

Summary

Week 16/2022 (18 April – 24 April 2022)

- 11 of 40 countries across the Region reported widespread influenza activity.
- 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 20% following a period between 25% and 30% for the prior 6 weeks.
- Countries, mostly in the western-central part of the Region, reported seasonal influenza activity at or above 30% positivity in sentinel primary care: Poland (67%), Netherlands (63%), France (45%), Estonia (44%), Luxembourg (33%), Denmark (30%) and Italy (30%).
- Both influenza type A and type B viruses were detected with A(H3) viruses being dominant across all monitoring systems.
- Hospitalized patients with laboratory confirmed influenza infections were infected with both types A and B viruses.

2021-2022 season overview

- For the Region as a whole, influenza activity reached levels well above that observed in the 2020/21 season.
- Influenza activity, based on sentinel primary care specimens from patients presenting with ILI or ARI symptoms, first peaked in week 52/2021 (when it reached 19% positivity), declining thereafter until week 4/2022, when it increased again reaching a plateau phase (25-30% positivity) between weeks 10 and 15/2022 (this represents late activity compared to most previous seasons).
- Different levels of activity have been observed between the countries and areas of the Region, with a dominance of A(H3) viruses in most countries.

- During the influenza Vaccine Composition Meeting for the northern hemisphere 2022/23 season, held in February 2022, WHO recommended updating of the A(H3N2) and the B/Victoria-lineage components. The full report can be found [here](#).
- [Preliminary results](#) of 2021-2022 seasonal influenza vaccine effectiveness (VE) estimates from the United States showed that VE against medically attended outpatient acute respiratory infection associated with A(H3N2), the dominant influenza virus in circulation, was 16% (95% CI = -16% to 39%).
- The European I-MOVE network estimated influenza VE using a multicenter test-negative design among symptomatic patients presenting at primary care between October 2021 and March 2022. Preliminary influenza VE against influenza A among seven study sites and among all ages was 36% (95% CI: 13–53) and 41% (95% CI: 15–59) among those aged 18–64 years. All-age VE against influenza A(H3N2) was 35% (95% CI: 6–54) and 37% (95% CI: 3–59) among those aged 18–64 years. There were too few influenza-positive cases among other age groups to allow VE estimations.
- In [Sweden](#), the vaccine effectiveness against laboratory-confirmed influenza was estimated to be 47% for individuals over 65 years of age.
- According to preliminary data in mainland [France](#), the VE was estimated to be 50% (95% CI: 14-71) against all circulating influenza viruses, 77% (95% CI: 36-92) for A(H1N1)pdm09 and 31% (95% CI: -29-64) for A(H3N2).
- For children aged 2 to 6 years in [Denmark](#), the estimated VE against influenza A viruses was estimated at 63% (95% CI: 10.9–84.4) in those hospitalized, and 64% (95% CI: 50.5–74.1) in those not hospitalized.
- With increased circulation of influenza viruses clinicians should consider early antiviral treatment of patients in at-risk groups with influenza virus infection, according to local guidance, to prevent severe outcomes. The majority of viruses analyzed so far have remained susceptible to neuraminidase inhibitors and baloxavir marboxil.

Other news

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

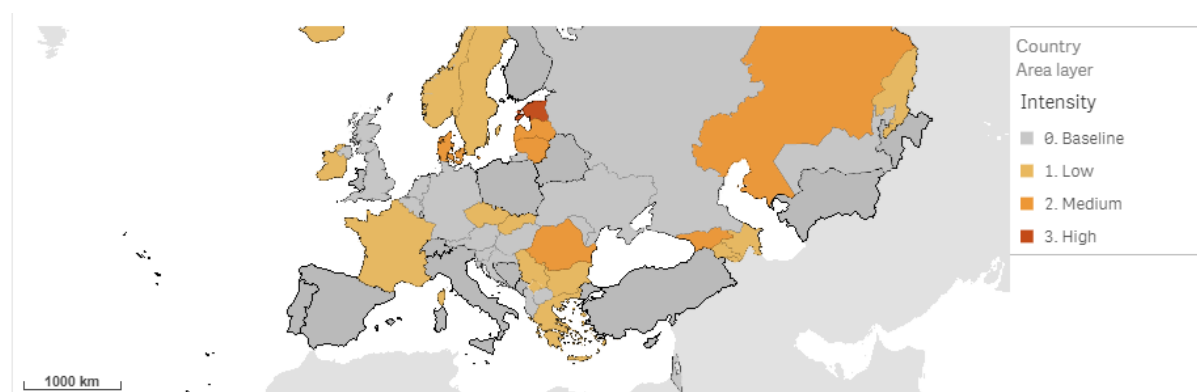
- WHO website: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
- ECDC website: <https://www.ecdc.europa.eu/en/novel-coronavirus-china>

