

Summary

Weeks 21–39/2020 (18 May – 27 September 2020)

- This is the final report for the 2019–2020 influenza season.
- Influenza activity has been at inter-seasonal levels over the period of this report.
- Of 1 523 sentinel specimens tested for influenza viruses in weeks 21–39, 3 tested positive (one each of A(H3N2), B/Victoria lineage and type B no lineage ascribed).
- The novel coronavirus disease 2019 (COVID-19) pandemic has affected healthcare presentations and testing capacities of Member States in the Region, which negatively impacted reporting of influenza epidemiologic and virologic data. Therefore, the data we present, notably in terms of seasonal patterns, must be interpreted with caution.
- Weekly reporting for the 2020–2021 influenza season will start in week 40 with the first analysis being published on 10 October 2020.

2019–2020 season overview

- For the Region as a whole, influenza activity commenced earlier than in recent years and, based on sentinel sampling, first exceeded a positivity rate of 10% in week 47/2019.
- The influenza season for the Region as a whole peaked in week 05/2020, reaching a maximum positivity rate of 55%. The peak phase with positivity levels above 50% lasted for just two weeks, 05/2020 and 06/2020, though reporting systems in subsequent weeks have been adversely affected by Member State responses to the COVID-19 pandemic. In the previous influenza season, the influenza positivity rate exceeded 50% for six weeks.
- Both influenza types A and B co-circulated in the Region. Of the influenza A viruses, both influenza A(H1N1)pdm09 and A(H3N2) co-circulated. Of the circulating B viruses, the vast majority belonged to the B/Victoria lineage.
- The percentage of specimens testing positive for an influenza virus from patients who presented with ILI or ARI to sentinel primary healthcare sites dropped below 10% in week 13/2020, where it has since remained. In the 2018/2019 season, the positivity rate first dropped below 10% in week 17/2019.
- The great majority of analysed viruses were susceptible to neuraminidase inhibitors supporting early treatment or prophylactic use according to national guidelines.
- Interim estimates of 2019–2020 seasonal influenza vaccine effectiveness in the northern hemisphere are [available](#). Vaccination remains the best possible intervention for prevention of influenza and/or reducing the risk of serious complications.
- WHO has published [recommendations](#) for the composition of influenza vaccines to be used in the 2020–2021 northern hemisphere season. Based on these recommendations,

the influenza A(H1N1)pdm09, A(H3N2) and B/Victoria-lineage virus components should be updated for the 2020–2021 influenza vaccine.

Other news

The World Health Organization categorized COVID-19 as a pandemic on 11 March 2020. For more information about the 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>

Primary care data

Influenza activity

Of 19 Member States and areas that reported on the intensity indicator, 15 reported activity at baseline levels and 4 reported low intensity (Azerbaijan, Greece, Ireland and Slovakia) for week 39/2020 (Fig. 1).

Of 18 Member States and areas that reported on geographic spread, 17 reported no activity and 1 reported sporadic spread (Ireland) for week 39/2020 (Fig. 2).

