NATIONAL WEEKLY INFLUENZA BULLETIN OF THE RUSSIAN FEDERATION

week 11 of 2024 (11.03.24 - 17.03.24)

Summary

Influenza and ARI incidence data. Influenza and other ARI activity in Russia increased in comparison with previous week. The nationwide ILI and ARI morbidity level (65.2 per 10 000 of population) was lower than national baseline (70.0) by 6.9%.

Etiology of ILI & ARI. Among 11060 patients investigation 279 (**2.5%**) respiratory samples were positive for influenza, including 6 cases of influenza A(H1N1)pdm09 in 2 cities, 114 cases of influenza A(H3N2) in 27 cities, 81 cases of unsubtyped influenza A in 8 cities and 78 cases of influenza B in 15 cities.

16 influenza viruses were isolated on MDCK cell culture, including: 13 cases of influenza A(H3N2) in Astrakhan (1), Veliky Novgorod (1), Vladiostok (1), Yekaterinburg (2), Orenburg (5), Saint-Petersburg (3) and 3 cases of influenza B in Vladivostok (1), Noosibirsk (1), Saint-Petersburg (1). Since the beginning of the season 1001 influenza viruses were isolated on MDCK cell culture, including: 5 influenza viruses A(H1N1)pdm09, 972 viruses A(H3N2) and 24 viruses B.

Antigenic characterization. Since the beginning of the season 618 influenza have been antigenically characterized by the NICs, including: 1 influenza A(H1N1)pdm09 virus, 609 influenza A(H3N2) viruses in Moscow (172) and Saint-Petersburg (437) and 8 influenza B viruses in Moscow (6) and Saint-Petersburg (2). Influenza A(H1N1)pdm09 virus was the drift-variant vaccine strain for the Northern Hemisphere countries for the 2023-2024 season A/Victoria/4897/22 (H1N1)pdm09; 388 influenza A(H3N2) viruses were antigenically similar to vaccine strain for the Northern Hemisphere countries for the 2023-2024 season A/Darwin/09/2021 and 221 viruses were a drift variant of the vaccine strain A/Darwin/09/2021 and reacted with antiserum to it in a reduced titer (1:8 and low). 3 influenza B viruses were antigenically similar to vaccine strain for the Northern Hemisphere countries for the 2023-2024 season A/Austria/1359417/2021 and 5 were its drift variants.

Genetic analysis. Since the beginning of the season 2023-2024, sequencing of 5 A(H1N1)pdm09 influenza isolates, 1364 influenza viruses and isolates from primary clinical materials from patients and 2 B influenza isolates were performed by NIC (Saint-Petersburg). According to phylogenetic analysis, 5 A(H1N1)pdm09 influenza isolates were assigned to genetic clade 6B.1A.5a.2a and similar to the vaccine strain A/Victoria/2570/2019, 1364 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, 1 virus was assigned to genetic clade 2a.3b and similar to the reference virus A/Sydney/732/2022, 2 B influenza isolates were assigned to genetic subclade 6B.1A.5a.2a 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 449 influenza viruses to neuraminidase inhibitors (oseltamivir, zanamivir) was studied in two NICs (Moscow, Saint-Petersburg), including 448 A(H3N2) influenza viruses and 1 influenza B virus. All studied viruses were sensitive to neuraminidase inhibitors, except for one 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 **21.8%** (PCR).

In sentinel surveillance system clinical samples from 48 SARI patients were investigated by rRT-PCR for influenza, among them 1 (**2.1%**) case of influenza A(H3N2) was detected. 3 (**6.3%**) of 48 SARI patients were positive for coronavirus SARS-CoV-2. Among 38 SARI samples 6 (**15.8%**) cases positive for ARVI were detected including: 1 case of ADV, 2 cases of RSV, 1 case of RhV, 1 case of CoV and 1 case of MPV infection.

Clinical samples from 51 ILI/ARI patients were investigated for influenza by rRT-PCR, among them no cases were detected. Among 41 ILI/ARI samples 17 (**41.5%**) cases positive for ARVI were detected including: 1 case of PIV, 2 cases of RSV, 5 cases of RhV, 8 cases of CoV and 1 case of MPV infection. 7 (**14.0%**) of 50 ILI/ARI patients were positive for coronavirus SARS-CoV-2.