Qualitative indicators

For week 16/2022, of 39 countries and areas reporting on intensity of influenza activity, 18 reported baseline-intensity (across the Region), 14 reported low-intensity (across the Region), 6 reported medium-intensity (Denmark, Georgia, Kazakhstan, Latvia, Lithuania and Romania), and 1 reported high-intensity (Estonia) (Fig. 1).

Of 40 countries and areas reporting on geographic spread of influenza viruses, 7 reported no activity (Albania, Armenia, Croatia, Israel, Kazakhstan, Kosovo (in accordance with UN Security Council Resolution 1244 (1999)) and North Macedonia), 13 reported sporadic spread (across the Region), 6 reported local spread (Austria, Czechia, Germany, Malta, Romania and Slovakia), 3 reported regional spread (Lithuania, Republic of Moldova and Serbia) and 11 reported widespread activity (across the Region) (Fig. 2).

Figure 1. Intensity of influenza activity in the European Region, week 16/2022

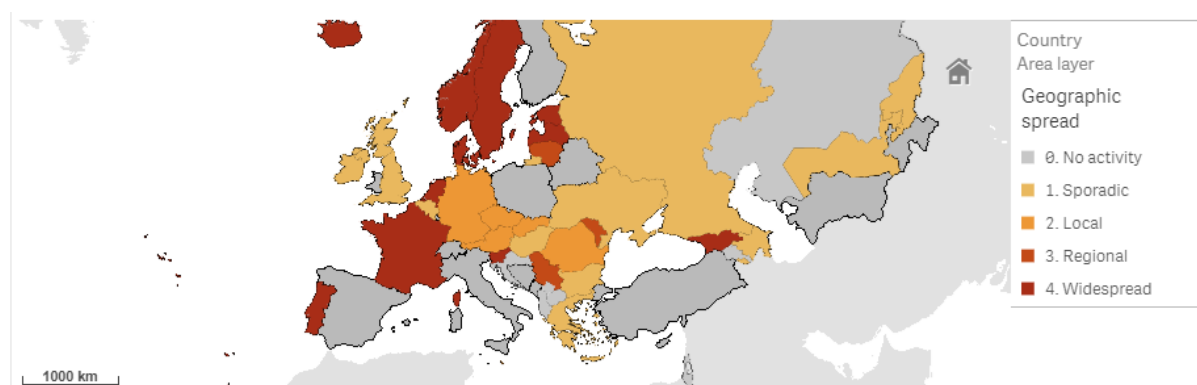


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Figure 2. Geographic spread of influenza viruses in the European Region, week 16/2022



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

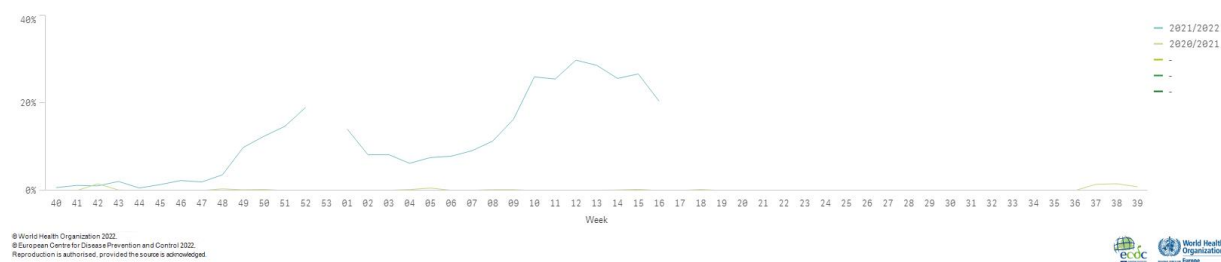
Please note:

- 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.

Influenza positivity

For the European Region, influenza virus positivity in sentinel primary care specimens decreased to 20% following a period of 6 weeks between 25% and 30%, but is still well above the epidemic threshold which is set at 10% (Fig. 3).

