

Summary

Week 01/2020 (30 December 2019 – 5 January 2020)

- One Member State reported high intensity activity for the first time this season and three reported medium intensity activity; however, the remainder reported baseline or low intensity levels.
- The percentage of sentinel ILI surveillance patients positive for influenza virus remains elevated, but has varied in the last three weeks, probably related to under-reporting during the Christmas/New Year period.
- The majority of reported influenza virus detections from sentinel ILI surveillance across the Region were type A (60%). This percentage has decreased each week from 78% in week 49 but varied between Member States and areas and within sub-regions.
- [Influenzanet](#), which uses self-reported symptoms for ILI surveillance in the general population of European countries, is included in the bulletin for the first time this week as a pilot. For the last several weeks, activity has been moderate and is currently increasing in the majority of participating countries.

2019–2020 season overview

- For the Region as a whole, influenza activity commenced earlier than previous years, increasing each week until week 51; since then it has remained elevated but variable.
- Influenza activity in the European Region, based on sentinel sampling, first exceeded a positivity rate of 10% in week 47/2019 and has remained over 10% for 7 weeks.
- Type A viruses have dominated across the European Region, although the proportion has been decreasing since week 49 and a number of countries have reported influenza type B virus dominance or co-dominance of types A and B viruses.
- In sentinel sources, both influenza A subtypes, A(H3N2) and A(H1N1)pdm09, are co-circulating and of the influenza B viruses, the vast majority (97%) have been B/Victoria lineage.
- ECDC and WHO Regional Office published a joint [Regional Situation Assessment](#) of the 2019–2020 influenza season up to week 49/2019, which focuses on disease severity and impact on healthcare systems to assist forward planning in Member States.

Primary care data

Syndromic surveillance data

For week 01/2020, of the 34 Member States and areas that have reported ILI thresholds, 12 reported ILI activity above baseline levels. Of the 16 Member States and areas that have reported acute respiratory infection (ARI) thresholds, none reported ARI above baselines.

Influenza activity

Of 41 Member States and areas that reported on the intensity indicator, 19 reported activity at baseline levels (across the Region), 18 reported low (across the Region), 3 reported medium (Latvia, United Kingdom (England and Wales)), and 1 reported high (Israel) intensity for week 01/2020 (See Fig. 1).

Of 41 Member States and areas that reported on geographic spread, 5 reported no activity, 14 reported sporadic spread, 4 reported local spread, 5 reported regional spread and 13 reported widespread geographic activity (See Fig. 2).