Fig. 1. Intensity in the European Region, week 39/2020

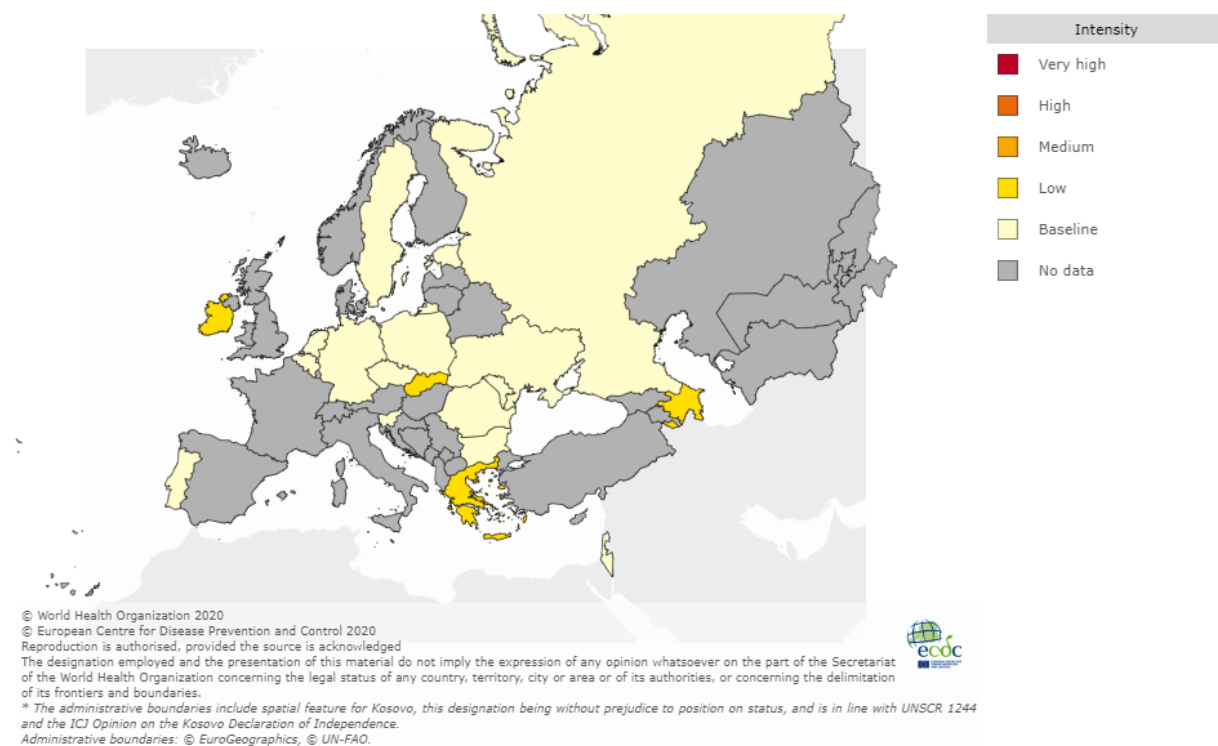
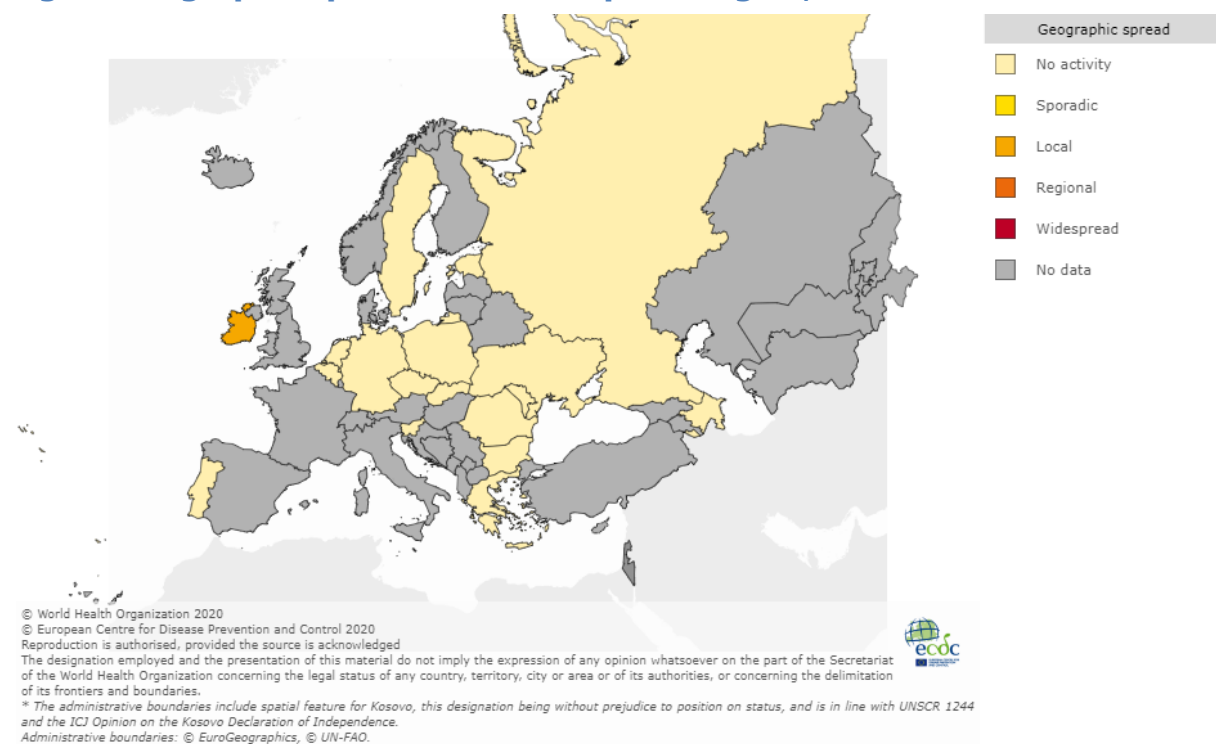