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



External data sources

Mortality monitoring: In Week 16/2022 overall pooled EuroMOMO estimates of all-cause mortality for the participating European countries showed decreasing, but still elevated, excess mortality among the elderly (65 years or older) and among older adults (45 to 64 years of age). Data from 26 European countries or subnational regions were included in this pooled analysis of all-cause mortality. The full EuroMOMO report can be found here: <https://www.euromomo.eu/>.

Primary care data

Syndromic surveillance data

Of the countries and areas in which thresholds for ILI activity are defined, countries in eastern (n=3; Azerbaijan, Georgia and Kazakhstan), northern (n=5; Denmark, Estonia, Iceland, Latvia and Lithuania), southern (n=2; Croatia and Romania) and western (n=1; Belgium) 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=1; Uzbekistan) and northern (n=2; Estonia and 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) and based on historic ILI/ARI data.

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

For week 16/2022, 187 (20%) of 915 sentinel specimens tested positive for an influenza virus; 182 (97%) were type A and 5 (5%) were type B. Of 125 subtyped A viruses, 90% were A(H3) and 10% A(H1)pdm09 (Fig. 4 and Table 1). Of 19 countries or areas across the Region that each tested at least 10 sentinel specimens in week 16/2022, 14 reported a rate of influenza virus detections above 10% (median 28%; range 15% - 67%): Poland (67%), Netherlands (63%), France (45%), Estonia (44%), Luxembourg (33%), Denmark (30%), Italy (30%), Norway (27%), Slovenia (21%), Hungary (20%), Georgia (20%), Republic of Moldova (19%), Spain (18%) and Germany (15%).

For the season to date, 6 158 (12%) of 51 594 sentinel specimens tested positive for an influenza virus. More influenza type A (n=6 079, 99%) than type B (n=79, 1%) viruses have been detected. Of 4 989 subtyped A viruses, 4 631 (93%) were A(H3) and 358 (7%) were A(H1)pdm09. Of 12 influenza type B viruses ascribed to a lineage, all were B/Victoria (85% 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 2021/22

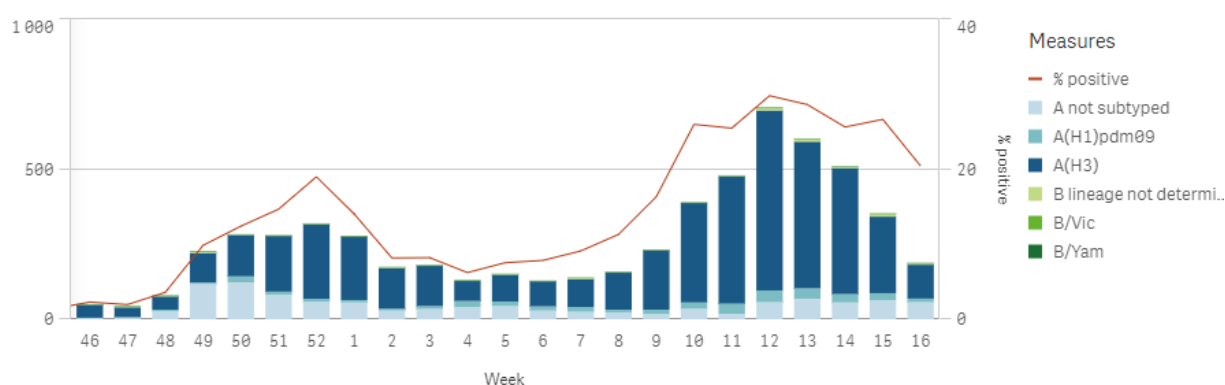


Table 1. Influenza virus detections in sentinel source specimens by type and subtype for week 16/2022 and cumulatively for the season

Sentinel	Current Week (16)		Season 2021-2022	
Virus type and subtype	Number	% ^a	Number	% ^a
Influenza A	182	97.3	6 079	98.7
A(H1)pdm09	12	9.6	358	7.2
A(H3)	113	90.4	4 631	92.8
A not subtyped	57	-	1 090	-
Influenza B	5	2.7	79	1.3
B/Victoria lineage	0	-	12	100
B/Yamagata lineage	0	-	0	0
Unknown lineage	5	-	67	-
Total detections (total tested)	187 (915)	20.4	6 158 (51 594)	11.9

^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 16/2022.

Hospital surveillance

A subset of countries and areas monitor 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 infection (SARI).

Laboratory-confirmed hospitalized cases

1.1) Hospitalized laboratory-confirmed influenza cases – ICUs

For week 16/2022, 33 laboratory-confirmed influenza cases were reported from ICU wards (in Czechia, France, Sweden and United Kingdom (England)). Only influenza type A viruses (n=33) were detected (Fig. 5 and 6).

