

Summary

Week 49/2022 (05 December – 11 December 2022)

- The percentage of sentinel primary care specimens from patients presenting with ILI or ARI symptoms that tested positive for an influenza virus remained above the epidemic threshold (10%) and increased to 23% from 22% in the previous week.
- Influenza activity is increasing across the Region with 27 countries reporting widespread activity and/or medium to very-high intensity.
- Georgia, Germany, Italy, Kyrgyzstan, Lithuania, Portugal and Slovakia reported seasonal influenza activity above 40% positivity in sentinel primary care.
- Both influenza type A and type B viruses were detected with A(H3) viruses being dominant in sentinel surveillance systems but with A(H1)pdm09 viruses dominating in non-sentinel surveillance systems.
- Hospitalized patients with confirmed influenza virus infection were reported from ICU wards, other wards and SARI surveillance. Infections due to type A viruses dominated. Among 126 SARI cases, 17% were due to A(H3) and 57% due to A(H1)pdm09. The proportion of infections due to type A viruses continued to increase. This trend is driven largely by countries in the Eastern part of the region, in which the proportion of type B viruses is decreasing.
- When comparing the different influenza type distributions by system, it is important to consider that different sets of countries report to each system.

2022-2023 season overview

- The seasonal epidemic activity threshold of 10% positivity in sentinel specimens was first crossed in week 45/2022.
- Influenza activity continues to increase across the Region with an earlier seasonal activity than in pre-COVID-19-pandemic seasons.
- Countries are experiencing a mixed virus situation with mainly type B virus circulation in the eastern part of the Region while A(H3) virus circulation dominates in the western part of the Region, including EU/EEA countries.
- Overall, influenza A(H3) viruses have dominated across most surveillance systems with recent increase and dominance of A(H1)pdm09 viruses in non-sentinel specimens.

Other news

- RSV is another respiratory virus that causes acute respiratory disease, mainly amongst young infants and the elderly, often mild but frequently severe among the

youngest children less than 1 year of age and frail elderly. High levels of RSV have been circulating across the Region since week 40/2022, but overall positivity amongst patients in primary care with acute respiratory illness decreased to 12.3% in week 49/2022, from 13.6% in week 48/2022.

For more information about the SARS-CoV-2 situation in the WHO European Region visit:

WHO website: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>

ECDC website: <https://www.ecdc.europa.eu/en/novel-coronavirus-china>

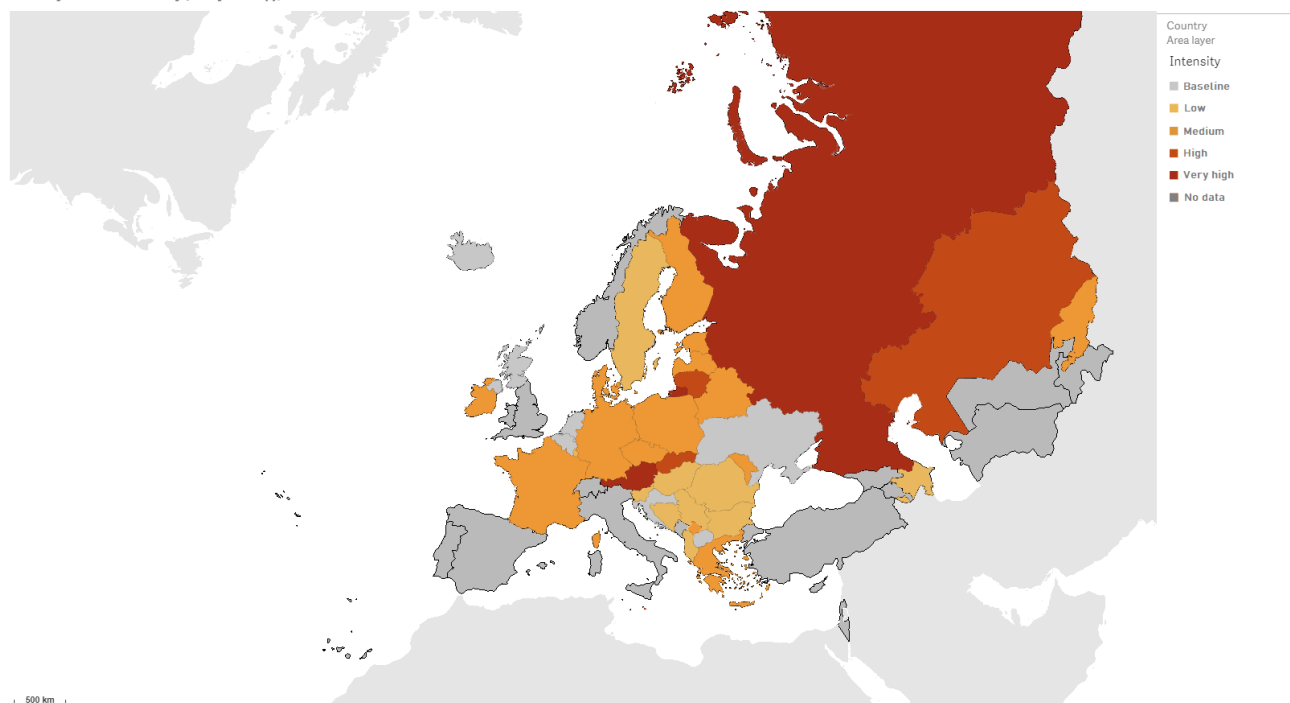
Qualitative indicators

For week 49/2022, of 38 countries and areas reporting on intensity of influenza activity, 8 reported baseline-intensity (across the Region), 10 reported low-intensity (across the Region), 14 reported medium-intensity (across the Region), 4 reported high-intensity (Kazakhstan, Lithuania, Malta and Slovakia) and 2 reported very high-intensity (Austria and Russian Federation) (Fig. 1).