COVID-19. Totally 24 057 759 cases and 402 541 deaths associated with COVID-19 were registered in Russia including 24 056 cases and 77 deaths in week 11. According to the data obtained by NIC in Saint-Petersburg totally 13 499 clinical samples were PCR investigated in last week. Among them coronavirus SARS-CoV-2 detected in 924 (**6.8%**) cases.

Influenza and ARI morbidity data

Fig. 1. Influenza and ARVI morbidity in 61 cities under surveillance in Russia, seasons 2022/23 and 2023/24
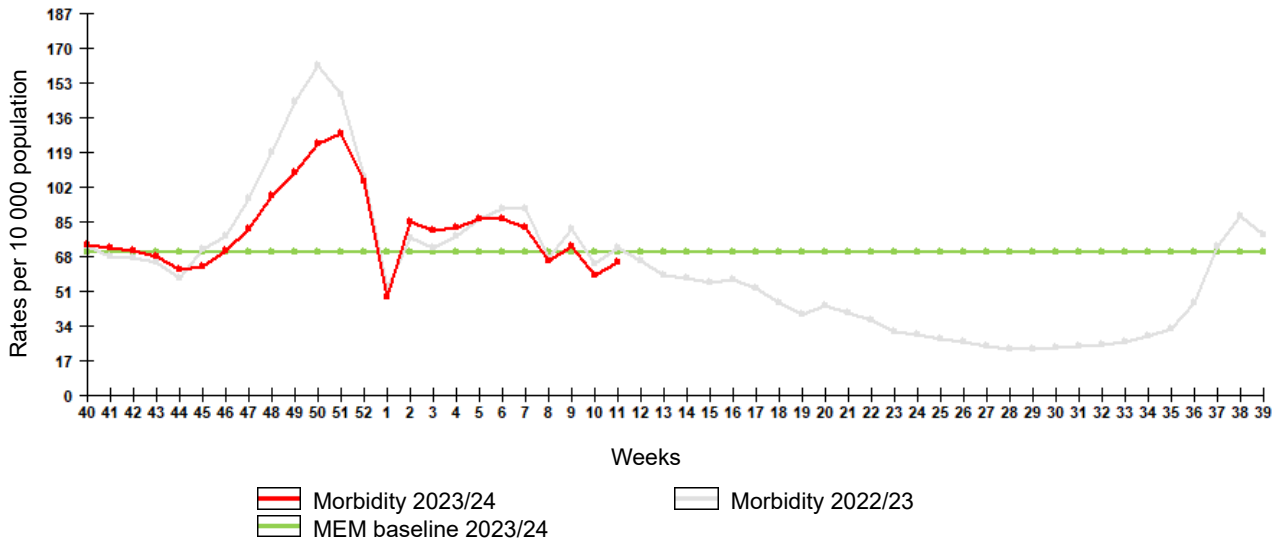

Epidemiological data increased of influenza and other ARI activity in Russia in comparison with previous week. The nationwide ILI and ARI morbidity level (65.2 per 10 000 of population) was lower than national baseline (70.0) by 6.9%.