Fig. 2. Geographic spread in the European Region, week 39/2020



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

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

For week 39/2020, of 90 sentinel specimens tested for influenza viruses, none were positive (Fig. 3. Influenza virus detections in sentinel-source specimens by type and subtype, by week for weeks 21-39/2020 and Table 1. Influenza virus detections in sentinel-source specimens by type and subtype, week 39/2020 and cumulatively for weeks 21-39/2020).

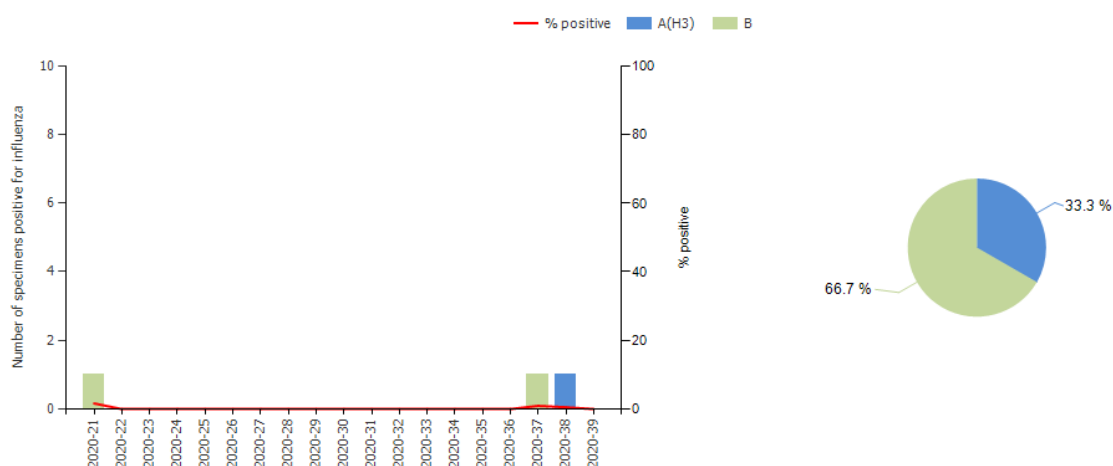
Cumulatively, for weeks 21-39/2020, 3 of 1 523 (0.2%) sentinel specimens tested positive for an influenza virus: 1 influenza A(H3N2), 1 B/Victoria lineage and 1 type B not ascribed to a lineage (Table 1).

Details of the distribution of viruses detected in non-sentinel-source specimens can be found in the [Virus characteristics](#) section.

Fig. 3. Influenza virus detections in sentinel-source specimens by type and subtype, by week for weeks 21-39/2020

Influenza virus detections in the region

Season: 2020 Interseason Source: Sentinel



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Table 1. Influenza virus detections in sentinel-source specimens by type and subtype, week 39/2020 and cumulatively for weeks 21-39/2020

Virus type and subtype	Current Week 39		Inter-season 2019–2020 Weeks 21-39	
	Number	% ^a	Number	% ^a
Influenza A	0	-	1	33.3
A(H1N1)pdm09	0	-	0	-
A(H3N2)	0	-	1	100
A not subtyped	0	-	0	-
Influenza B	0	-	2	66.6
B/Victoria lineage	0	-	1	100
B/Yamagata lineage	0	-	0	-
Unknown lineage	0	-	1	-
Total detections (total tested)	0 (90)	-	3 (1 523)	0.2

^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.

