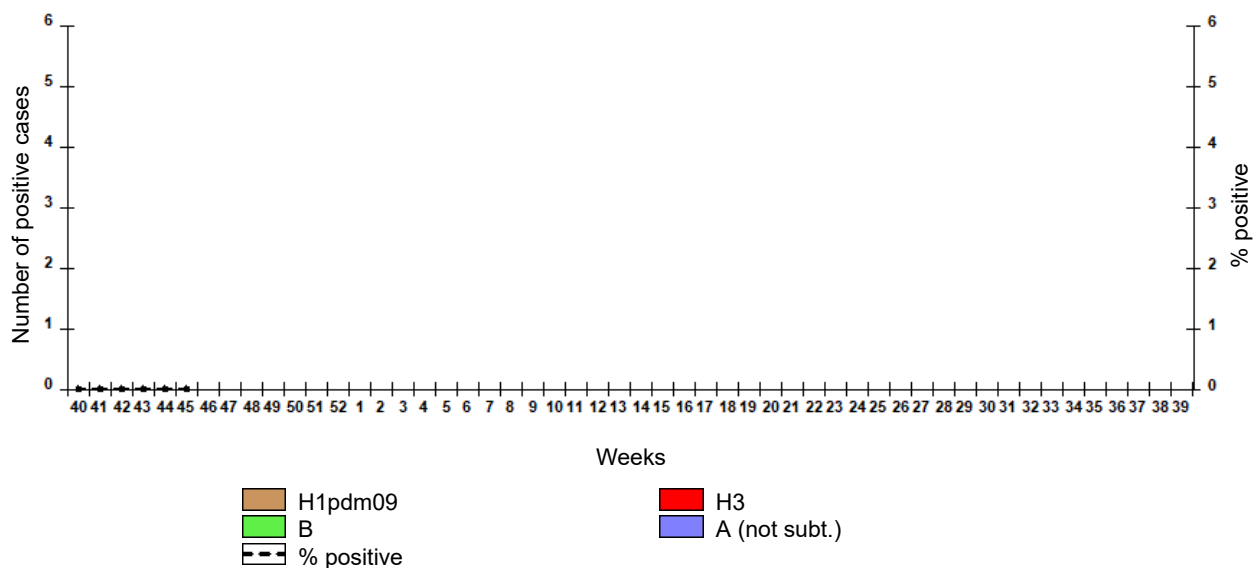


Fig. 11. Monitoring of ARVI detection by RT-PCR among SARI patients in sentinel hospitals, season 2024/25

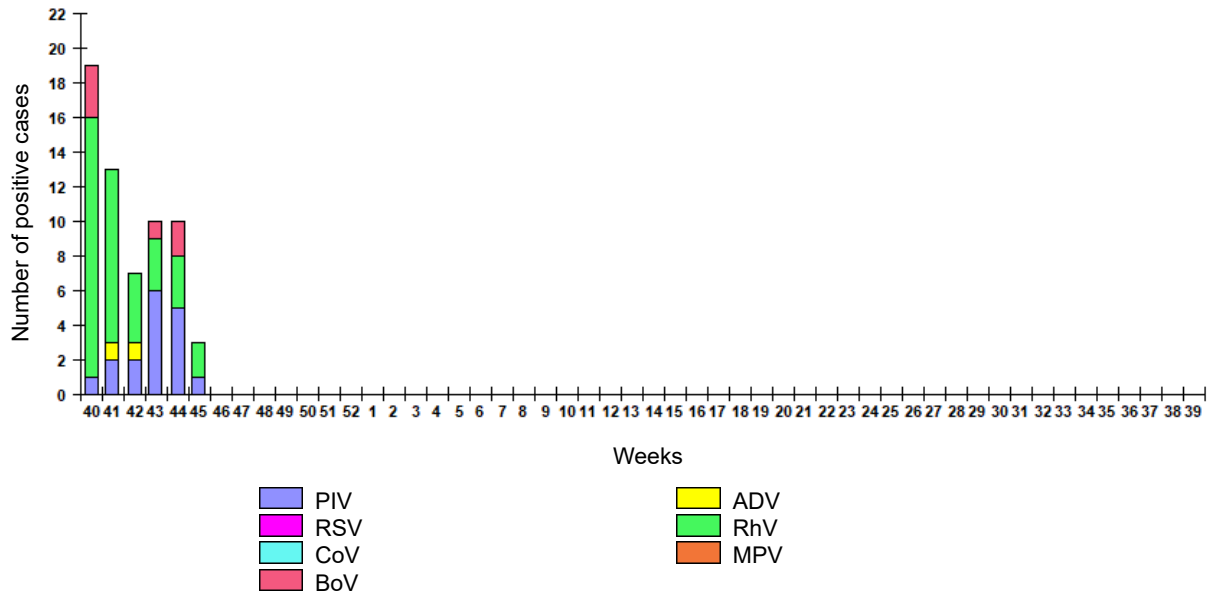


Fig. 12. Monitoring of ARVI detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2024/25