Of 38 countries and areas reporting on geographic spread of influenza viruses, 2 reported no activity (Azerbaijan and Croatia), 7 reported sporadic spread (across the Region), 5 reported local spread (Lithuania, Malta, Serbia, Slovakia and United Kingdom (Northern Ireland)), 8 reported regional spread (across the Region) and 16 reported widespread activity (across the Region) (Fig. 2).

Figure 1. Intensity of influenza activity in the European Region, week 49/2022

Intensity of influenza activity (EU layout map), 2022-W49



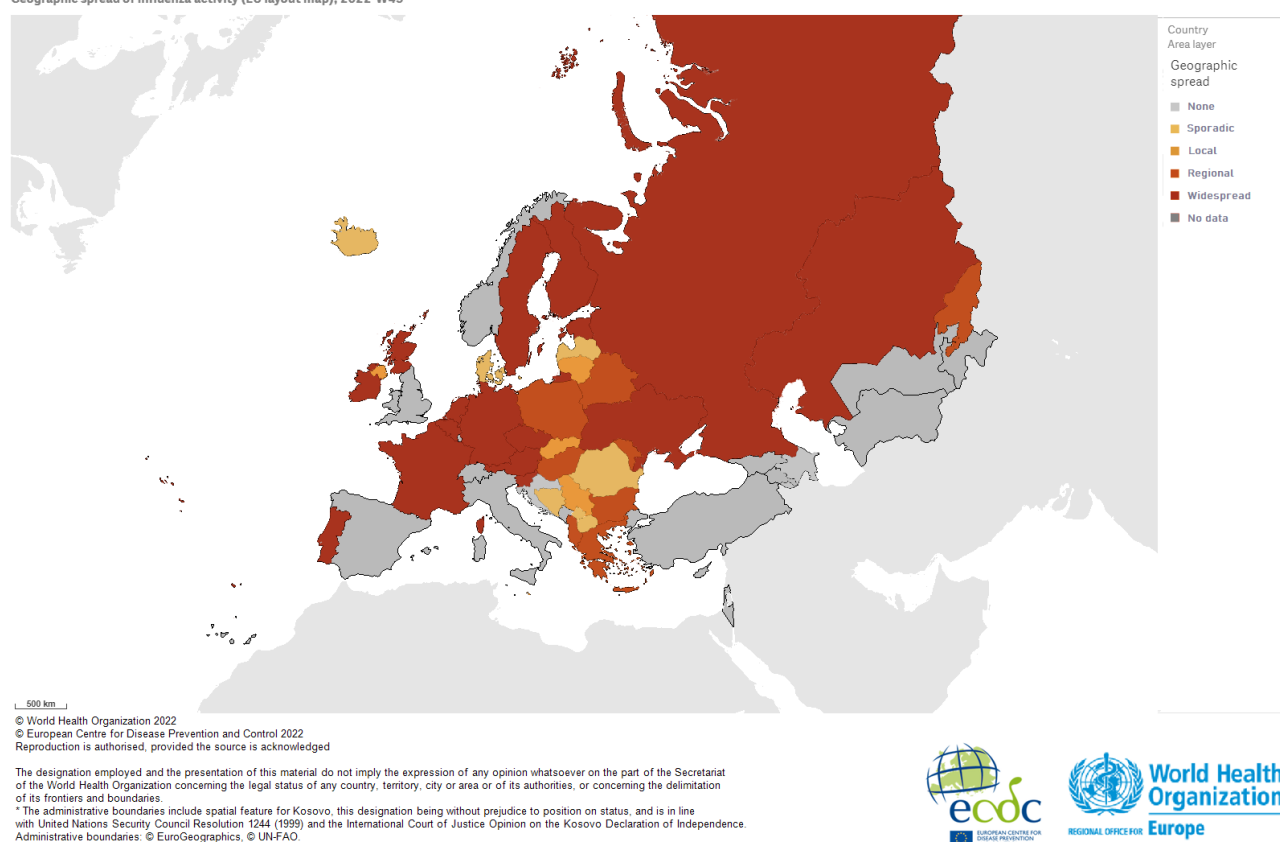
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Figure 2. Geographic spread of influenza viruses in the European Region, week 49/2022

Geographic spread of influenza activity (EU layout map), 2022-W49



For interactive maps of influenza intensity and geographic spread, see the [Flu News Europe website](#).

Please note:

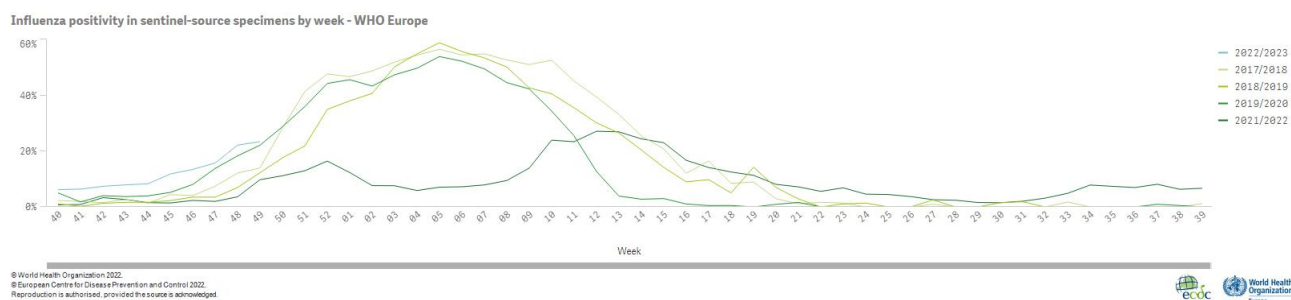
Assessment of the intensity of activity indicator includes consideration of ILI or ARI rates. These ILI or ARI rates might be driven by respiratory infections caused by viruses other than influenza, including SARS-CoV-2 and RSV, leading to observed increases in the absence of influenza virus detections.