Since week 40/2021, more influenza type A (n=670, 97.4%) than type B (n=18, 2.6%) viruses were detected (from Czechia, France, Ireland, Sweden and United Kingdom (England)). Of 138 subtyped influenza A viruses, 58% were A(H3) and

42% were A(H1)pdm09. No influenza B viruses were ascribed to a lineage. Of 498 cases with known age, 223 were 15-64 years old, 173 were 65 years and older, 54 were 0-4 years old and 48 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 2021/2022

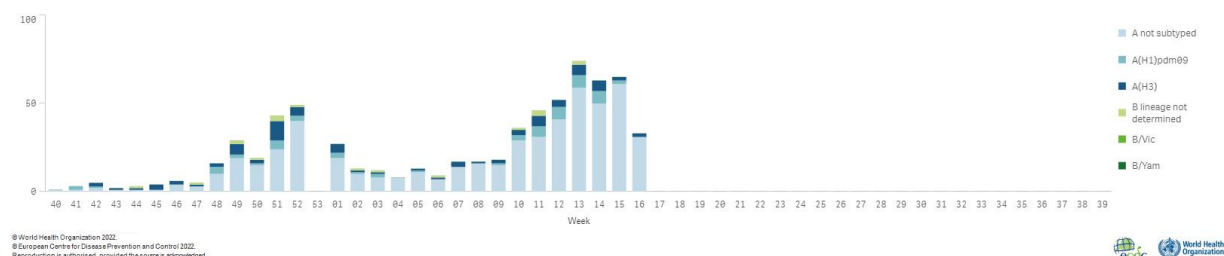
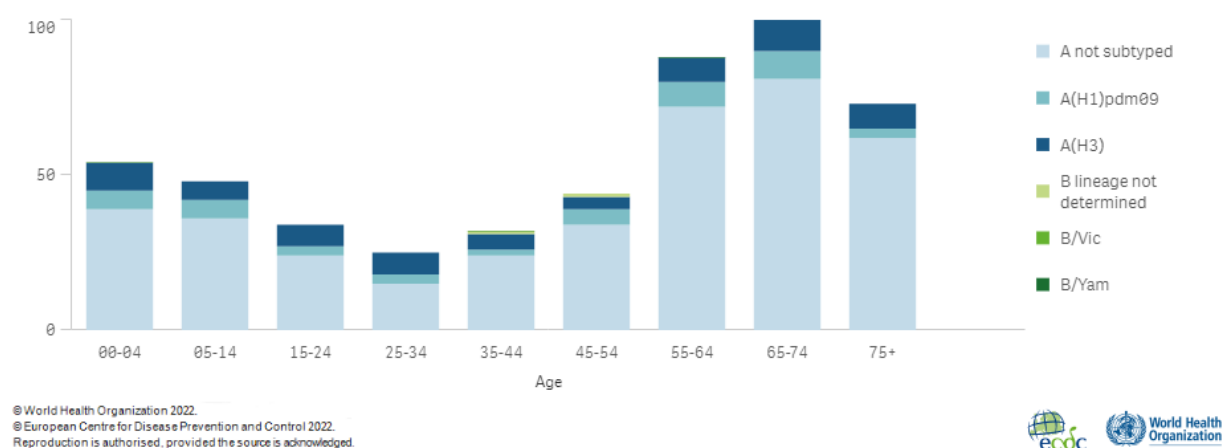


Figure 6. Distribution of influenza virus types, subtypes/lineages by age group in intensive care units (ICU), WHO European Region, season 2021/2022



1.2) Hospitalized laboratory-confirmed influenza cases – other wards

For week 16/2022, 9 laboratory-confirmed influenza cases were reported from other wards (in Czechia and Ireland). Only influenza type A viruses were detected (Fig. 7 and 8).