Fig. 2. Comparative data on incidence rate of clinically diagnosed influenza, seasons 2022/23 and 2023/24
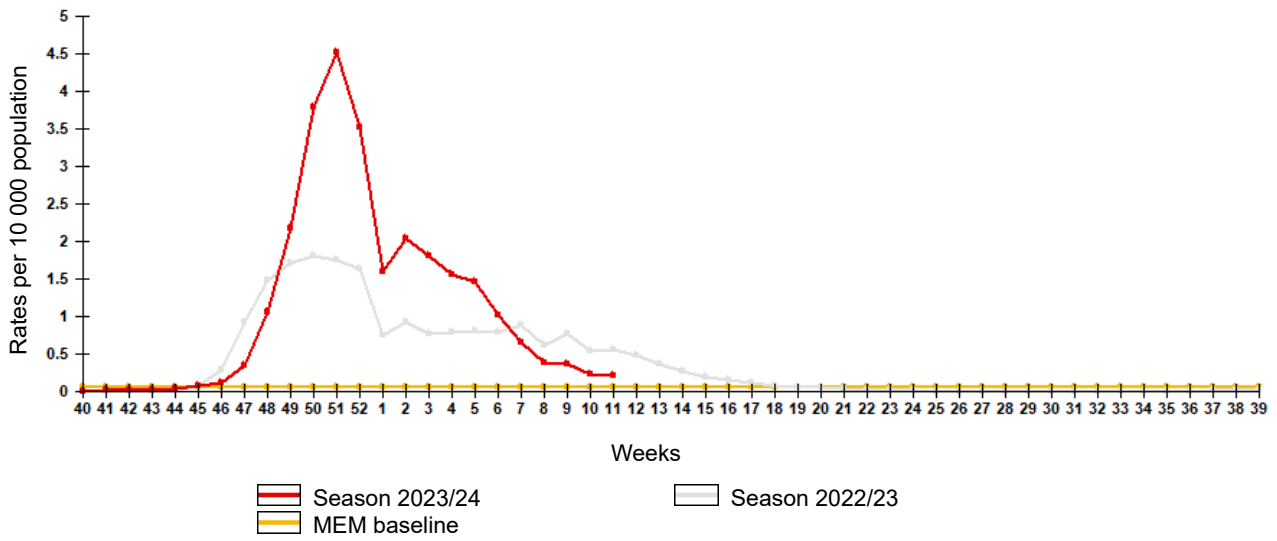
Incidence rate of clinically diagnosed influenza decreased comparing to previous week and amounted to 0.21 per 10 000 of population, it was higher than pre-epidemic MEM baseline (0.060).

Fig. 3. Comparison of hospitalization rate with clinical diagnosis of influenza, seasons 2022/23 and 2023/24
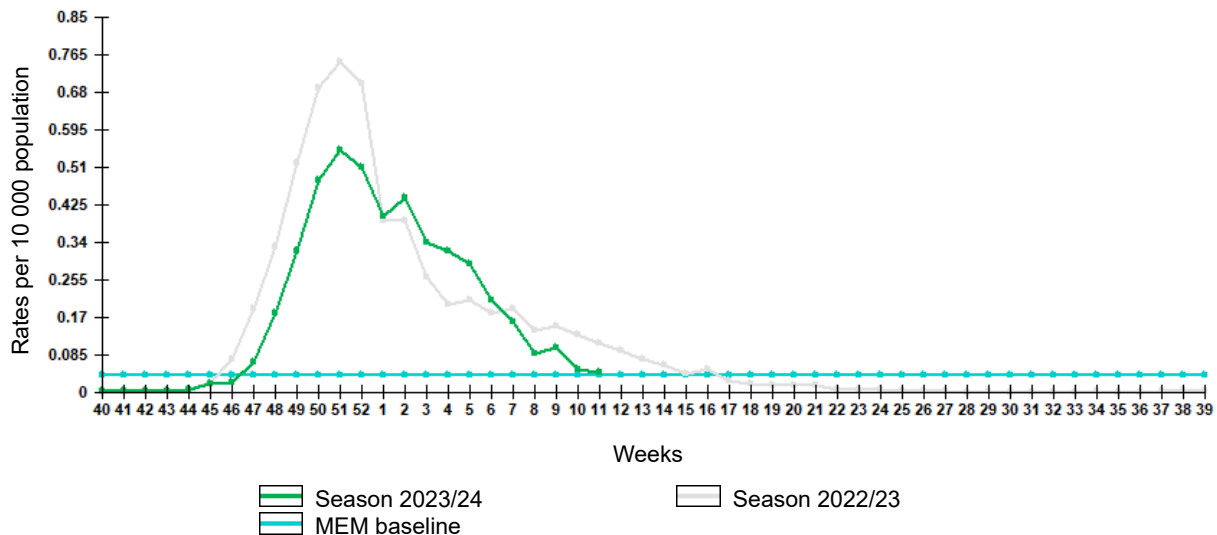
Hospitalization rate of clinically diagnosed influenza decreased comparing to previous week and amounted to 0.045 per 10 000 of population, it was higher than pre-epidemic MEM baseline (0.040).