Assessment of intensity and geographic spread indicators includes consideration of sentinel and non-sentinel influenza virus detection data. Non-sentinel influenza virus detections, often higher, might translate into reporting of elevated geographic spread even in the absence of sentinel detections.

Influenza positivity

For the European Region, influenza virus positivity in sentinel primary care specimens increased from 22% in the previous week to 23% in week 49/2022. Seasonal activity above the epidemic threshold, which is set at 10%, started in week 45/2022. This is an earlier influenza epidemic start than in the four previous seasons: ranging from week 47 (2019/20 season) to 49 (2021/22 season) (Fig. 3).

Figure 3. Influenza virus positivity in sentinel-source specimens by week, WHO European Region, 2022/2023 and 4 recent seasons



External data sources

Mortality monitoring:

EuroMOMO estimates all-cause mortality for the participating European countries, the full report can be found here: <https://www.euromomo.eu/>

Please refer to the EuroMOMO website for a cautionary note relating to interpretation of these data.

Primary care data

Syndromic surveillance data

Of the countries and areas in which thresholds for ILI activity are defined, countries in eastern (n=4; Azerbaijan, Kyrgyzstan, Republic of Moldova and Russian Federation), northern (n=5; Denmark, Estonia, Ireland, Latvia and Lithuania), southern (n=3; Croatia, Greece and Serbia) and western (n=7; Austria, Belgium, Czechia, Hungary, Luxembourg, Poland and Switzerland) areas of the European Region reported activity above baseline levels.

Of the countries and areas in which thresholds for ARI activity are defined, countries in eastern (n=4; Belarus, Kyrgyzstan, Republic of Moldova and Russian Federation), northern (n=3; Estonia, Latvia and Lithuania), southern (n=2; Bulgaria and Romania) and western (n=3; Belgium, Czechia and Slovakia) areas of the European Region reported activity above baseline levels.

Please note:

Assessment of the syndromic surveillance data of ILI or ARI rates might be driven by respiratory infections with viruses other than influenza, including SARS-CoV-2 and RSV, leading to observed increases in the absence of influenza virus detections. The thresholds mentioned are related to the Moving Epidemic Method (MEM) method and based on historic ILI/ARI data.

Viruses detected in sentinel-source specimens (ILI and ARI)

For week 49/2022, 921 (23%) of 3 937 sentinel specimens tested positive for an influenza virus; 95% were type A and 5% were type B. Of 658 subtyped A viruses, 82% were A(H3)

and 18% A(H1)pdm09. All 7 type B viruses ascribed to a lineage were B/Victoria (Fig. 4 and Table 1).

Of 33 countries and areas across the Region that each tested at least 10 sentinel specimens in week 49/2022, 22 reported positivity rates of influenza virus detections above 10% (median 28%; range 13% - 75%): Slovakia (75%), Germany (56%), Lithuania (50%), Portugal (50%), Kyrgyzstan (47%), Georgia (45%), Italy (42%), France (32%), Czechia (30%), Netherlands (29%), Republic of Moldova (29%), Israel (28%), Ukraine (26%), Spain (26%), Luxembourg (25%), Poland (23%), Switzerland (22%), Slovenia (22%), Russian Federation (18%), Bulgaria (15%), Ireland (14%) and Norway (13%).

For the season to date, 4 465 (14%) of 32 008 sentinel specimens tested positive for an influenza virus. More influenza type A (n=4 084, 91%) than type B (n=381, 9%) viruses have been detected. Of 3 433 subtyped A viruses, 2 896 (84%) were A(H3) and 537 (16%) were A(H1)pdm09. All 140 influenza type B viruses ascribed to a lineage were B/Victoria (63% of type B viruses were reported without a lineage) (Fig. 4 and Table 1).

Details of the distribution of viruses detected in non-sentinel-source specimens are presented in the **virus characteristics** section.

Figure 4. Influenza virus positivity and detections by type, subtype/lineage – sentinel sources, WHO European Region, season 2022/2023