Since week 40/2021, 476 influenza type A viruses and 2 influenza type B viruses were detected (from Czechia, Ireland and Ukraine). Of 121 subtyped influenza A viruses, 98% were A(H3) and 2% A(H1)pdm09. The 478 cases with known age fell in 4 age groups: 206 were 65 years and older, 178 were 15-64 years old, 62 were 0-4 years old and 32 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 2021/2022

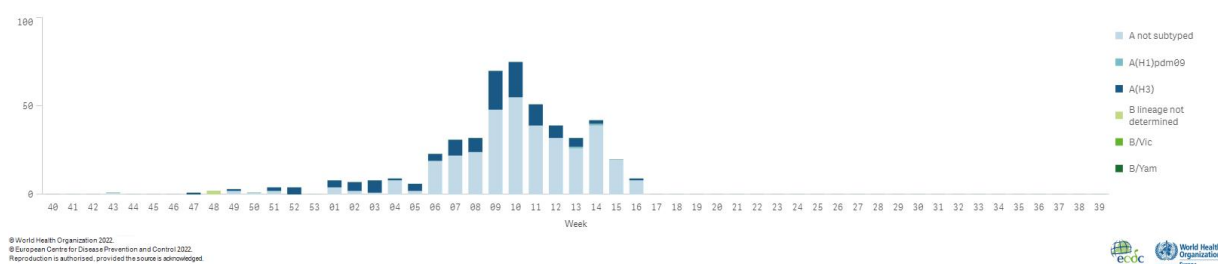
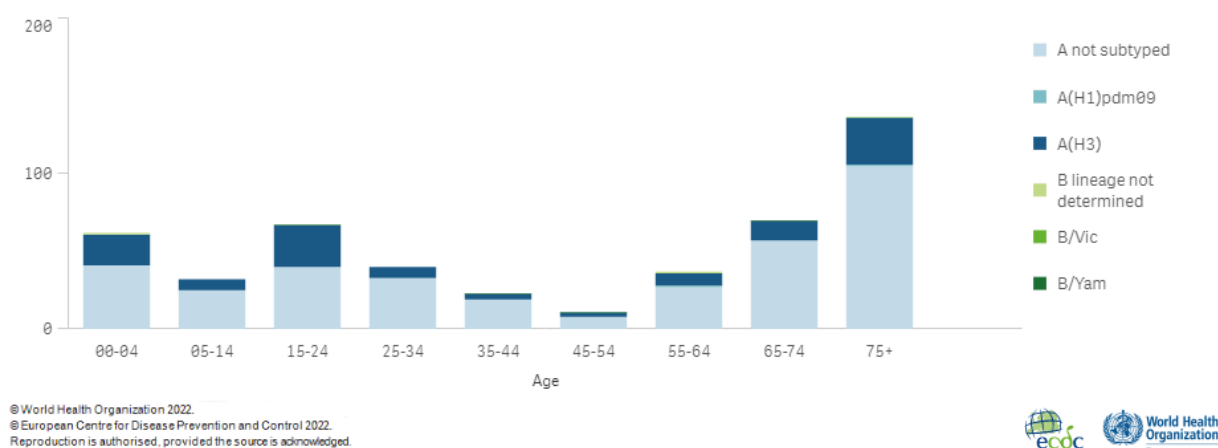


Figure 8. Distribution of influenza virus types, subtypes/lineages by age group in wards other than intensive care units (non-ICU), WHO European Region, season 2021/2022



Severe acute respiratory infection (SARI)-based hospital surveillance

For week 16/2022, 2 694 SARI cases were reported by 17 countries or areas (Albania, Armenia, Belgium, Georgia, Germany, Kazakhstan, Kyrgyzstan, Lithuania, Malta, North Macedonia, Republic of Moldova, Romania, Russian Federation, Serbia, Spain, Ukraine and Uzbekistan). Of 352 specimens tested for influenza viruses, 3% (n=12) were positive. Of these, similar numbers of influenza type B viruses (n=7, 58%) and type A viruses (n=5, 42%) were detected (Fig. 9 and Fig. 10). The highest positivity rates for influenza virus detections were reported by Serbia (45%).

For the season, 121 764 SARI cases were reported by 21 countries or areas (Albania, Armenia, Belarus, Belgium, Georgia, Germany, Kazakhstan,

Kyrgyzstan, Lithuania, Malta, Montenegro, North Macedonia, Republic of Moldova, Romania, Russian Federation, Serbia, Spain, Turkey, Ukraine, Uzbekistan and Kosovo (in accordance with Security Council resolution 1244 (1999)). For SARI cases testing positive for influenza virus since week 40/2021, type A viruses have been the most common (n=1 197, 95%). For 1 053 cases where influenza virus subtyping was performed, 1033 (98%) were infected by A(H3) viruses and 20 (2%) were infected by A(H1)pdm09 viruses. Of those influenza B viruses that have been ascribed to a lineage (n=9, 5%), 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 2021/2022

