

Summary

Week 16/2023 (17 April-23 April 2023)

- The percentage of all sentinel primary care specimens from patients presenting with ILI or ARI symptoms that tested positive for an influenza virus decreased to 9% from 10% in the previous week, which is below the epidemic threshold set at 10%.
- Only one country or area reported high, three reported medium and 18 of 37 countries or areas reported low intensity. Nine of 36 countries across the Region reported widespread activity.
- Nine countries with more than ten specimens tested reported sentinel primary care specimen influenza virus positivity above the 10% epidemic threshold.
- Influenza type A and type B viruses were detected in sentinel and non-sentinel surveillance, with type B predominating in both systems.
- Hospitalized patients with confirmed influenza virus infection were reported from ICU (with higher proportions of type B viruses) and SARI surveillance (with higher proportions of type B viruses). No countries or areas reported influenza virus positivity rates above 10% in SARI surveillance.

2022-2023 season overview

- The seasonal epidemic activity threshold of 10% positivity in sentinel specimens was first crossed in week 45/2022.
- Following a peak at week 51/2022 with 39% positivity, influenza activity had been decreasing across the Region until week 4/2023 when it reached 21% positivity before rising again to fluctuate around 25% positivity between weeks 6 and 11/2023 before decreasing below 10% positivity in week 16/2023 (9%).
- Overall this season, influenza A(H3) viruses have dominated in sentinel primary care specimens, however higher circulation of A(H1)pdm09 and type B viruses was observed starting from week 50/2022 and week 2/2023, respectively. In non-sentinel specimens, higher circulation of A(H1)pdm09 (55%) than A(H3) viruses (44%) was detected.
- Both influenza type A and type B viruses have been detected in hospitalized patients in ICU and other wards and influenza A(H1)pdm09 viruses have dominated among SARI patients.
- Virus type and subtype prevalence by country and surveillance system has been variable across the season.
- The B/Yamagata viruses sporadically detected and reported by different countries have been further investigated and were proven to be LAIV related detections.

Other news

- RSV is another respiratory virus that causes acute respiratory disease, mainly among young infants and the elderly, often mild but frequently severe among children less than 1 year of age and frail elderly. High levels of RSV have been circulating across the Region since week 40/2022, with overall positivity amongst patients in primary care with acute respiratory illness decreasing after a peak at 18% positivity in week 47/2022 to 1% for week 16/2023. More information on the risk of RSV infections can be found [here](#)

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 16/2023, of 37 countries and areas reporting on intensity of influenza activity, 15 reported baseline-intensity (across the Region), 18 reported low-intensity (across the Region), 3 reported medium-intensity (Kosovo (in accordance with UN Security Council Resolution 1244 (1999)), Luxembourg and Slovakia) and 1 reported high-intensity (Poland) (Fig. 1).

Of 36 countries and areas reporting on geographic spread of influenza viruses, 5 reported no activity (Azerbaijan, Kazakhstan, Kyrgyzstan, Republic of Moldova and Uzbekistan), 9 reported sporadic spread (northern, southern and western), 6 reported local spread (Bosnia and Herzegovina, Georgia, Romania, Serbia, Slovakia and Kosovo (in accordance with UN Security Council Resolution 1244 (1999))), 7 reported regional spread (Bulgaria, Czechia, Hungary, Lithuania, Russian Federation, Ukraine and United Kingdom (Scotland)) and 9 reported widespread activity (Estonia, Germany, Israel, Ireland, Norway, Poland, Slovenia, Spain and Sweden) (Fig. 2).