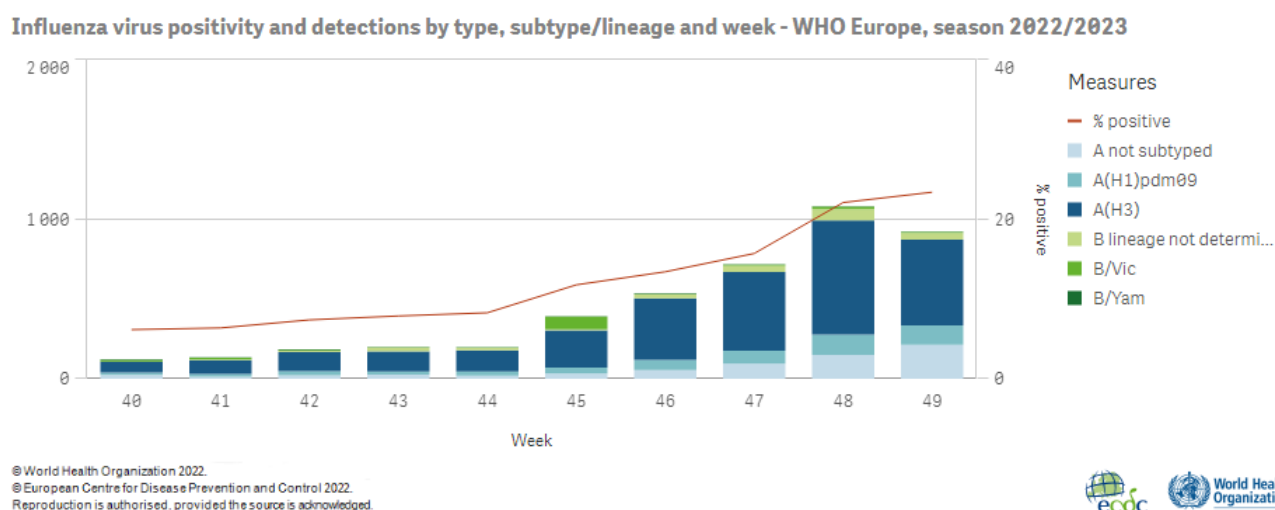


Table 1. Influenza virus detections in sentinel source specimens by type and subtype for week 49/2022 and cumulatively for the season

Sentinel	Current Week (49)		Season 2022-2023	
Virus type and subtype	Number	% ^a	Number	% ^a
Influenza A	872	94.7	4 084	91.5
A(H1)pdm09	120	18.2	537	15.6
A(H3)	538	81.8	2 896	84.4
A not subtyped	214	-	651	-
Influenza B	49	5.3	381	8.5
B/Victoria lineage	7	100	140	100
B/Yamagata lineage	0	0	0	0

Unknown lineage	42	-	241	-
Total detections (total tested)	921 (3 937)	23.4	4 465 (32 008)	13.9

^a For influenza type percentage calculations, the denominator is total detections; for subtype and lineage, it is total influenza A subtyped and total influenza B lineage determined, respectively; for total detections, it is total tested.

External data sources

Influenzanet collects weekly data on symptoms in the general community from different participating countries across the EU/EEA. Please refer to the website for additional information for week 49/2022.

Hospital surveillance

A subset of Member States and areas monitors severe disease related to influenza virus infection by surveillance of 1) hospitalized laboratory-confirmed influenza cases in ICUs, or other wards, or 2) severe acute respiratory infections (SARI).

Laboratory-confirmed hospitalized cases

1.1) Hospitalized laboratory-confirmed influenza cases - Intensive care units (ICUs)

For week 49/2022, 11 laboratory-confirmed influenza cases were reported from ICU wards (in Ireland and Sweden). Both influenza type A viruses (n=82%) and type B viruses (n=18%) were detected. Of 3 subtyped influenza type A viruses, 2 were A(H3) and 1 was A(H1)pdm09 (Fig. 5 and 6).

Since week 40/2022, more influenza type A (n=98, 90%) than type B (n=11, 10%) viruses were detected (from Czechia, Ireland, Sweden and United Kingdom (England; from week 40 through week 42 only)). Of 16 subtyped influenza A viruses, 56% were A(H1)pdm09 and 44% were A(H3). No influenza B viruses were ascribed to a lineage. Of 36 cases with known age, 16 were 65 years and older, 15 were 15-64 years old, 3 were 0-4 years old and 2 were 5-14 years old.

Figure 5. Number of laboratory-confirmed hospitalized influenza cases in intensive care units (ICU) by week of reporting, WHO European Region, season 2022/2023

*one country did not report after week 42

Number of laboratory-confirmed hospitalized cases in intensive care units by week of reporting - WHO Europe, season 2022/2023

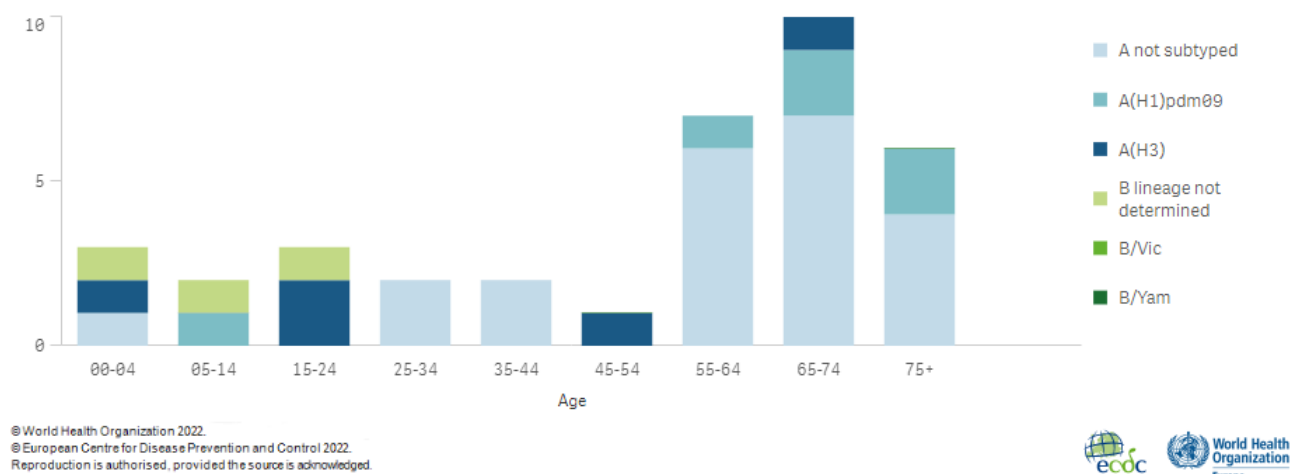


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Figure 6. Distribution of influenza virus types, subtypes/lineages by age group in intensive care units (ICU), WHO European Region, season 2022/2023