Severity

A subset of Member States and areas monitor severe disease related to influenza virus infection by surveillance of 1) hospitalized laboratory-confirmed influenza cases in ICUs (11 Member States and areas) or other wards (7 Member States and areas), with Czechia reporting cases from both ward types during the summer period, or 2) severe acute respiratory infection (SARI; 17 Member States and areas, mostly located in the eastern part of the Region).

1.1) Hospitalized laboratory-confirmed influenza cases – ICUs

There were 2 hospitalized laboratory-confirmed influenza cases in ICUs for weeks 21-39/2020. Both patients were over 64 years of age and infected with influenza type A viruses, one of which was subtyped as A(H1N1)pdm09 and one died.

1.2) Hospitalized laboratory-confirmed influenza cases – other wards

There was 1 laboratory-confirmed influenza case in wards other than ICUs for weeks 21-39/2020 with A(H3N2) infection.

2. SARI surveillance

For week 39/2020, specimens from 26 SARI cases were tested for influenza viruses. All were negative.

Of the 458 SARI cases tested for influenza viruses in weeks 21-39/2020, 1 tested positive. It was influenza type B.

Of the reported SARI cases in weeks 21-39/2020, 4 454 had a recorded age and, of these, 34% were 0-4 years old.

Mortality monitoring

Overall pooled estimates of all-cause mortality for 23 countries participating in the [EuroMOMO](#) showed normal levels for the time of year. However, excess mortality was observable in the age group 75 to 84 years in a few countries.

Virus characteristics

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

Viruses detected in non-sentinel source specimens

For week 39/2020, no 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 influenza viruses (Table 2. Influenza virus detections in non-sentinel source specimens by type and subtype, week 39/2020 and cumulatively for weeks 21-39/2020).

Cumulatively, for weeks 21-39/2020, 28 influenza type A and 18 influenza type B viruses were detected. Six subtyped A viruses were A(H3) and 3 were A(H1) (Table 2). The 18 influenza type B detections were not ascribed to a lineage.

Table 2. Influenza virus detections in non-sentinel source specimens by type and subtype, week 39/2020 and cumulatively for weeks 21-39/2020

Virus type and subtype	Current Week 39		Inter-season 2019–2020 Weeks 21-39	
	Number	% ^a	Number	% ^a
Influenza A	0	-	28	60.9
A(H1N1)pdm09	0	-	3	33.3
A(H3N2)	0	-	6	66.7
A not subtyped	0	-	19	-
Influenza B	0	-	18	39.1
B/Victoria lineage	0	-	0	-
B/Yamagata lineage	0	-	0	-
Unknown lineage	0	-	18	-
Total detections (total tested)	0 (3 773)	-	46 (70 981)	-

^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 and antigenic characterization

From weeks 21-39/2020, no influenza viruses were characterised genetically. Genetic data for the 2019-2020 season can be found in the FNE report for week 20/2020.

The great majority of A(H1N1)pdm09 viruses have fallen within subgroups of subclade 6B.1A5 and subclade 6B.1A7, with those of 6B.1A5A becoming dominant as the season progressed. While these viruses have HA amino acid substitutions compared to the vaccine virus A/Brisbane/02/2018 (6B.1A1), it was anticipated that the vaccine virus would still be effective based on HI assays conducted with post-infection ferret antisera raised against the vaccine virus, until emergence of a group of viruses with HA1 N156K substitution.

As seen elsewhere in the world, there has been significant genetic diversity among circulating A(H3N2) viruses in the European region for the 2019–2020 influenza season, with 53% clade 3C.3a and 47% subclade 3C.2a. All subclade 3C.2a1 viruses have fallen in subgroup 3C.2a1b (with the latter splitting between 3 designated genetic clusters). The vaccine virus, A/Kansas/14/2017, falls within clade 3C.3a and viruses within this clade induce clade-specific antibodies in ferrets, so viruses falling in other clades/subclades may be less well covered by human immune responses to the vaccine.

For the B/Victoria-lineage, viruses in the B/Colorado/06/2017 vaccine virus double deletion clade (1A (del 162-163)) have been in the great minority. However, there is evidence of some cross-reactivity with viruses in the triple deletion clade (1A (del 162-164)) by post-infection ferret antisera raised against the egg-propagated vaccine virus.