Figure 1. Intensity of influenza activity in the European Region, week 16/2023

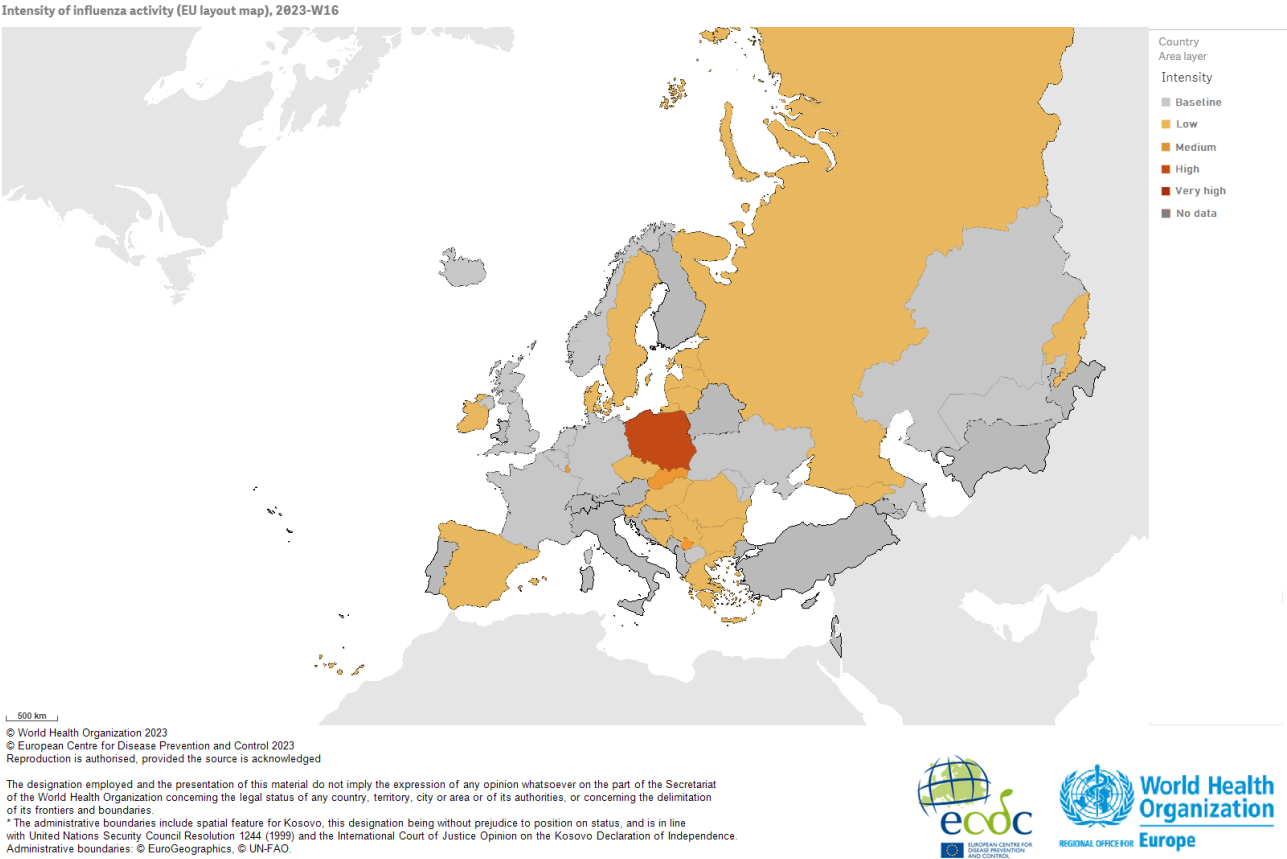
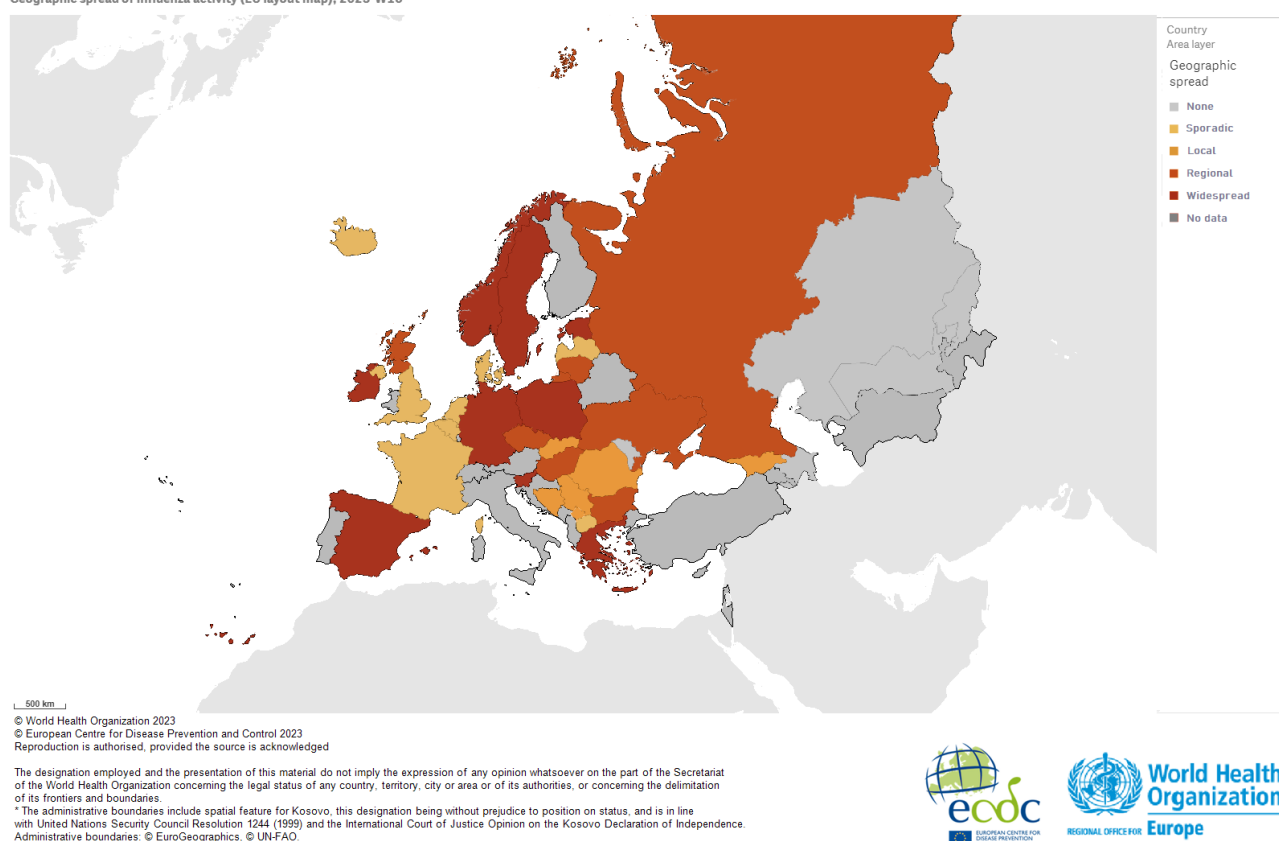