Distribution of virus types, subtypes/lineages by age group in intensive care units (ICU) - WHO Europe, season 2022/2023



1.2) Hospitalized laboratory-confirmed influenza cases – other wards

For week 49/2022, 210 laboratory-confirmed influenza cases were reported from other wards (in Czechia and Ireland). Influenza type A viruses (96%) were detected more frequently than influenza type B viruses (4%). Of 9 subtyped influenza type A viruses, 2 were A(H3) and 7 were A(H1)pdm09 (Fig. 7 and 8).

Since week 40/2022, 650 influenza type A viruses and 32 influenza type B viruses were detected from Czechia and Ireland. Of 47 subtyped influenza A viruses, 81% (n=38) were A(H1)pdm09 and 19% (n=9) A(H3). The 682 cases with known age fell in 4 age groups: 245 were 15-64 years old, 238 were 65 years and older, 101 were 5-14 years old and 98 were 0-4 years old.

Figure 7. Number of laboratory-confirmed hospitalized influenza cases in wards other than intensive care units (non-ICU) by week of reporting, WHO European Region, season 2022/2023

Number of laboratory-confirmed hospitalized cases in wards other than intensive care units (non-ICU) by week of reporting - WHO Europe, season 2022/2023

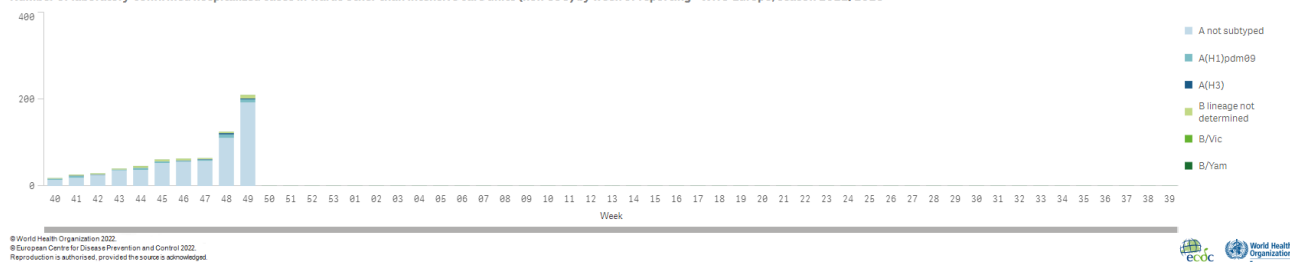
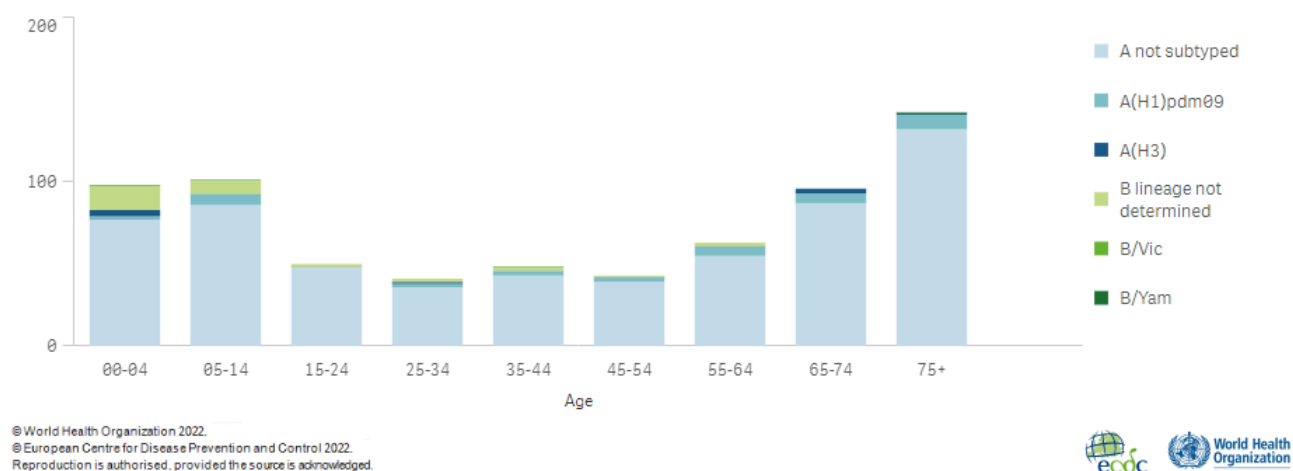


Figure 8. Distribution of influenza virus types, subtypes/lineages by age group in wards other than intensive care units (non-ICU), WHO European Region, season 2022/2023

Distribution of virus types, subtypes/lineages by age group in wards other than intensive care units (non-ICU) - WHO Europe...