Influenza and ARVI laboratory testing results

Cumulative results of influenza laboratory diagnosis by rRT-PCR were submitted by 46 RBLs and two WHO NICs. According to these data as a result of 11060 patients investigation 279 (**2.5%**) respiratory samples were positive for influenza, including 6 cases of influenza A(H1N1)pdm09 in 2 cities, 114 cases of influenza A(H3N2) in 27 cities, 81 cases of unsubtyped influenza A in 8 cities and 78 cases of influenza B in 15 cities.

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Susceptibility to antivirals. Since the beginning of the season 2023-2024, the sensitivity of 449 influenza viruses to neuraminidase inhibitors (oseltamivir, zanamivir) was studied in two NICs (Moscow, Saint-Petersburg), including 448 A(H3N2) influenza viruses and 1 influenza B virus. All studied viruses were sensitive to neuraminidase inhibitors, except for one 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 11 of 2024
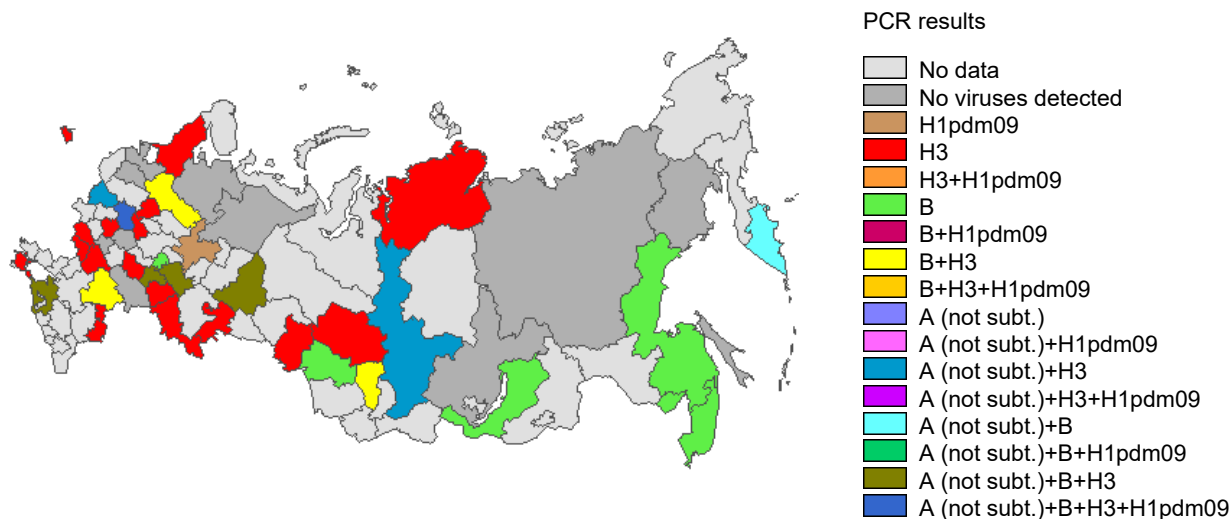
PCR results