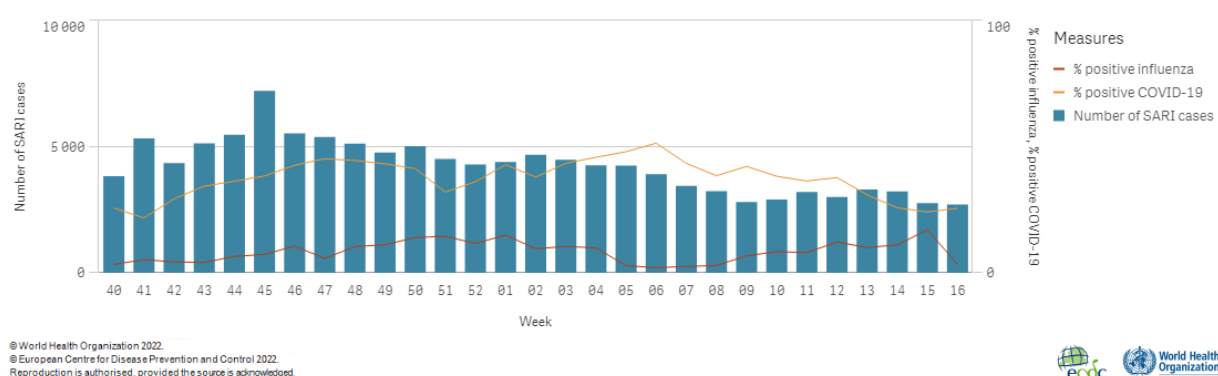
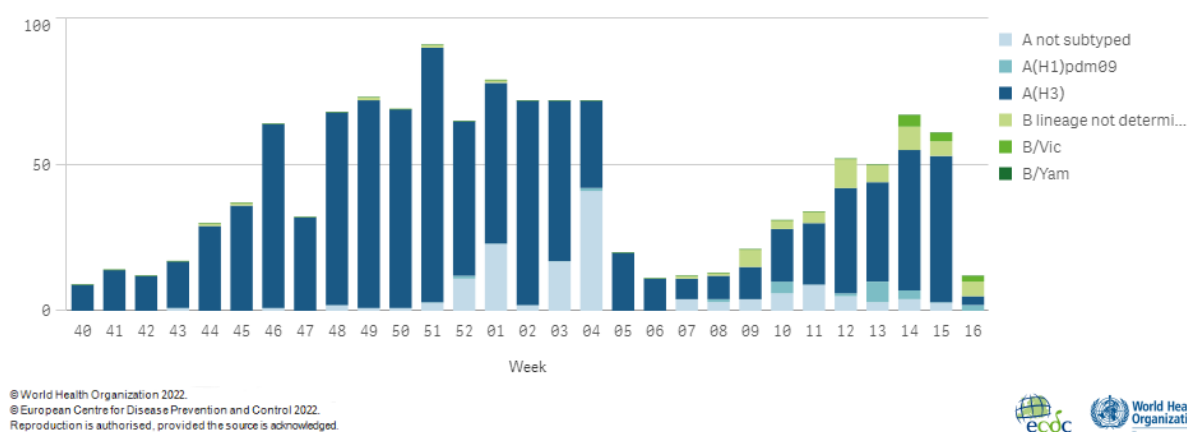


Figure 10. Influenza virus detections by type, subtype/lineage from severe acute respiratory infection (SARI), WHO European Region, season 2021/2022



Virus characteristics

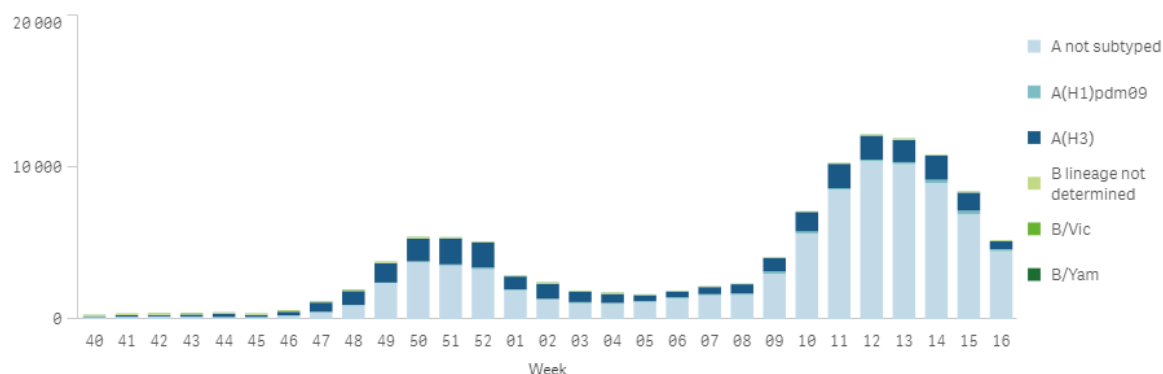
Details of the distribution of viruses detected in sentinel-source specimens can be found in the [Primary care data](#) section.