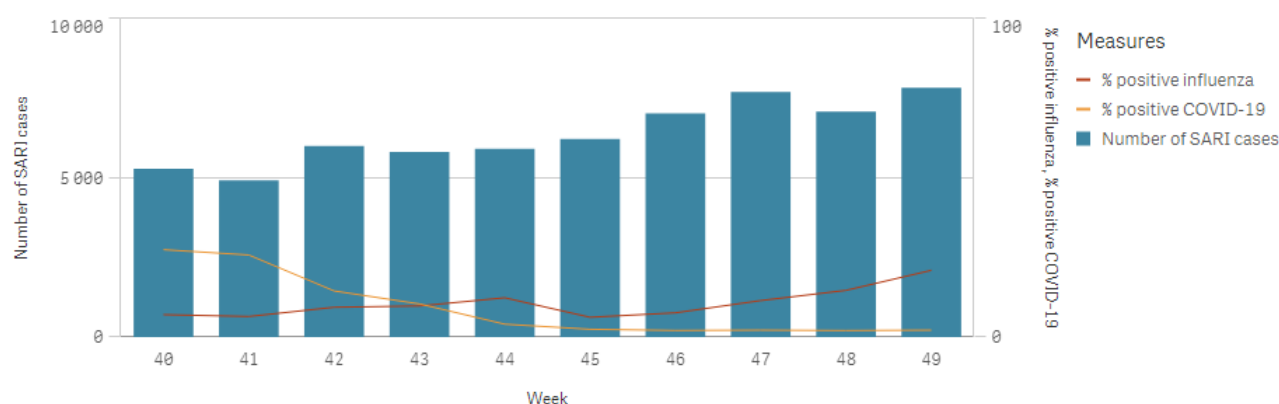
Severe acute respiratory infection (SARI)-based hospital surveillance

For week 49/2022, 6 060 SARI cases were reported by 17 countries or areas (Albania, Belarus, Belgium, Bosnia and Herzegovina, Germany, Ireland, Kazakhstan, Kyrgyzstan, Lithuania, Malta, North Macedonia, Republic of Moldova, Romania, Russian Federation, Serbia, Spain and Ukraine). Of 601 specimens tested for influenza viruses, 21% (n=126) were positive (Fig. 9). Of these, influenza type A viruses (n=103, 82%) were detected more frequently than influenza type B viruses (n=23, 18%) with mainly A(H1)pdm09 and B viruses being reported from countries in the eastern part of the Region. The highest positivity rates for influenza virus detections were reported by Lithuania (50%), Kyrgyzstan (38%), Ireland (29%), Ukraine (27%), Malta (20%), Russian Federation (19%), Kazakhstan (12%) and North Macedonia (12%).

For the season, 49 068 SARI cases were reported by 24 countries or areas (Albania, Armenia, Belarus, Belgium, Bosnia and Herzegovina, Croatia, Georgia, Germany, Ireland, Kazakhstan, Kyrgyzstan, Lithuania, Malta, Montenegro, North Macedonia, Republic of Moldova, Romania, Russian Federation, Serbia, Spain, Türkiye, Ukraine, Uzbekistan and Kosovo (in accordance with Security Council resolution 1244 (1999))). For SARI cases testing positive for influenza virus since week 40/2022, type B viruses have been the most common (n=471 56%). Of the 365 cases with influenza A, subtyping was performed for 294 viruses: 193 (66%) were infected by A(H1)pdm09 viruses and 101 (34%) were infected by A(H3) viruses. Of those influenza B viruses that have been ascribed to a lineage (n=143, 56%), all were B/Victoria (Fig. 10).

Figure 9. Number of severe acute respiratory infection (SARI) cases (bar) and positivity for influenza virus and SARS-CoV-2 (line) by week, WHO European Region, season 2022/2023

Number of severe acute respiratory infection (SARI) cases (bar) and positivity for influenza and COVID-19 (line) by week of r...

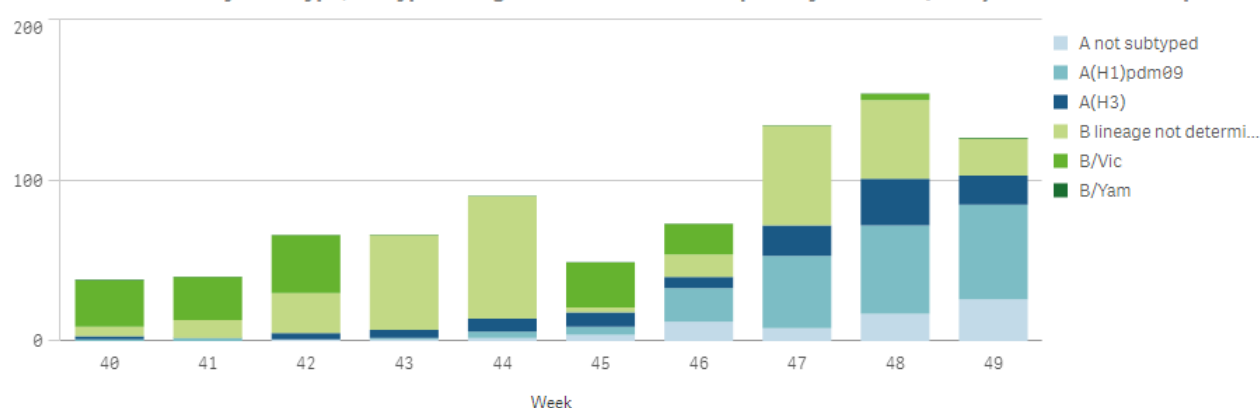


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Figure 10. Influenza virus detections by type, subtype/lineage from severe acute respiratory infection (SARI) cases, WHO European Region, season 2022/2023

Influenza detections by virus type, subtype/lineage from severe acute respiratory infection (SARI) surveillance in hospitals - ...



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Virus characteristics

Details of the distribution of viruses detected in sentinel-source specimens can be found in the **Primary care data** section.