- 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 2023/24

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

Fig. 6. Monitoring of ARVI detection by RT-PCR in Russia, season 2023/24

- PIV
- ADV
- RSV
- RhV
- CoV
- MPV
- BoV
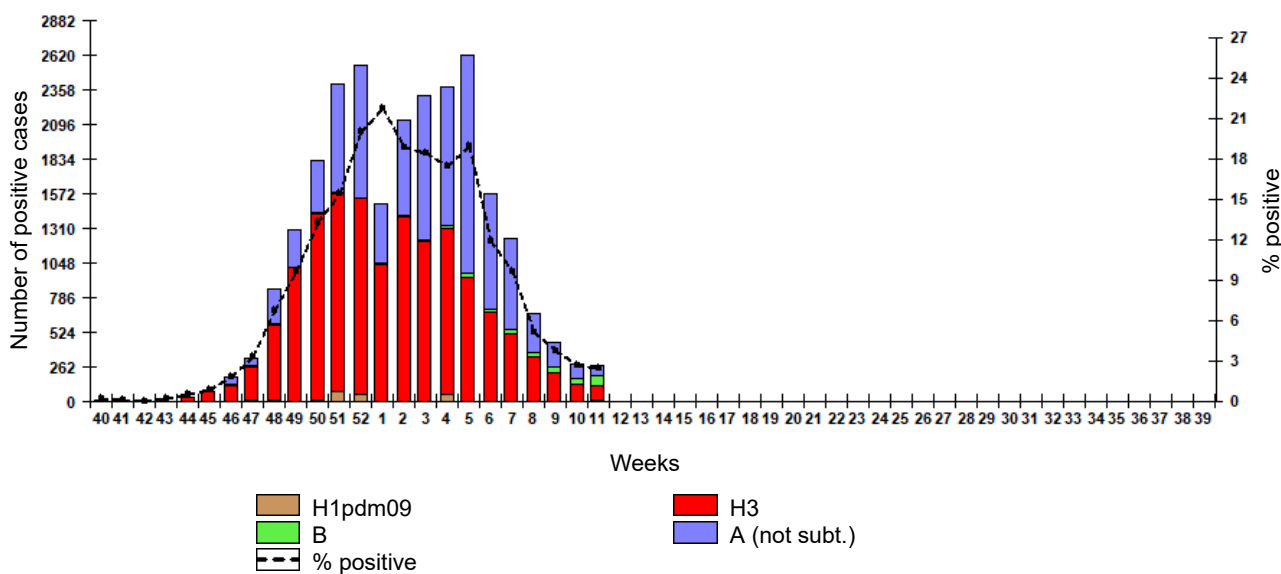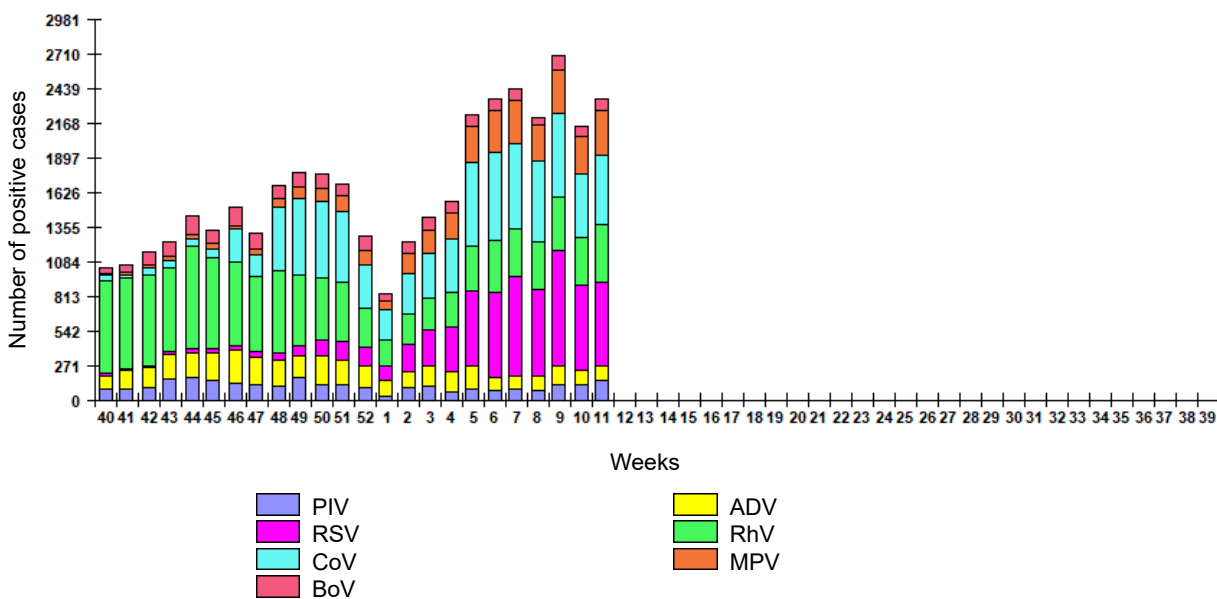
ARVI detections. The overall proportion of respiratory samples tested positive for other ARVI (PIV, ADV, RSV, RhV, CoV, MPV, BoV) estimated as **21.8%** of investigated samples by PCR.