Non-sentinel virologic data

For week 16/2022, 5 188 of 57 842 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; 5 130 (99%) were type A and 58 (1%) were type B. Of 654 subtyped A viruses, 517 (79%) were A(H3) and 137 (21%) were A(H1)pdm09. The only type B virus ascribed to a lineage was of the B/Victoria lineage (Fig. 11 and Table 2).

For the season to date, more influenza type A (n=110 440, 98%) than type B (n=1 959, 2%) viruses have been detected. Of 26 088 subtyped A viruses, 23 805 (91%) were A(H3) and 2 283 (9%) were A(H1)pdm09. Of 59 influenza type B viruses ascribed to a lineage, 97% were B/Victoria and 3% were B/Yamagata (97% of type B viruses were reported without a lineage) (Fig. 11 and Table 2).

Figure 11. Influenza virus detections by type, subtype/lineage and week, non-sentinel sources, WHO European Region, season 2021/2022



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Table 2. Influenza virus detections in non-sentinel source specimens by type and subtype, week 16/2022 and cumulative for the season

Virus type and subtype	Current Week (16)		Season 2021-2022	
	Number	% ^a	Number	% ^a
Influenza A	5 130	98.9	110 440	98.3
A(H1)pdm09	137	20.9	2 283	8.8
A(H3)	517	79.1	23 805	91.2
A not subtyped	4 476	-	84 352	-
Influenza B	58	1.1	1 959	1.7
B/Victoria lineage	1	100	57	96.6
B/Yamagata lineage	0	0	2	3.4
Unknown lineage	57	-	1 900	-
Total detections (total tested)	5 188 (57 842)	-	112 399 (2 349 224)	-

^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 217 genetically characterized A(H1)pdm09 viruses up to week 16/2022, the majority (196; 90%) belonged to clade 6B.1A.5a.1, represented by A/Guangdong-Maonan/SWL1536/2019. Only a few viruses belonged to clade 6B.1A.5a.2: 7 (3%) were represented by A/India/Pun-NIV312851/2021 and 5 (2%) were represented by A/Victoria/2570/2019, the virus component for the 2021/22 and 2022/23 northern hemisphere vaccines. 9 viruses were not attributed to a clade.

Among the A(H3) viruses characterized up to week 16/2022, 2 525 were attributed to a clade. The majority 2 515 (>99%) belonged to clade 3C.2a1b.2a.2, represented by the A/Darwin/9/2021 component of 2022/23 northern hemisphere vaccines. Only 9 (<1%) were clade 3C.2a1b.1a viruses and 1 (<1%) virus fell into clade 3C.2a1b.2a.1.

Up to week 16/2022, 29 B/Victoria viruses were characterized. 20 of the viruses belonged to clade V1A.3a.2, represented by B/Austria/1359417/2021, the recommended vaccine virus for the 2022/23 northern hemisphere influenza season. 7 of the viruses fell into clade V1A.3, represented by B/Washington/02/2019, the recommended vaccine virus strain for the 2021/22 northern hemisphere influenza season, and 2 were not attributed to a clade.

7 viruses were characterized as B/Yamagata with 4 being B/Phuket/3073/2013-like while 3 viruses were not attributed to a clade. However, the possibility that these 7 viruses were derived from live attenuated influenza vaccine (LAIV) could not be excluded.