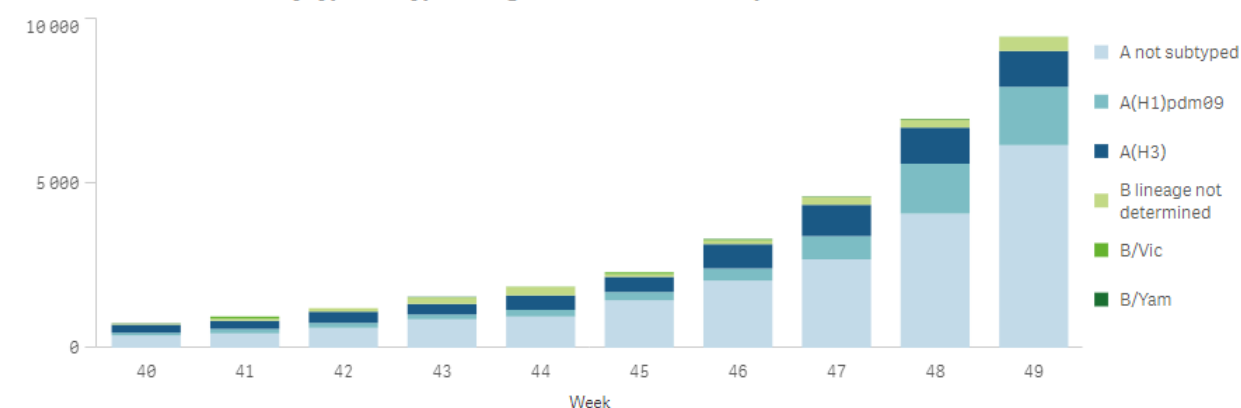
Non-sentinel virologic data

For week 49/2022, 9 458 of 73 395 specimens from non-sentinel sources (such as hospitals, schools, primary care facilities not involved in sentinel surveillance, or nursing homes and other institutions) tested positive for an influenza virus; 9 032 (95%) were type A and 426 (5%) were type B. Of 2 865 subtyped A viruses, 1 773 (62%) were A(H1)pdm09 and 1 092 (38%) A(H3). All 9 type B viruses ascribed to a lineage were B/Victoria (Fig. 11 and Table 2).

For the season to date, more influenza type A (n=30 945, 94%) than type B (n=1 960, 6%) viruses have been detected. Of 11 269 subtyped A viruses, 5 917 (53%) were A(H3) and 5 352 (47%) were A(H1)pdm09. All 219 influenza type B viruses ascribed to a lineage were B/Victoria (89% of type B viruses were reported without a lineage) (Fig. 11 and Table 2).

Figure 11. Influenza detections by type, subtype/lineage and week, non-sentinel sources, WHO European Region, season 2022/2023

Influenza virus detections by type, subtype/lineage and week - WHO Europe, season 2022/2023



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Table 2. Influenza virus detections in non-sentinel-source specimens by type and subtype, week 49/2022 and cumulatively for the season

Non-sentinel	Current Week (49)		Season 2022-2023	
Virus type and subtype	Number	% ^a	Number	% ^a
Influenza A	9 032	95.5	30 945	94
A(H1)pdm09	1 773	61.9	5 352	47.5
A(H3)	1 092	38.1	5 917	52.5
A not subtyped	6 167	-	19 676	-
Influenza B	426	4.5	1 960	6
B/Victoria lineage	9	100	219	100
B/Yamagata lineage	0	0	0	0
Unknown lineage	417	-	1 741	-
Total detections (total tested)	9 458 (73 395)	NA	32 905 (565 616)	NA

^a For type percentage calculations, the denominator is total detections; for subtype and lineage, it is total influenza A subtyped and total influenza B lineage determined, respectively; as not all countries have a true non-sentinel testing denominator, no percentage calculations for total tested are shown.

Genetic characterization

Of the 184 genetically characterized A(H1)pdm09 viruses up to week 49/2022, 183 were attributed to clade 6B.1A.5a.2 of which 113 (61.4%) were represented by AH1/Norway/25089/2022, 69 (37.5%) were represented by AH1/Sydney/5/2021, 1 (0.5%)

was represented by AH1/Victoria/2570/2019. One (0.5%) was a clade 6B.1A.5a.1 virus represented by AH1/Guangdong-Maonan/SWL1536/2019.

Among the 348 A(H3) viruses characterized up to week 49/2022, 342 were attributed to clade 3C.2a1b.2a.2: 133 (38.2%) represented by AH3/Slovenia/8720/2020, 189 (54.3%) represented by AH3/Bangladesh/4005/2020 and 20 (5.7%) represented by AH3/Darwin/9/2021. 6 (1.7%) viruses were not attributed to a subgroup.

Up to week 49/2022, 31 B/Victoria viruses were characterized, of which 19 (61.3%) were clade V1A.3a.2 represented by B/Austria/1359417/2021 and 12 (38.7%) were not attributed to a subgroup.