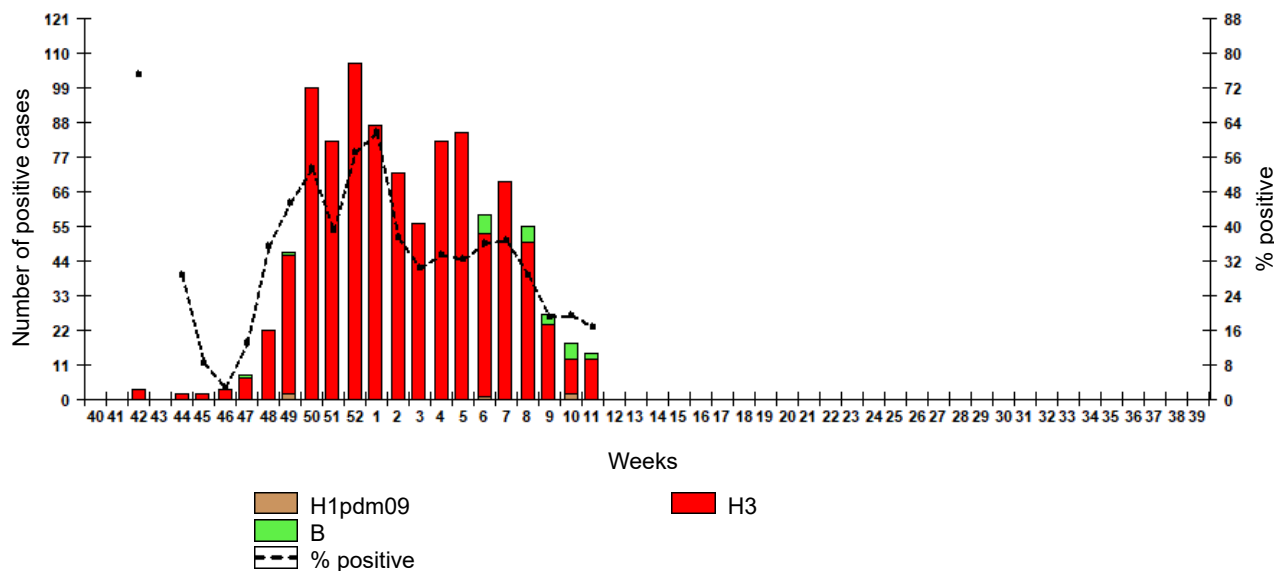*Fig. 7. Monitoring of influenza viruses isolation in Russia, season 2023/24*

Table 1. Results of influenza and other ARVI detection by RT-PCR in Russia, week 11 of 2024

	Number of specimens / number of positive cases	% positive
Influenza		
Number of specimens tested for influenza	11060	-
Influenza A (not subt.)	81	0,7%
Influenza A(H1)pdm09	6	0,05%
Influenza A(H3)	114	1,0%
Influenza B	78	0,7%
All influenza	279	2,5%
Other ARVI		
Number of specimens tested for ARVI	10844	-
PIV	155	1,4%
ADV	118	1,1%
RSV	654	6,0%
RhV	454	4,2%
CoV	542	5,0%
MPV	350	3,2%
BoV	87	0,8%
All ARVI	2360	21,8%
SARS-CoV-2 (COVID-19)		
Number of specimens tested for SARS-CoV-2	13499	-
SARS-CoV-2	924	6,8%

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 24 057 759 cases and 402 541 deaths associated with COVID-19 were registered in Russia including 24 056 cases and 77 deaths in week 11. According to the data obtained by NIC in Saint-Petersburg totally 13 499 clinical samples were PCR investigated in last week. Among them coronavirus SARS-CoV-2 detected in 924 (**6.8%**) cases.