Figure 2. Geographic spread of influenza viruses in the European Region, week 16/2023

Geographic spread of influenza activity (EU layout map), 2023-W16



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

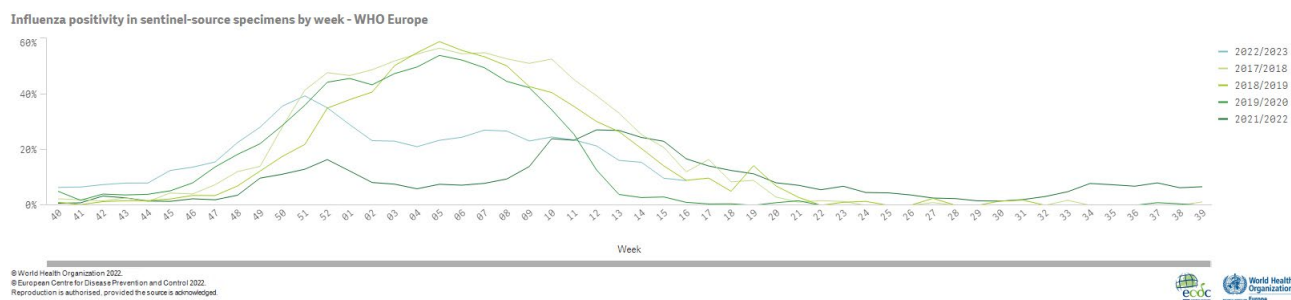
Please note:

- 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 other than influenza virus, including SARS-CoV-2, 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 and/or low intensity of activity measured by ILI and ARI incidence.

Influenza positivity

For the European Region, influenza virus positivity in sentinel primary care specimens decreased from 10% in the previous week to 9% in week 16/2023. Seasonal activity started in week 45/2022 when positivity crossed above the epidemic threshold set at 10%. The current seasonal influenza epidemic started earlier than in the four previous seasons, ranging from week 47 (2019/20 season) to 49 (2021/22 season). Positivity reached a peak in week 51/2022 at 39% which was earlier than in the four previous seasons, ranging from week 52 (2021/22 season) to 5 (2018/19 and 2019/20). Across the Region, influenza activity decreased to 21% up to week 4/2023, then fluctuated around 25% between weeks 6 and 11/2023 and decreased to 9% in week 16/2023 (Fig. 3).

Figure 3. Influenza virus positivity in sentinel-source specimens by week, WHO European Region, seasons 2017/2018, 2018/2019, 2019/2020, 2021/2022 and 2022/2023



External data sources

Mortality monitoring:

The EuroMOMO 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=5; Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan and Russian Federation), northern (n=2; Denmark and Estonia), southern (n=2; Greece and Serbia) and western (n=2; Hungary and Luxembourg) 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=2; Kazakhstan and Uzbekistan) and northern (n=1; Latvia) 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 other than influenza virus, including SARS-CoV-2, 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 16/2023, 171 (9%) of 1 935 sentinel specimens tested positive for an influenza virus; 86% were type B and 14% were type A. Of 10 subtyped A viruses, 90% were A(H1)pdm09 and 10% A(H3). All 40 type B viruses ascribed to a lineage were B/Victoria (Fig. 4 and Table 1). Of 24 countries and areas across the Region that each tested at least 10 sentinel specimens in week 16/2023, 9 reported a rate of influenza virus detections above 10% (median 23%; range 12% - 40%): Hungary (40%), Poland (27%), Slovakia (25%), Norway (24%), Slovenia (23%), Luxembourg (21%), Kosovo (in accordance with Security Council resolution 1244 (1999)) (20%), Estonia (19%) and Italy (12%).