Table 3. Number of influenza viruses attributed to genetic groups, cumulative for the season, WHO European Region

Number of influenza viruses attributed to genetic groups, cumulative for the season - WHO Europe

Virus Type Q	Virus Subtype Q	Genetic charact... Q	Number of influenza viruses attributed to genetic groups 2022/2023
Total			563
Influenza A			532
A(H1)pdm09			184
A/Guangdong-Maonan/SWL1536/2019(H1N1)pdm09_6B.1A.5a.1			1
A/Norway/25089/2022(H1N1)pdm09_6B.1A.5a.2			113
A/Sydney/5/2021(H1N1)pdm09_6B.1A.5a.2			69
A/Victoria/2570/2019(H1N1)pdm09_6B.1A.5a.2			1
A(H3)			348
A(H3)_SubgroupNotListed *			6
A/Bangladesh/4005/2020(H3)_3C.2a1b.2a.2			189
A/Darwin/9/2021(H3)_3C.2a1b.2a.2			20
A/Slovenia/8720/2022(H3)_3C.2a1b.2a.2			133
Influenza B			31
B/Vic			31
B/Austria/1359417/2021(Victoria lineage_1A.3a.2)			19
B/Vic_SubgroupNotListed *			12

* No Clade: not attributed to a pre-defined clade and SubgroupNotListed: attributed to recognised group in current guidance but not listed here

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Currently, WHO's October virus characterization report is available and describes available data from circulating viruses for the 2022-2023 influenza season: type A influenza virus circulation dominated over type B, due mainly to A(H3) viruses. Vaccination remains the best protective measure for prevention of influenza.

Previously published influenza virus characterization reports are available on the ECDC website (up to September 2022) and the WHO website.

Antiviral susceptibility testing

Up to week 49/2022, 659 viruses were assessed for susceptibility to neuraminidase inhibitors (270 A(H3), 177 A(H1)pdm09 and 29 B viruses genotypically and 160 A(H3), 19 A(H1)pdm09 and 4 B viruses phenotypically), and 283 viruses were assessed for susceptibility to baloxavir marboxil (195 A(H3), 65 A(H1)pdm09 and 23 B viruses genotypically). Phenotypically and genotypically, no markers associated with reduced susceptibility were identified.

Vaccine

Results from a controlled, randomised trial in UK concluded that concomitant vaccination with one of two SARS-CoV-2 vaccines (ChAdOx1 or BNT162b2) plus an age-appropriate influenza vaccine raised no safety concerns and preserves **antibody responses** to both vaccines.

[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(21\)02329-1/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)02329-1/fulltext)

Available vaccines in Europe

<https://www.ecdc.europa.eu/en/seasonal-influenza/prevention-and-control/vaccines/types-of-seasonal-influenza-vaccine>

Vaccine composition

On 25 February 2022, WHO published **recommendations for the components of influenza vaccines for use in the 2022-2023 northern hemisphere influenza season:**

The WHO recommends that quadrivalent vaccines for use in the 2022-2023 influenza season in the northern hemisphere contain the following:

Egg-based Vaccines

- an A/Victoria/2570/2019 (H1N1)pdm09-like virus;
- an A/Darwin/9/2021 (H3N2)-like virus;
- a B/Austria/1359417/2021 (B/Victoria lineage)-like virus; and
- a B/Phuket/3073/2013 (B/Yamagata lineage)-like virus.

Cell culture- or recombinant-based Vaccines

- an A/Wisconsin/588/2019 (H1N1)pdm09-like virus;
- an A/Darwin/6/2021 (H3N2)-like virus;
- a B/Austria/1359417/2021 (B/Victoria lineage)-like virus; and
- a B/Phuket/3073/2013 (B/Yamagata lineage)-like virus.

The WHO recommends that trivalent vaccines for use in the 2022-2023 influenza season in the northern hemisphere contain the following:

Egg-based vaccines

- an A/Victoria/2570/2019 (H1N1)pdm09-like virus;
- an A/Darwin/9/2021 (H3N2)-like virus; and
- a B/Austria/1359417/2021 (B/Victoria lineage)-like virus.

Cell culture- or recombinant-based vaccines

- an A/Wisconsin/588/2019 (H1N1)pdm09-like virus;
- an A/Darwin/6/2021 (H3N2)-like virus; and
- a B/Austria/1359417/2021 (B/Victoria lineage)-like virus

On 23 September 2022, WHO published recommendations for the components of influenza vaccines for use in the 2023 southern hemisphere influenza season:

Egg-based Vaccines

- an A/Sydney/5/2021 (H1N1)pdm09-like virus;
- an A/Darwin/9/2021 (H3N2)-like virus;
- a B/Austria/1359417/2021 (B/Victoria lineage)-like virus; and
- a B/Phuket/3073/2013 (B/Yamagata lineage)-like virus.

Cell- or recombinant-based Vaccines

- an A/Sydney/5/2021 (H1N1)pdm09-like virus;
- an A/Darwin/6/2021 (H3N2)-like virus;
- a B/Austria/1359417/2021 (B/Victoria lineage)-like virus; and
- a B/Phuket/3073/2013 (B/Yamagata lineage)-like virus.

It is recommended that **trivalent influenza vaccines** for use in the 2023 southern hemisphere influenza season contain the following:

Egg-based vaccines

- an A/Sydney/5/2021 (H1N1)pdm09-like virus;
- an A/Darwin/9/2021 (H3N2)-like virus; and
- a B/Austria/1359417/2021 (B/Victoria lineage)-like virus.

Cell- or Recombinant-based vaccines

- an A/Sydney/5/2021 (H1N1)pdm09-like virus;
- an A/Darwin/6/2021 (H3N2)-like virus; and
- a B/Austria/1359417/2021 (B/Victoria lineage)-like virus

The full report is published [here](#).

Acknowledgements

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Maps and commentary do not represent a statement on the legal or border status of the countries and territories shown.

All data are up to date on the day of publication. Past this date, however, published data should not be used for longitudinal comparisons, as countries retrospectively update their databases. The WHO Regional Office for Europe is responsible for the accuracy of the Russian translation.

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