Table 2. Results of influenza viruses isolation in Russia, week 11 of 2024

	Number of specimens / number of viruses	% isolated viruses
Number of specimens	90	-
Influenza A(H1)pdm09	0	0,0%
Influenza A(H3)	13	14,4%
Influenza B	2	2,2%
All influenza	15	16,7%

Sentinel influenza surveillance

Clinical samples from 48 SARI patients were investigated by rRT-PCR for influenza, among them 1 (**2.1%**) case of influenza A(H3N2) was detected. 3 (**6.3%**) of 48 SARI patients were positive for coronavirus SARS-CoV-2. Among 38 SARI samples 6 (**15.8%**) cases positive for ARVI were detected including: 1 case of ADV, 2 cases of RSV, 1 case of RhV, 1 case of CoV and 1 case of MPV infection.

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Fig. 9. Monitoring of influenza viruses detection by RT-PCR among SARI patients in sentinel hospitals, season 2023/24
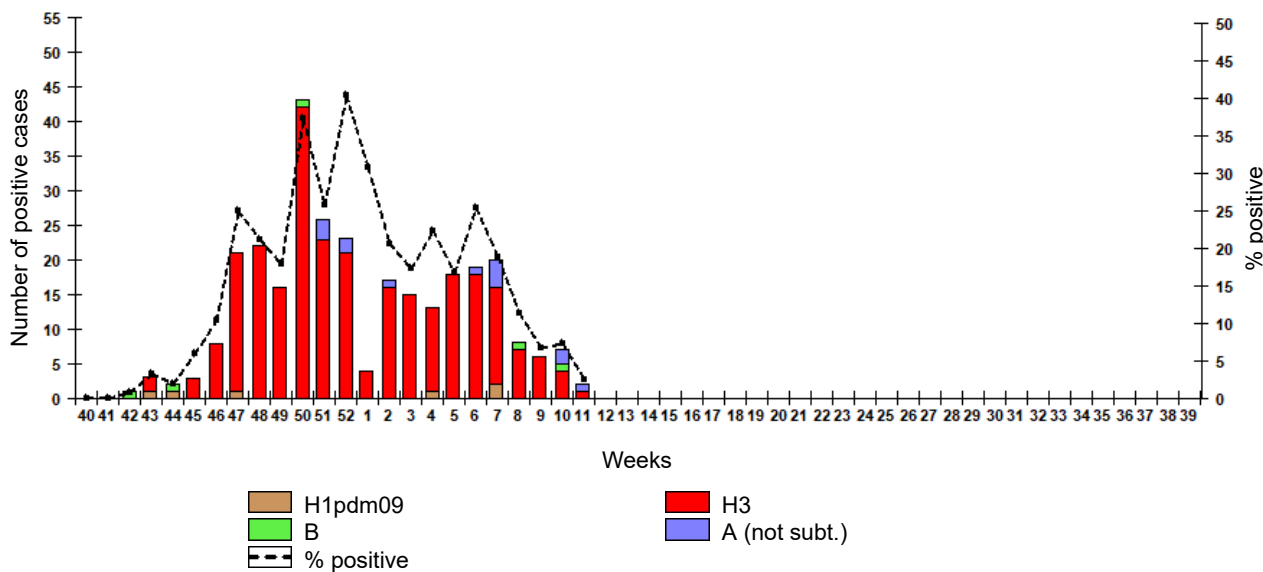

- H1pdm09
- B
- % positive
- H3
- A (not subt.)