For the season to date, 27 557 (23%) of 121 891 sentinel specimens tested positive for an influenza virus. More influenza type A (n=19 422, 70%) than type B (n=8 135, 30%) viruses have been detected. Of 15 710 subtyped A viruses, 10 054 (64%) were A(H3) and 5 656 (36%) were A(H1)pdm09. All 2 460 influenza type B viruses ascribed to a lineage were B/Victoria (70% of type B viruses were reported without a lineage). The confirmed B/Yamagata LAIV related detections are not included in the season's count (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

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

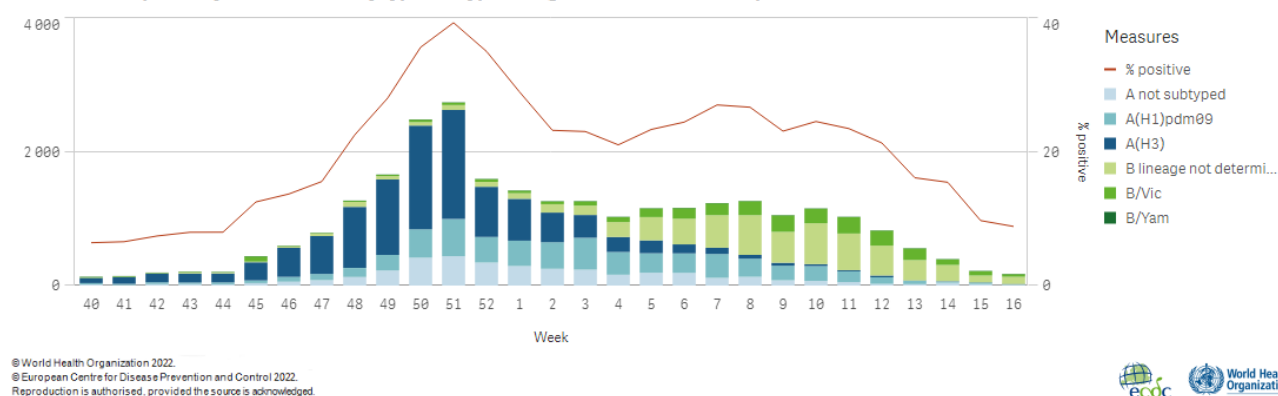


Table 1. Influenza virus detections in sentinel source specimens by type and subtype for week 16/2023 and cumulatively for the season

Sentinel Virus type and subtype	Current Week (16)		Season 2022-2023	
	Number	% ^a	Number	% ^a
Influenza A	23	13.5	19 422	70.5
A(H1)pdm09	9	90	5 656	36
A(H3)	1	10	10 054	64
A not subtyped	13	-	3 712	-
Influenza B	148	86.5	8 135	29.5
B/Victoria lineage	40	100	2 460	100
B/Yamagata lineage	0	0	0	0
Unknown lineage	108	-	5 675	-
Total detections (total tested)	171 (1 935)	8.8	27 557 (121 891)	22.6

^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 information for this week.

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 16/2023, only one laboratory-confirmed influenza cases was reported from an ICU ward in Sweden. This was an influenza type B virus, but lineage was not ascribed (Fig. 5 and 6).

Since week 40/2022, 2 705 influenza type A (90%) and 311 type B (10%) viruses were detected (in Czechia (n=142), France (n=948), Ireland (n=151), Sweden (n=271) and United Kingdom (England) (n=1 504)). Of 489 subtyped influenza A viruses, 53% were A(H3) and 47% were A(H1)pdm09. No influenza B viruses were ascribed to a lineage. Of 1 502 cases with known age, 716 were 15-64 years old, 598 were 65 years and older, 115 were 0-4 years old and 73 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