Table 3. Number of influenza viruses attributed to genetic groups, cumulative for the season- WHO Europe*

	Number of influenza viruses attributed to genetic groups 2021/2022
Total	2 778
Influenza A	2 742
A(H1)pdm09	217
A(H1)pdm09_NOClade *	1
A(H1)pdm09_SubgroupNotListed *	8
A/Guangdong-Maonan/SWL1536/2019(H1N1)pdm09_6B.1A.5a.1	196
A/India/Pun-NIV312851/2021(H1N1)pdm09_6B.1A.5a.2	7
A/Victoria/2570/2019(H1N1)pdm09_6B.1A.5a.2	5
A(H3)	2 525
A/Bangladesh/4005/2020(H3)_3C.2a1b.2a.2	2 515
A/Cambodia/e0826360/2020(H3)_3C.2a1b.2a.1	1
A/Denmark/3264/2019(H3N2)_3C.2a1b.1a	9
Influenza B	36
B/Vic	29
B/Austria/1359417/2021(Victoria lineage_1A.3a.2)	20
B/Victoria_NOClade *	1
B/Washington/02/2019(Victoria lineage_1A.3)	7
B/Vic_SubgroupNotListed *	1
B/Yam	7
B/Phuket/3073/2013(Yamagata lineage_3)	4

* 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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ECDC published the [March](#) virus characterization report that describes the available data from circulating viruses this influenza season: currently type A influenza virus circulation is dominating over type B, due mainly to A(H3) viruses. Vaccination remains the best protective measure for prevention of influenza. However, based on post-infection ferret antisera data, the predominant A(H3N2) viruses in circulation are not well recognized by antisera raised against viruses genetically and antigenically similar to the vaccine virus, indicating antigenic diversity. Therefore, it is possible that the A(H3) vaccine component may induce less good recognition of the prevalent A(H3) viruses, although [preliminary VE data](#) indicates a still moderate level of protection against laboratory confirmed infection. Clinicians should therefore consider early antiviral treatment of at-risk groups with influenza infection, according to local guidance, to prevent severe outcomes.

This and previously published influenza virus characterization reports are available on the [ECDC website](#).

Antiviral susceptibility of seasonal influenza viruses

Up to week 16/2022, 1 997 viruses were assessed for susceptibility to neuraminidase inhibitors (1 369 A(H3), 185 A(H1)pdm09 and 19 B viruses genotypically and 393 A(H3), 18 A(H1)pdm09 and 13 B viruses phenotypically), and 1 375 viruses were assessed for susceptibility to baloxavir marboxil (1 203 A(H3), 162 A(H1)pdm09 and 10 B viruses genotypically). Phenotypically, no viruses with reduced susceptibility were identified and genotypically 2 A(H3) viruses with potentially reduced susceptibility to baloxavir marboxil were identified.

Vaccine effectiveness

[Preliminary results](#) of 2021-2022 seasonal influenza vaccine effectiveness (VE) estimates from the United States showed that VE against medically attended outpatient acute respiratory infection associated with influenza A(H3N2) virus was 16% (95% CI = -16% to 39%), this was interpreted to show that “influenza vaccination did not reduce the risk for outpatient medically attended illness with influenza A(H3N2) viruses that predominated so far this season.”

The European I-MOVE network estimated influenza VE using a multicentre test-negative design among symptomatic patients presenting at primary care level between October 2021 and March 2022. Preliminary influenza VE against influenza A among seven study sites and among all ages was 36% (95% CI: 13–53) and 41% (95% CI: 15–59) among those aged 18–64 years. All-age VE against influenza A(H3N2) was 35% (95% CI: 6–54) and 37% (95% CI: 3–59) among those aged 18–64 years. There were too few influenza-positive cases among other age groups to allow VE estimations.

In [Sweden](#), the VE against laboratory-confirmed influenza was estimated to be 47% for individuals over 65 years of age.

According to [preliminary data in mainland France](#), the VE was estimated to be 50% (95% CI: 14-71) against all circulating influenza viruses, 77% (95% CI: 36-92) for A(H1N1)pdm09 and 31% (95% CI: -29-64) for A(H3N2).

For children aged 2 to 6 years in [Denmark](#), the estimated VE against influenza A viruses was estimated at 63% (95% CI: 10.9–84.4) in those hospitalised, and 64% (95% CI: 50.5–74.1) in those non-hospitalised.

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 September 2021, WHO published [recommendations](#) for the components of influenza vaccines for use in the 2022 southern hemisphere influenza season:

The WHO recommends that quadrivalent vaccines for use in the 2022 influenza season in the southern 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- 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
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It is recommended that **trivalent influenza vaccines** for use in the 2022 southern hemisphere influenza season contain the following:

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- an A/Wisconsin/588/2019 (H1N1)pdm09-like virus;
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The full report is published [here](#).

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:

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- 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;
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- an A/Wisconsin/588/2019 (H1N1)pdm09-like virus;
- an A/Darwin/6/2021 (H3N2)-like virus; and
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