B/Yamagata lineage viruses have been detected in low numbers worldwide and, despite some genetic drift with associated HA amino acid substitutions, retain good reactivity with post-infection ferret antisera raised against the B/Phuket/3073/2013 vaccine virus.

ECDC published a [report](#) in August relating to viruses circulating globally, with collection dates after 31 August 2019, but focusing on those from European Union/European Economic Area (EU/EEA) countries. Since the June 2020 characterization report, 3 shipments of influenza-positive specimens from EU/EEA countries had been received by the WHO Collaborating Centre, London (the Francis Crick Institute, Worldwide Influenza Centre (WIC)). In total, 1 661 virus specimens had been received, with collection dates after 31 August 2019. A summary of viruses from EU/EEA countries characterized in July is given below. Previously published [influenza virus characterization reports](#) are also available on the ECDC website.

A(H1N1)pdm09 viruses

Of the 49 A(H1N1)pdm09 viruses from EU/EEA countries characterised antigenically since the June report, 36 were well recognised by antisera raised against the 2019–20 vaccine virus, A/Brisbane/02/2018. The 13 viruses that showed poor reactivity generally carried amino acid substitutions (notably N156K) in the HA1 150-loop region. The 468 EU/EEA test viruses with collection dates from week 40/2019 genetically characterised at the WIC have fallen within subclades of clade 6B.1A: 425 6B.1A5A, 30 6B.1A5B, 1 6B.1A6 and 12 6B.1A7.

A(H3N2) viruses

The majority (39) of the 68 A(H3N2) viruses from EU/EEA countries characterised antigenically in July were clade 3C.3a and were well recognised by antiserum raised against egg-propagated A/Kansas/14/2017, the current vaccine virus. Globally, approximately equal proportions of clade 3C.3a and subgroups 3C.2a1b+T131K and 3C.2a1b+T135K viruses have been detected, but for viruses detected since 1 February 2020, subgroups 3C.2a1b+T135KA/B have prevailed in the USA while those of clade 3C.3a and subgroup 3C.2a1b+T131K have dominated in Europe. In total, 500 viruses from EU/EEA countries have been characterised genetically at the WIC: 282 clade 3C.3a, 137 3C.2a1b+T131K, 61 3C.2a1b+T135K-A and 20 3C.2a1b+T135K-B.

B/Victoria viruses

Thirty-two B/Victoria-lineage viruses from EU/EEA countries were antigenically characterised in July, all were subclade 1A(Δ 3)B. Approximately 25% of the subclade 1A(Δ 3)B viruses were not recognised well by antiserum raised against B/Washington/02/2019, the vaccine virus for the 2020–2021 northern hemisphere influenza season. Poor recognition was generally associated with HA1 amino acid substitutions of either N126K or E128K. In total, 306 EU/EEA viruses have been characterised genetically at the WIC: 290 subclade 1A(Δ 3)B and 16 subclade 1A(Δ 2).

B/Yamagata viruses

One B/Yamagata-lineage virus was characterised antigenically in July. All 8 EU/EEA viruses characterised genetically at the WIC since week 40/2019, as for all recently circulating B/Yamagata-lineage viruses, belong to genetic clade 3 and contain at least two HA amino acid substitutions (HA1 L172Q and M251V) compared to B/Phuket/3073/2013, the antigenic effects of which have been minimal as assessed in earlier reports.

Vaccine composition

On 28 February 2020, WHO published recommendations for the components of influenza vaccines for use in the **2020–2021 northern hemisphere influenza season**.

Egg-based vaccines should contain following:

- an A/Guangdong-Maonan/SWL1536/2019 (H1N1)pdm09-like virus (Clade 6B.1A5A);
- an A/Hong Kong/2671/2019 (H3N2)-like virus (Clade 3C.2a1b+T135K-B);
- a B/Washington/02/2019 (B/Victoria lineage)-like virus (Clade 1A(Δ3)B); and
- a B/Phuket/3073/2013 (B/Yamagata lineage)-like virus (Clade 3).

Cell- or recombinant-based vaccines should contain following:

- an A/Hawaii/70/2019 (H1N1)pdm09-like virus (Clade 6B.1A5A);
- an A/Hong Kong/45/2019 (H3N2)-like virus (Clade 3C.2a1b+T135K-B);
- a B/Washington/02/2019 (B/Victoria lineage)-like virus (Clade 1A(Δ3)B); and
- a B/Phuket/3073/2013 (B/Yamagata lineage)-like virus (Clade 3).