Fig. 1. Intensity in the European Region, week 01/2020

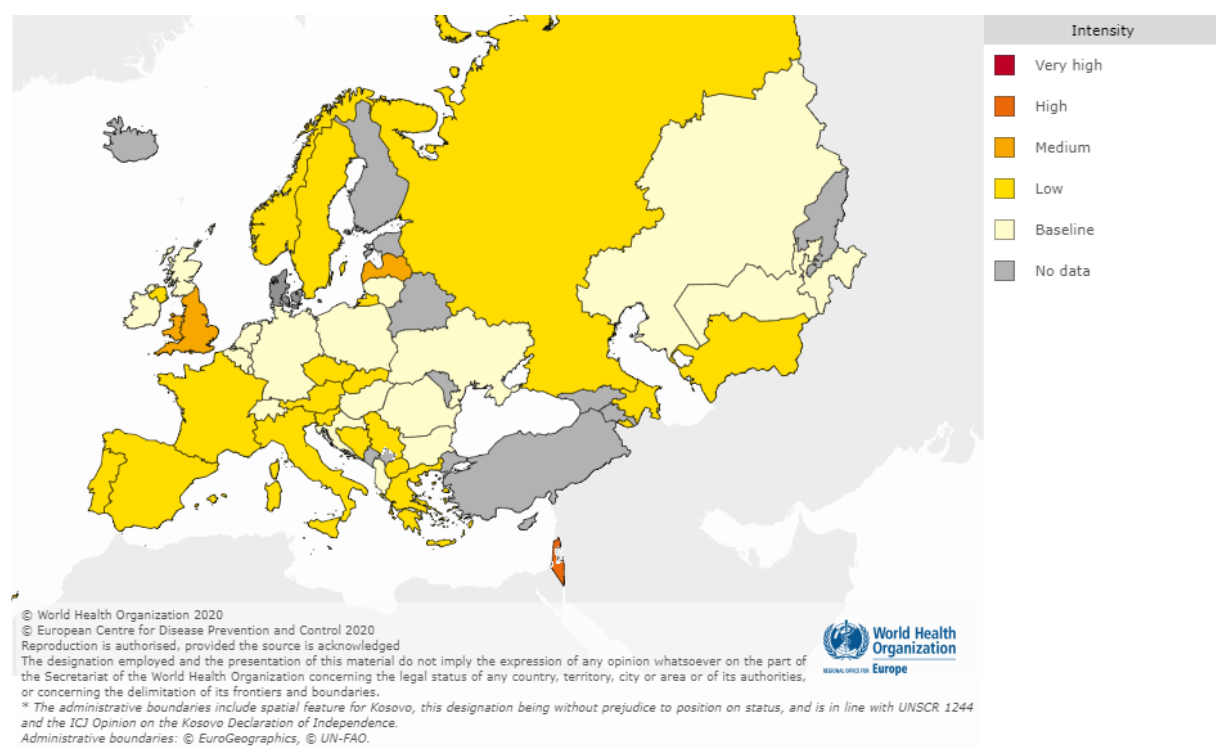
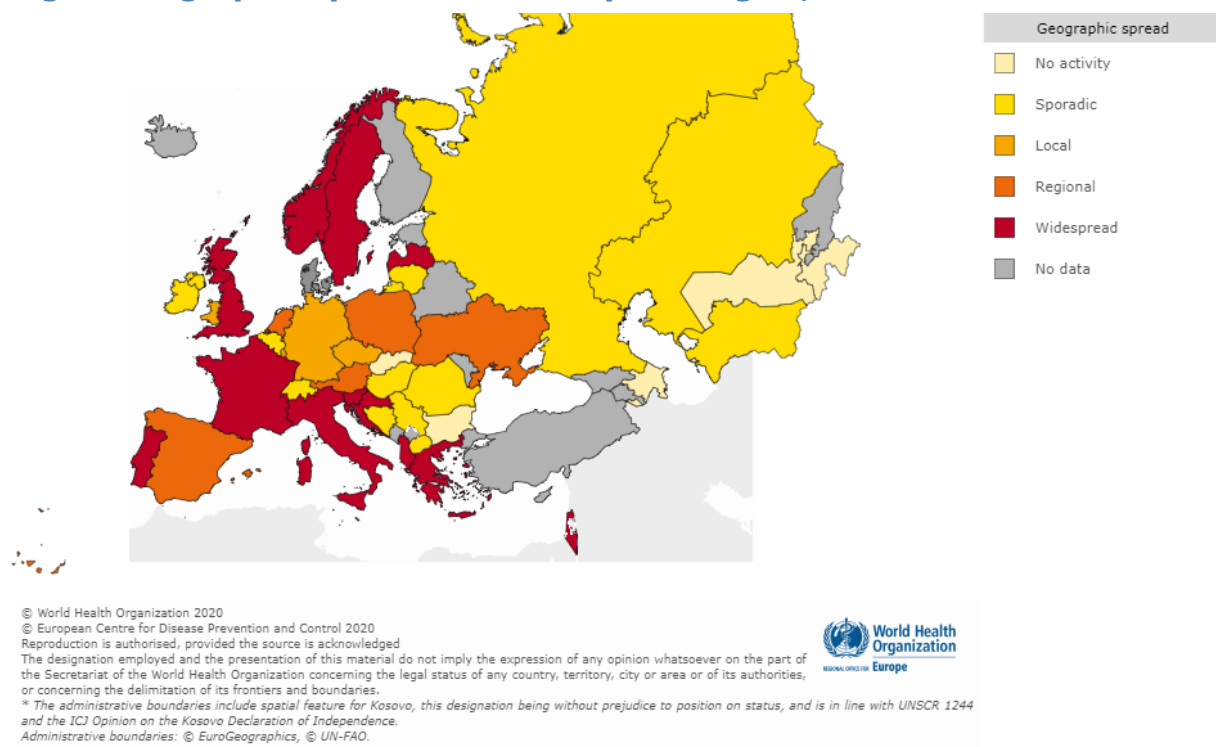