Fig. 10. Monitoring of influenza viruses detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2023/24
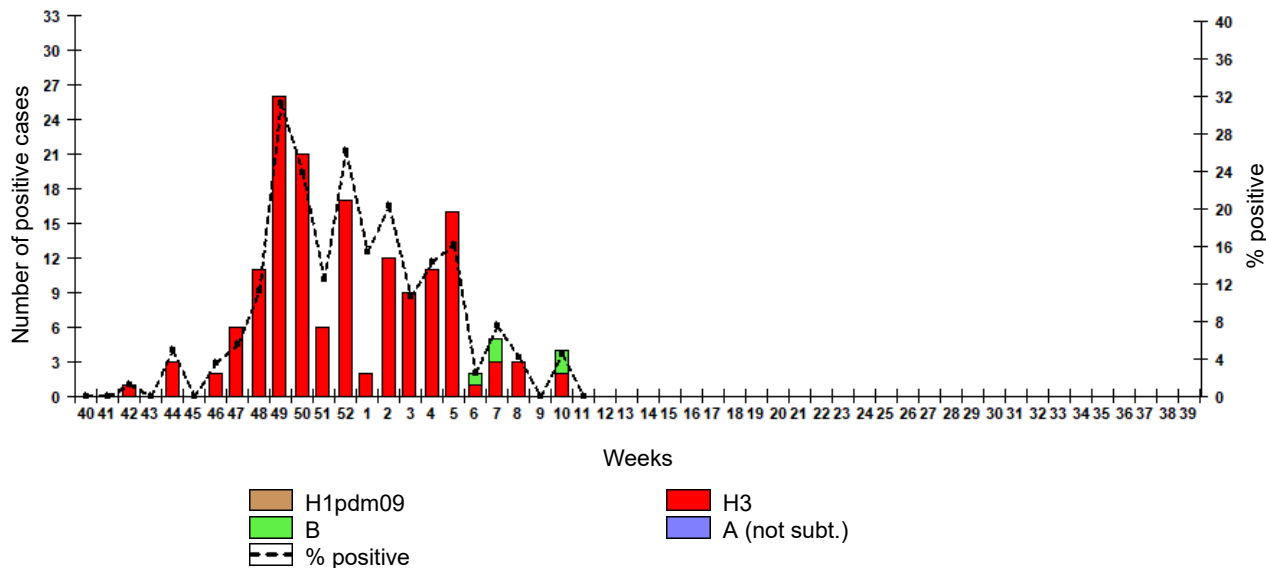

Fig. 11. Monitoring of ARVI detection by RT-PCR among SARI patients in sentinel hospitals, season 2023/24
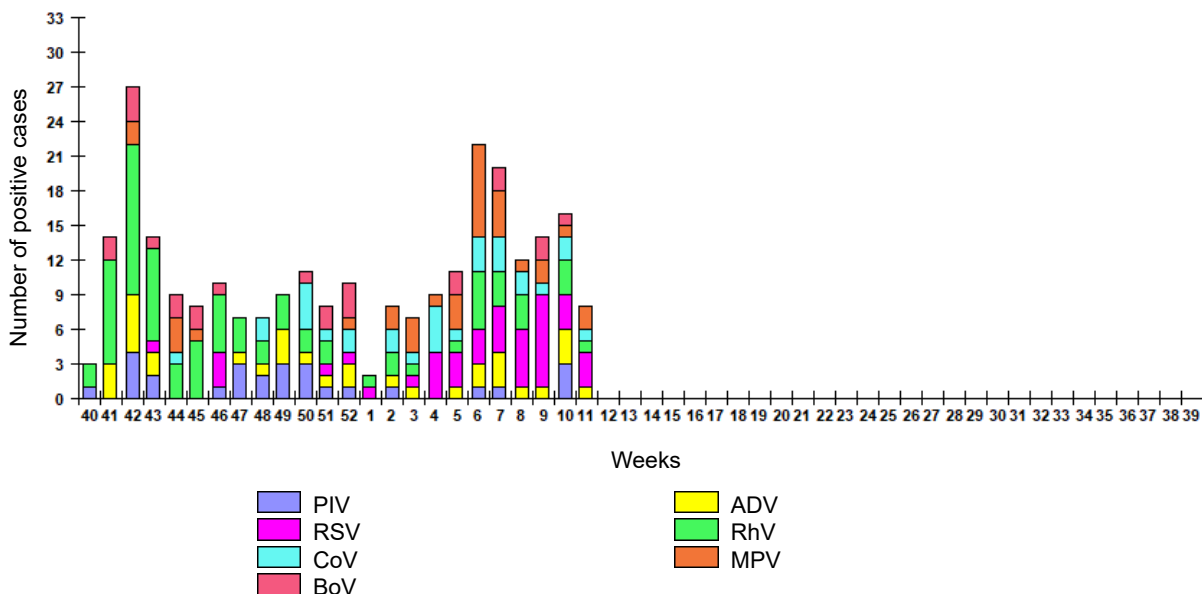

Fig. 12. Monitoring of ARVI detection by RT-PCR among ILI/ARI patients in sentinel polyclinics, season 2023/24