It is recommended that the influenza B virus component of **both trivalent vaccine types** for use in the 2020–2021 northern hemisphere influenza season should be a B/Washington/02/2019-like virus of the B/Victoria-lineage.

The [full report](#) and [Frequently Asked Questions](#) for the 28 February 2020 decision are available on the [WHO website](#).

Based on WHO published recommendations on 25 September 2020, the composition of influenza vaccines for use in the **2021 southern hemisphere influenza season** will contain the following:

Egg-based Vaccines

- an A/Victoria/2570/2019 (H1N1)pdm09-like virus;
- an A/Hong Kong/2671/2019 (H3N2)-like virus;
- a B/Washington/02/2019 (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/Hong Kong/45/2019 (H3N2)-like virus;
- a B/Washington/02/2019 (B/Victoria lineage)-like virus; and
- a B/Phuket/3073/2013 (B/Yamagata lineage)-like virus.

It is recommended that the influenza B virus component of **both trivalent vaccine types** for use in the 2021 southern hemisphere influenza season should be a B/Washington/02/2019-like virus of the B/Victoria-lineage.

The full report can be found [here](#).

Vaccine effectiveness

Interim estimates of 2019-2020 seasonal influenza vaccine effectiveness (VE) for the northern hemisphere have been published based on [six European studies](#) (see below) and independent studies conducted in [Finland](#), [Canada](#) and [the United States of America](#). Influenza vaccine effectiveness estimates can vary depending on several factors, for example, study methods, health facility type, population, disease outcome, influenza vaccine types, influenza activity and type/subtype/lineage of circulating viruses. Vaccination against influenza remains the best method for prevention of influenza infection and/or development of severe disease during the ongoing 2019-2020 influenza season.

Interim 2019-2020 influenza VE estimates from the six European studies for all ages ranged from 29% to 61% against any influenza in the primary care setting and 35% to 60% in hospitalized older adults (aged 65 years and over). The VE point estimates against influenza A(H1N1)pdm09 (all ages, both settings) was 48% to 75%, and against influenza A(H3N2) ranged from –58% to 57% (primary care) and –16% to 60% (hospital). Against influenza type B, VE for all ages was 62% to 83% (primary care only).

Antiviral susceptibility testing

From week 40/2019 to week 39/2020, 2 292 influenza viruses, were tested for susceptibility to neuraminidase inhibitors: 942 A(H1N1)pdm09, 794 A(H3N2) and 556 type B viruses.

In total, 5 A(H1N1)pdm09 viruses showed highly reduced inhibition (HRI) or reduced inhibition (RI) to oseltamivir and/or zanamivir. Of these, 3 viruses carried amino acid substitution H275Y in NA, with one of them also having H295S substitution, both of which are indicative of HRI by oseltamivir. An additional 2 A(H1N1)pdm09 viruses showed RI by oseltamivir by phenotypic assay; 1 of these viruses also showed RI by zanamivir in phenotypic assay.

1 A(H3N2) virus carried amino acid substitution R292K in NA and showed evidence of HRI by oseltamivir and RI by zanamivir.

1 B/Victoria-lineage virus showed RI by zanamivir and highly reduced inhibition (HRI) by oseltamivir in phenotypic assay.

This weekly update was prepared by an editorial team at the European Centre for Disease Prevention and Control (Cornelia Adlhoch, Lisa Ferland, Favelle Lamb, Andrew Amato-Gauci) and the WHO Regional Office for Europe (Piers Mook, Dmitriy Pereyaslov, and Miriam Sneiderman). It was reviewed by country experts (Ana Paula Rodrigues, National Institute of Health Dr Ricardo Jorge (INSA), Portugal and Božidarka Rakočević, Centre for Disease Control, Institute of Public Health, Montenegro) and by experts from the network (Adam Meijer, National Institute for Public Health and the Environment (RIVM), the Netherlands; Rod Daniels and John McCauley, WHO Collaborating Centre for Reference and Research on Influenza, Francis Crick Institute, United Kingdom).

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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