Fig. 2. Geographic spread in the European Region, week 01/2020



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

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

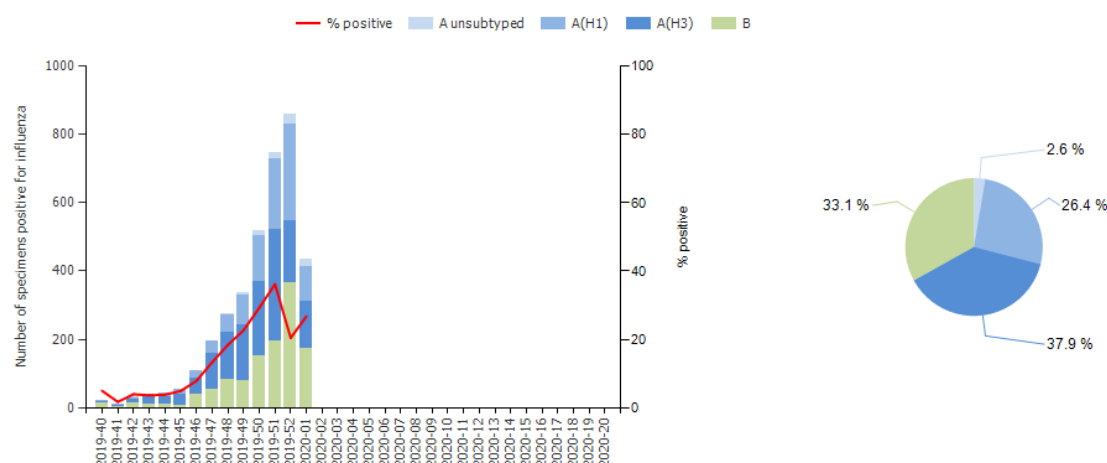
For week 01/2020, 433 (27%) of 1 609 sentinel specimens tested positive for an influenza virus; 60% were type A and 40% were type B (Fig. 3 and Table 1). Of 238 subtyped A viruses, 58% were A(H3N2) and 42% were A(H1N1)pdm09 (Fig. 3 and Table 1). Of 22 type B viruses ascribed to a lineage, all but one were B/Victoria (Table 1).

Of 24 Member States or areas across the Region that each tested at least 10 sentinel specimens from week 01/2020, 13 reported rates of influenza virus detections above 30% (median 50%; range 32% - 78%).

For the season to date, more influenza type A (n=2 454, 67%) than type B (n=1 213, 33%) viruses have been detected (Fig. 3 and Table 1). Of 2 357 subtyped A viruses, 1 390 (59%) were A(H3N2) and 967 (41%) were A(H1N1)pdm09. Of 262 influenza type B viruses ascribed to a lineage, 97% were B/Victoria and 3% were B/Yamagata (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 and cumulatively for the season^a



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^a Pie chart shows cumulative data for this period.

Table 1. Influenza virus detections in sentinel-source specimens by type and subtype, week 01/2020 and cumulatively for the season

| Virus type and subtype | Current Week | | Season 2019–2020 | |
|--|--------------------|----------------|-----------------------|----------------|
| | Number | % ^a | Number | % ^a |
| Influenza A | 259 | 59.8 | 2 454 | 66.9 |
| A(H1N1)pdm09 | 101 | 42.4 | 967 | 41 |
| A(H3N2) | 137 | 57.6 | 1 390 | 59 |
| A not subtyped | 21 | - | 97 | - |
| Influenza B | 174 | 40.2 | 1 213 | 33.1 |
| B/Victoria lineage | 21 | 95.5 | 255 | 97.3 |
| B/Yamagata lineage | 1 | 4.5 | 7 | 2.7 |
| Unknown lineage | 152 | - | 951 | - |
| Total detections (total tested) | 433 (1 609) | 26.9 | 3 667 (20 172) | 18.2 |

^aFor 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.

Influenzanet data

Influenzanet is a European wide initiative providing surveillance of influenza-like illness (ILI) in the general population using citizens self-reported symptoms. On registration, citizens complete a baseline questionnaire on demographic, geographic, socioeconomic, and health data. Subsequently, participants are sent weekly reminders to report any symptoms relating to flu, health-care seeking behaviour and flu medication intake. Participants may complete the survey at any time. The overall number of ILI cases in the general population uses the ECDC ILI case definition and can be found for each participating country at influenzanet.info.

For week 01/2020, France and Italy reported less than 10 ILI cases per 1 000 active participants. Switzerland, UK, Portugal, Ireland and Spain reported 10-20 ILI cases per 1 000 active participants, while Denmark has reported 20-25 ILI cases per 1 000 active participants. For the last several weeks, activity has been moderate and is currently increasing in the majority of participating countries.

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 (9 Member States and areas) or other wards (7 Member States and areas), with 6 Member States and areas reporting both 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

Among laboratory-confirmed influenza cases reported in ICUs for week 01/2020 (n=231), influenza type A viruses (n=218, 94%) were detected more frequently than influenza type B viruses (n=13, 6%).