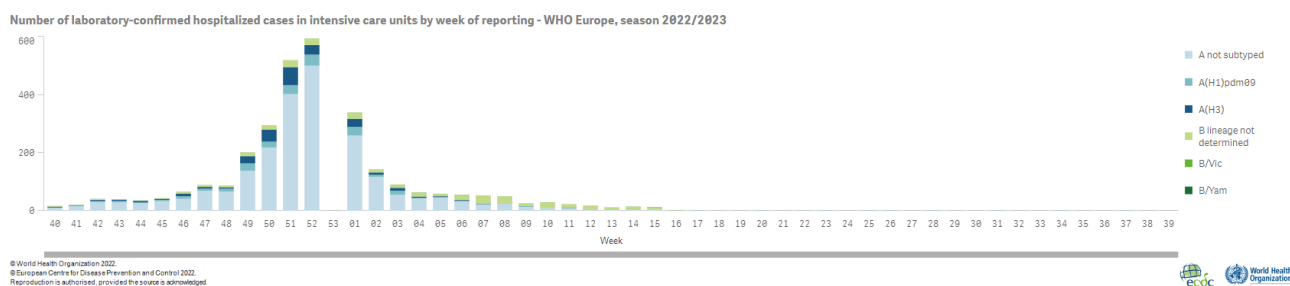
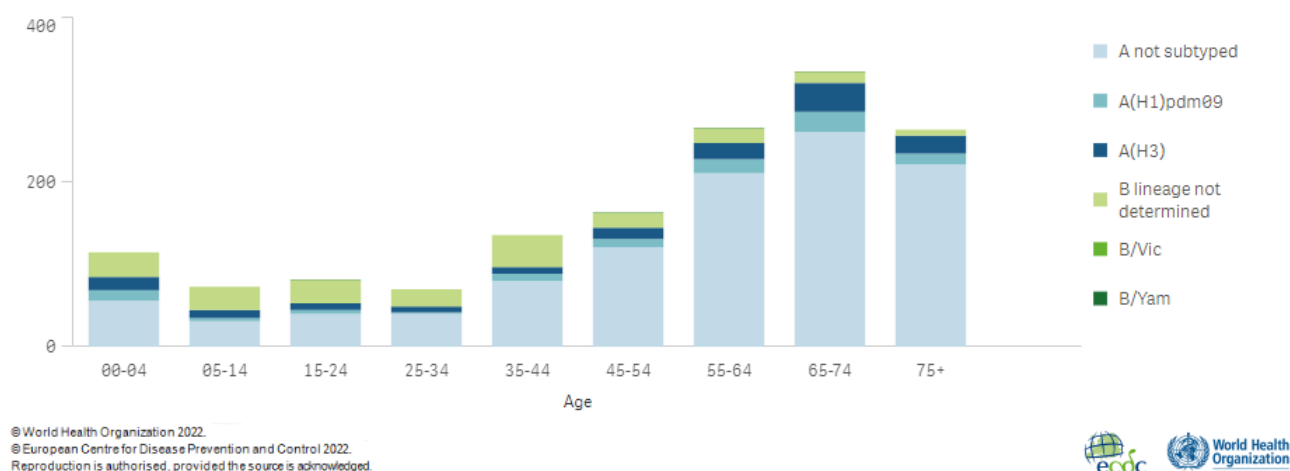


Figure 6. Distribution of influenza virus types, subtypes/lineages by age group in intensive care units (ICU), WHO European Region, season 2022/2023

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 16/2023, there were no reports of hospitalized laboratory-confirmed influenza cases in other wards (Fig. 7 and 8).

Since week 40/2022, 3808 influenza type A viruses and 179 influenza type B viruses were detected from Czechia (n=170) and Ireland (n=3 817). Of 397 subtyped influenza A viruses, 63% (n=251) were A(H1)pdm09 and 37% (n=146) A(H3). The 3 987 cases with known age fell in 4 age groups: 1713 were 65 years and older, 1374 were 15-64 years old, 499 were 0-4 years old and 401 were 5-14 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