Since week 40/2019, more influenza type A (n=1 376, 95%) than type B (n=70, 5%) viruses were detected. Of 425 subtyped influenza A viruses, 69% were A(H3N2) and 31% A(H1N1)pdm09. No influenza B viruses were ascribed to a lineage. Of 231 cases with known age, 52% were 15-64 years old and 39% were 65 years and older.

1.2) Hospitalized laboratory-confirmed influenza cases – other wards

Among laboratory-confirmed influenza cases reported in wards other than ICUs for week 01/2020 (n=186), influenza type A viruses (97%) were detected more frequently than influenza type B viruses (3%).

Since week 40/2019, more influenza type A (n=2 019, 95%) than type B (n=108, 5%) viruses were detected. Of 390 subtyped influenza A viruses, 81% were A(H3N2) and 19% A(H1N1)pdm09. No influenza B viruses were ascribed to a lineage. Of 2 127 cases with known age, 43% were 65 years and older and 27% were 15-64 years old.

2. SARI surveillance

For week 01/2020, 931 SARI cases were reported by 8 Member States or areas. In total, specimens from 63 SARI cases were tested for influenza viruses and 20 (32%) were positive for influenza virus: 16 type A and 4 type B.

Of 13 011 SARI cases reported since week 40/2019, 12 856 had a recorded age and, of these, 58% were 0–4 years old and 22% were 15–64 years old. Of the SARI cases testing positive for an influenza virus since week 40/2019 (n=306), type B viruses were the most common (n=256, 63%). Of the 104 influenza type A virus infected cases for which subtyping was performed, 72 were A(H1N1)pdm09 and 32 were A(H3N2) viruses. Of the 43 influenza type B viruses ascribed to a lineage, 36 were B/Victoria and 7 were B/Yamagata.

Mortality monitoring

For week 01/2020, the [EuroMOMO](#) project received data from 22 countries or areas that were included in pooled analyses. Pooled estimates of all-cause mortality were within the expected range for the time of year.

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 01/2020, 6 257 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; 87% were type A and 13% were type B. Of 841 subtyped A viruses, 68% were A(H3N2) and 32% were A(H1N1)pdm09. Of 4 influenza type B viruses ascribed to a lineage, all were B/Victoria (Table 2).

For the season to date, more influenza type A (n=34 132, 87%) than type B (n=5 045, 13%) viruses have been detected. Of 8 967 subtyped A viruses, 76% were A(H3N2) and 24% were A(H1N1)pdm09. Of 314 influenza type B viruses ascribed to a lineage, 88% were B/Victoria and 12% B/Yamagata (Table 2).

Table 2. Influenza virus detections in non-sentinel source specimens by type and subtype, for week 01/2020 and cumulatively for the season

| Virus type and subtype | Current Week | | Season 2019–2020 | |
|--|-----------------------|----------------|-------------------------|----------------|
| | Number | % ^a | Number | % ^a |
| Influenza A | 5 425 | 86.7 | 3 4132 | 87.1 |
| A(H1N1)pdm09 | 270 | 32.1 | 2 188 | 24.4 |
| A(H3N2) | 571 | 67.9 | 6 779 | 75.6 |
| A not subtyped | 4 584 | - | 25 165 | - |
| Influenza B | 832 | 13.3 | 5 045 | 12.9 |
| B/Victoria lineage | 19 | 100 | 276 | 87.9 |
| B/Yamagata lineage | 0 | 0 | 38 | 12.1 |
| Unknown lineage | 813 | - | 4 731 | - |
| Total detections (total tested) | 6 257 (2 1509) | | 39 177 (249 839) | |

^aFor 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

456 influenza viruses from weeks 40/2019-01/2020 have been characterized genetically (Table 3):

- 364 (80%) type A: 261 A(H3N2) and 103 A(H1N1)pdm09
- 92 (20%) type B : 82 B/Victoria and 10 B/Yamagata

While the A(H1N1)pdm09 viruses fall within subgroups of subclade 6B.1A5 and subclade 6B.1A7 that are different to that of the vaccine virus A/Brisbane/02/2018 (6B.1A1), it is anticipated that the vaccine virus will be effective based on HI assays conducted with post-infection ferret antisera raised against the vaccine virus.

As seen elsewhere in the world, there is significant genetic diversity among circulating A(H3N2) viruses in the European region for the 2019–2020 influenza season to date, with 56% subclade 3C.2a. and 44% clade 3C.3a. All subclade 3C.2a1 viruses fall 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 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.