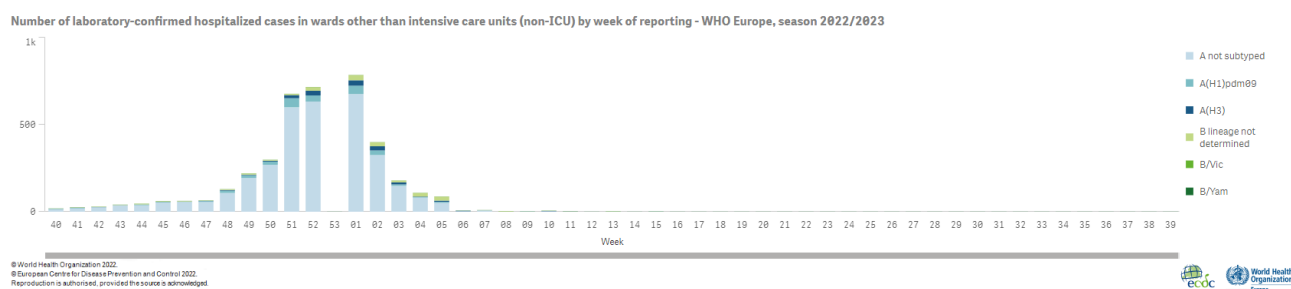
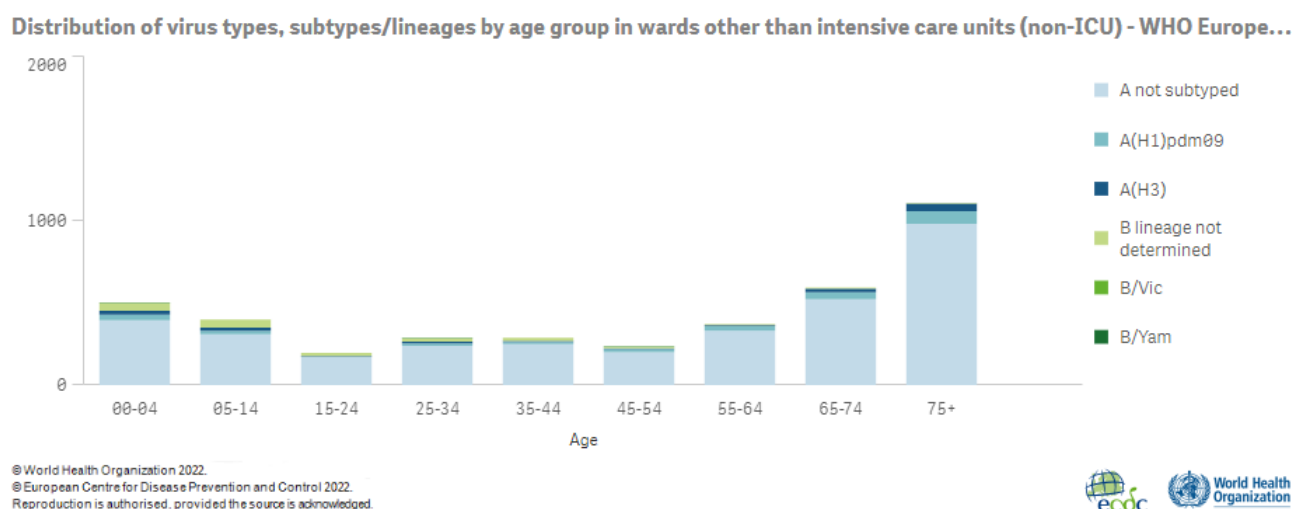


Figure 8. Distribution of influenza virus types, subtypes/lineages by age group in wards other than intensive care units (non-ICU), WHO European Region, season 2022/2023



Severe acute respiratory infection (SARI)-based hospital surveillance

For week 16/2023, 1 888 SARI cases were reported by 17 countries or areas (Belgium, Bosnia and Herzegovina, Georgia, Germany, Ireland, Kazakhstan, Kyrgyzstan, Lithuania, Malta, Republic of Moldova, Romania, Russian Federation, Serbia, Spain, Ukraine, Uzbekistan and Kosovo (in accordance with Security Council resolution 1244 (1999))). Of 1 041 specimens tested for influenza viruses, 2% (n=16) were positive (Fig. 9). Of these, influenza type B viruses (n=10, 62%) were detected more frequently than influenza type A viruses (n=6). Of 2 subtyped influenza type A viruses, both were A(H1)pdm09. Of 10 countries and areas across the Region that each tested at least 10 specimens, none reported positivity rates above 10%.

For the season, 106 435 SARI cases were reported by 26 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, Slovakia, Spain, Turkiye, Turkmenistan, 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 A viruses have been the most common (n=4 093, 70%) and of these 3 126 were subtyped: 2 180 (70%) were infected by A(H1)pdm09 viruses and 946 (30%) were infected by A(H3) viruses. Of those influenza B viruses that have been ascribed to a lineage (n=399, 30%), 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

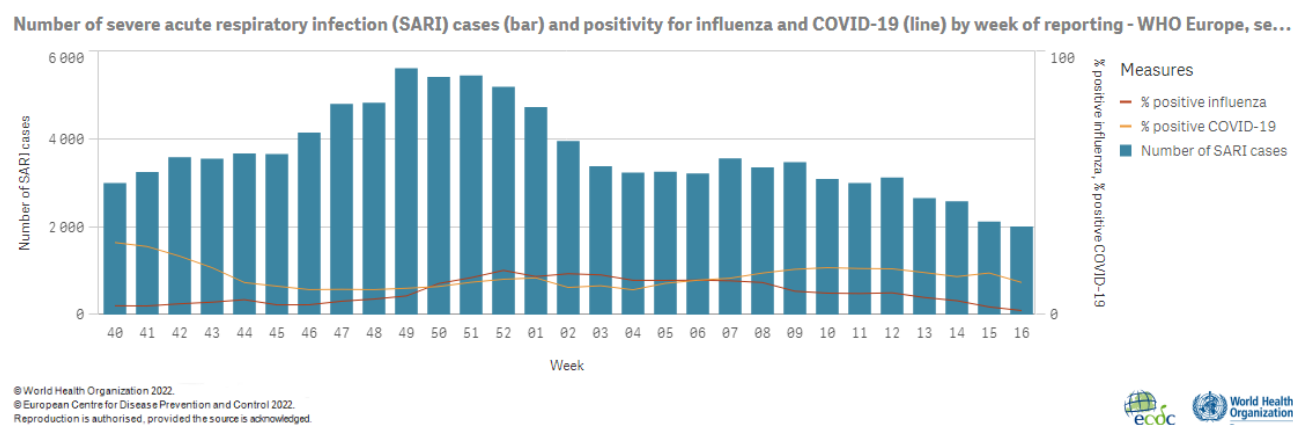
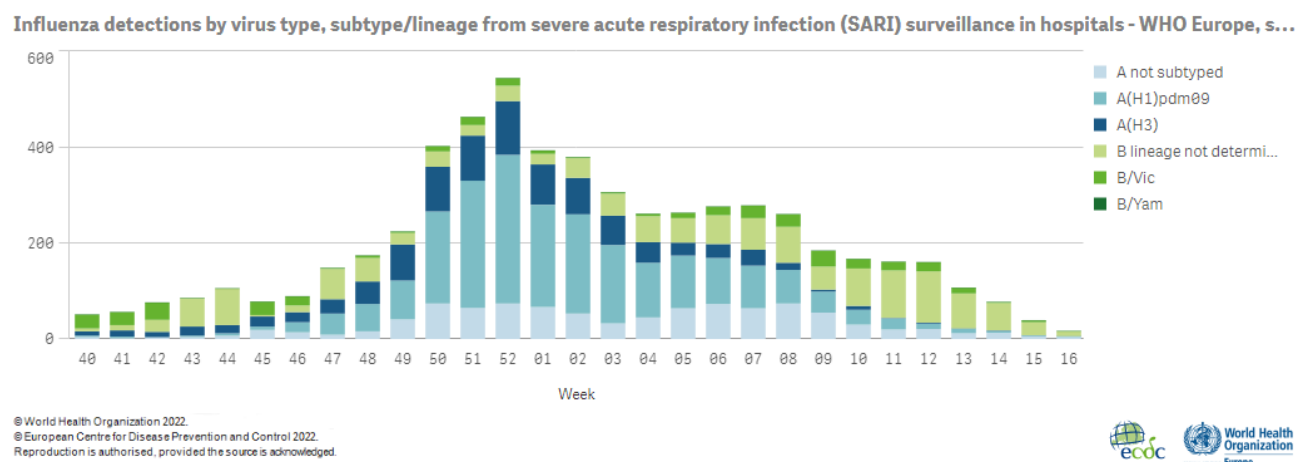


Figure 10. Influenza virus detections by type, subtype/lineage from severe acute respiratory infection (SARI), WHO European Region, season 2022/2023



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 16/2023, 1 505 of 34 223 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; 418 (28%) were type A and 1 087 (72%) were type B. Of 30 subtyped A viruses, 25 (83%) were A(H1)pdm09 and 5 (17%) A(H3). All 26 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=192 953, 76%) than type B (n=62 659, 24%) viruses have been detected. Of 56 172 subtyped A viruses, 31 070 (55%) were A(H1)pdm09 and 25 102 (45%) were A(H3). All 4 960 influenza type B viruses ascribed to a lineage were B/Victoria (92% of type B viruses were reported without a lineage). The confirmed B/Yamagata LAIV related detections are not included in the season's count (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

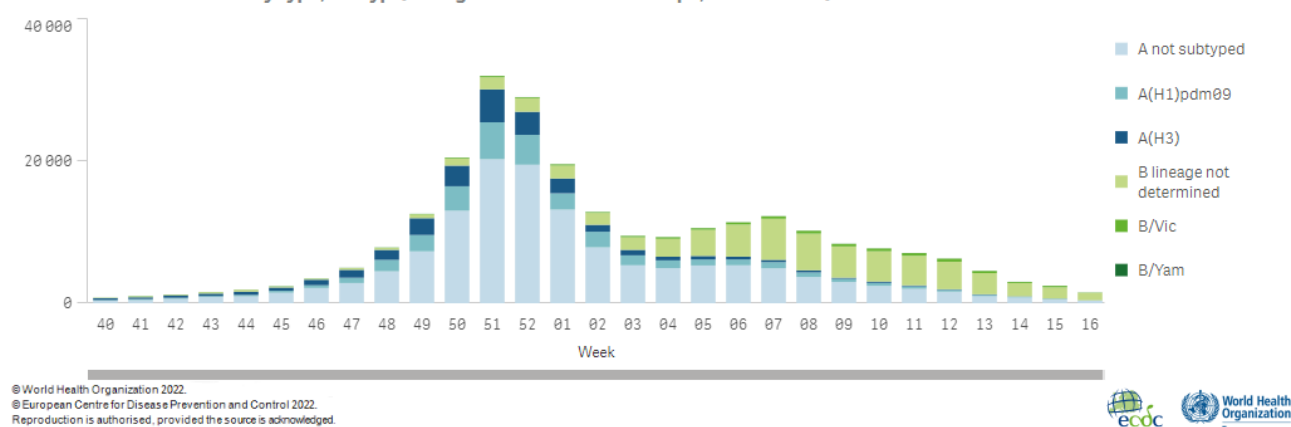


Table 2. Influenza virus detections in non-sentinel-source specimens by type and subtype, week 16/2023 and cumulatively for the season

* Due to a reporting error, this figure cannot be shown at this time.