Table 3. Viruses attributed to genetic groups, cumulative for weeks 40/2019–01/2020

| Phylogenetic group | Number of viruses |
|---|-------------------|
| A(H1)pdm09 group 6B.1A5A representative A/Norway/3433/2018 | 82 |
| A(H1)pdm09 group 6B.1A7 representative A/Slovenia/1489/2019 | 6 |
| A(H1)pdm09 group 6B.1A5B representative A/Switzerland/3330/2018 | 15 |
| A(H3) clade 3C.2a1b+T135K-B representative A/Hong Kong/2675/2019 | 42 |
| A(H3) clade 3C.3a representative A/Kansas/14/2017 ^a | 116 |
| A(H3) clade 3C.2a1b+T135K-A representative A/La Rioja/2202/2018 | 10 |
| A(H3) clade 3C.2a1b+T131K representative A/South Australia/34/2019 | 93 |
| B(Vic)-lineage clade 1A (del162-163) representative B/Colorado/06/2017 ^a | 3 |
| B(Vic)-lineage clade 1A (del162-164) representative B/Washington/02/2019 | 79 |
| B(Yam)-lineage clade representative B/Phuket/3073/2013 ^b | 10 |

^a Vaccine component for 2019–2020 northern hemisphere.

^b Vaccine component of quadrivalent vaccines for use in 2019–2020 northern hemisphere season.

ECDC published a [report](#) in December that largely focused on viruses from across the world, with collection dates after 31 August and available in the Global Initiative on Sharing All Influenza Data (GISAID) as of 4 December. Limited detailed influenza virus characterization for influenza-positive specimens from European Union/European Economic Area (EU/EEA) countries, with collection dates from 31 August, was presented as few had been received in a timely manner by the WHO Collaborating Centre, London (the Francis Crick Institute). A

summary of viruses from EU/EEA countries characterized in November is given below. Previously published [influenza virus characterisation reports](#) are also available on the website.

A(H1N1)pdm09 viruses

No A(H1N1)pdm09 viruses from EU/EEA countries have been characterized antigenically since the last report (for October, published in November). 2 viruses from EU/EEA countries characterized genetically fell in the 6B.1A5A subgroup.

A(H3N2) viruses

Antigenic characterization of A(H3N2) viruses remains technically difficult. 2 A(H3N2) viruses have been characterized antigenically since the last characterization report. Both were clade 3C.3a and antigenically similar to the vaccine virus, A/Kansas/14/2017. Of the 11 viruses characterized genetically, 7 were subgroup 3C.2a1b+T131K, 2 were subgroup 3C.2a1b+T135K-A and 2 were clade 3C.3a.

B/Victoria viruses

No B/Victoria-lineage viruses were characterized in the November reporting period. The 2 viruses from EU/EEA countries characterized genetically since the start of the 2019-20 season were of the triple deletion subgroup 1A(Δ 3)B, represented by B/Washington/02/2019.

B/Yamagata viruses

No B/Yamagata-lineage viruses from EU/EEA countries, or others that share influenza-positive samples with the Francis Crick Institute, have been assessed by HI assay since the October 2019 report.

Vaccine composition

On 21 February 2019, WHO published recommendations for the components of influenza vaccines for use in the 2019–2020 northern hemisphere influenza season; the recommendations were finalized on 21 March. Vaccines should contain the following:

- an A/Brisbane/02/2018 (H1N1)pdm09-like virus (Clade 6B.1A1);
- an A/Kansas/14/2017 (H3N2)-like virus (Clade 3C.3a);
- a B/Colorado/06/2017-like virus (B/Victoria/2/87 lineage) (Clade 1A_ Δ 2); and
- a B/Phuket/3073/2013-like virus (B/Yamagata/16/88 lineage) (Clade 3).

It was recommended that the influenza B virus component of trivalent vaccines for use in the 2019–2020 northern hemisphere influenza season be a B/Colorado/06/2017-like virus of the B/Victoria/2/87-lineage.

The full report and Frequently Asked Questions for the 21 February decision and the 21 March addendum are available on the [WHO website](#).

The report from the [Vaccine Composition Meeting for the southern hemisphere](#) 2020 season can be found [here](#).

Antiviral susceptibility testing

Since the beginning of the season, 185 influenza viruses have been tested for susceptibility to neuraminidase inhibitors: 67 A(H3N2), 101 A(H1N1)pdm09 and 17 type B viruses. All showed normal inhibition (NI) by both oseltamivir and zanamivir.

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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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