^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 2 487 genetically characterized A(H1)pdm09 viruses up to week 16/2023, 1 468 were attributed to clade 6B.1A.5a.2, of which 737 (50%) were represented by A/Sydney/5/2021, 698 (47%) by A/Norway/25089/2022 and 33 (2%) by A/Victoria/2570/2019. 5 (<1%) were attributed to clade 6B.1A.5a.1 represented by A/Guangdong-Maonan/SWL1536/2019. 1 014 (41%) viruses could not be attributed to a pre-defined subgroup in the guidance.

Among the 2 497 A(H3) viruses characterized up to week 16/2023, 2 377 were attributed to clade 3C.2a1b.2a.2, of which 1 449 (58%) were represented by A/Bangladesh/4005/2020, 773 (31%) by A/Slovenia/8720/2022, 155 (6%) by A/Darwin/9/2021. 3 (0%) were attributed to clade 3C.2a1b.1a represented by A/Denmark/3264/2019. 117 (5%) viruses could not be attributed to a pre-defined subgroup in the guidance.

Up to week 16/2023, 1 041 B/Victoria viruses were characterized, 722 (69%) of which were attributed to clade V1A.3a.2 represented by B/Austria/1359417/2021. 319 (31%) viruses could not be attributed to a pre-defined subgroup in the guidance.

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			6 025
Influenza A			4 984
A(H1)pdm09			2 487
A(H1)pdm09_SubgroupNotListed *			1 014
A/Guangdong-Maonan/SWL1536/2019(H1N1)pdm09_6B.1A.5a.1			5
A/Norway/25089/2022(H1N1)pdm09_6B.1A.5a.2			698
A/Sydney/5/2021(H1N1)pdm09_6B.1A.5a.2			737
A/Victoria/2570/2019(H1N1)pdm09_6B.1A.5a.2			33
A(H3)			2 497
A(H3)_SubgroupNotListed *			117
A/Bangladesh/4005/2020(H3)_3C.2a1b.2a.2			1 449
A/Darwin/9/2021(H3)_3C.2a1b.2a.2			155
A/Denmark/3264/2019(H3N2)_3C.2a1b.1a			3
A/Slovenia/8720/2022(H3)_3C.2a1b.2a.2			773
Influenza B			1 041
B/Vic			1 041
B/Austria/1359417/2021(Victoria lineage_1A.3a.2)			722
B/Vic_SubgroupNotListed *			319

* 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 Europe and ECDC's February](#) virus characterization report is available and describes available data from circulating viruses for the early weeks of the 2022-2023 influenza season.

Antiviral susceptibility testing

Up to week 16/2023, 4 517 viruses were assessed for susceptibility to neuraminidase inhibitors (1 538 A(H1)pdm09, 1 344 A(H3) and 866 B viruses only genotypically and 334 A(H3), 256 A(H1)pdm09 and 179 B viruses phenotypically and some of these also genotypically), and 3 359 viruses were assessed for susceptibility to baloxavir marboxil (1 685 A(H3), 945 A(H1)pdm09 and 729 B viruses genotypically). Phenotypically and/or genotypically, seven A(H1)pdm09 viruses showed (highly) reduced inhibition by oseltamivir. Six of the viruses were reported to carry reduced inhibition markers, four with NA-H275Y (one confirmed phenotypically), one with NA-D199G (confirmed phenotypically), and one with NA-I223R. One of those viruses showed reduced inhibition

also by zanamivir due to NA-I223R substitution. Phenotypically, one A(H3) virus showing highly reduced inhibition by oseltamivir was identified. Genotypically, one B/Victoria-lineage virus was showing reduced susceptibility by oseltamivir due to NA-H273Y substitution. Genotypically no markers associated with reduced susceptibility for baloxavir marboxil were identified.

Vaccine

Recently published 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 24 February 2023, WHO published recommendations for the components of influenza vaccines for use in the 2023-2024 northern hemisphere influenza season:

The WHO recommends that quadrivalent vaccines for use in the 2023-2024 influenza season in the northern hemisphere contain the following:

Egg-based Vaccines

- an A/Victoria/4897/2022 (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/67/2022 (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 2023-2024 influenza season in the northern hemisphere contain the following:

Egg-based vaccines

- an A/Victoria/4897/2022 (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/67/2022 (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](#).

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 2022 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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