

## Summary

### Week 20/2020 (11 – 17 May 2020)

- This is the last weekly bulletin for the 2019/20 season. The first inter-seasonal bulletin will be published on 26 June 2020.
- For the Region overall, influenza activity has sharply declined: all but 5 Member States and areas reporting on the intensity indicator registered baseline levels of intensity. All but 5 Member States reporting on geographic spread registered no influenza activity.
- Of 42 specimens, from patients presenting with ILI or ARI symptoms to sentinel primary healthcare sites, that were tested for influenza in week 20/2020, only 1 was positive for an influenza virus.
- The novel coronavirus disease 2019 (COVID-19) pandemic in the Region is affecting healthcare presentations and testing capacities in Member States, which has a negative impact on reporting of influenza epidemiologic and virologic data. Therefore, the data we present, notably in terms of seasonal patterns, must be interpreted with caution.

### 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, but reporting in subsequent weeks has 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 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 method 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

### Syndromic surveillance data

For week 20/2020, no Member States or areas reported on ILI or ARI activity levels.

### Influenza activity

Of 29 Member States and areas that reported on the intensity indicator, 24 reported activity at baseline levels, 4 reported low intensity (Georgia, Ireland, Malta and Slovakia), and 1 reported medium intensity (Azerbaijan) for week 20/2020.

Of 28 Member States and areas that reported on geographic spread, 23 reported no activity, 3 reported sporadic spread and 2 reported local spread (Azerbaijan and Ireland) for week 20/2020.

The influenza activity figures are unavailable this week due to a technical issue.

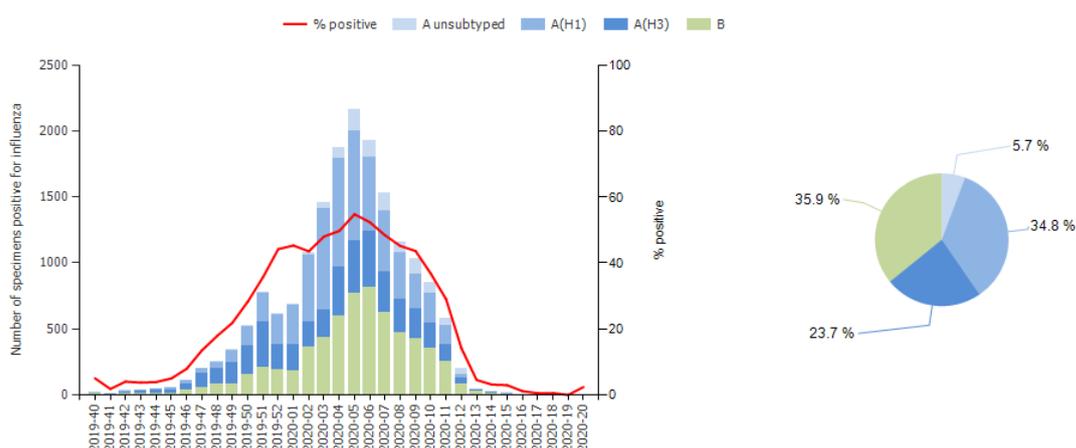
### Viruses detected in sentinel-source specimens (ILI and ARI)

For week 12/2020, of 42 sentinel specimens tested for influenza viruses, 1 was positive for influenza B (not subtyped) (Fig. 11 and Table 1).

For the season to date, more influenza type A (n=11 302, 64%) than type B (n=6 324, 36%) viruses have been detected (Fig. 1 and Table 1). Of 10 300 subtyped A viruses, 59% were A(H1N1)pdm09 and 41% were A(H3N2). Of 2 472 influenza type B viruses ascribed to a lineage, 99% were B/Victoria (Table 1).

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

**Fig. 1. Influenza virus detections in sentinel-source specimens by type and subtype, by week and cumulatively for the season 2019-2020<sup>a</sup>**



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<sup>a</sup> Pie chart shows cumulative data for this period.

**Table 1. Influenza virus detections in sentinel-source specimens by type and subtype, week 20/2020 and cumulatively for the season**

Virus type and subtype	Current Week		Season 2019–2020	
	Number	% <sup>a</sup>	Number	% <sup>a</sup>
<b>Influenza A</b>	<b>0</b>	<b>0</b>	<b>11 302</b>	<b>64.1</b>
A(H1N1)pdm09	0	-	6 126	59.5
A(H3N2)	0	-	4 174	40.5
A not subtyped	0	-	1 002	-
<b>Influenza B</b>	<b>1</b>	<b>100</b>	<b>6 324</b>	<b>35.9</b>
B/Victoria lineage	0	-	2 449	99.1
B/Yamagata lineage	0	-	23	0.9
Unknown lineage	1	-	3 852	-
<b>Total detections (total tested)</b>	<b>1 (42)</b>	<b>2.4</b>	<b>17 626 (51 764)</b>	<b>34.1</b>

<sup>a</sup> 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.

## InfluenzaNet

[InfluenzaNet](#) data were not reported for week 20/2020.

## 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), 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 was 1 report of hospitalized laboratory-confirmed influenza in an ICU during week 20/2020. It was a type B virus.

Since week 40/2019, more influenza type A (n=3 592, 90%) than type B (n=395, 10%) viruses were detected. Of 1 250 subtyped influenza A viruses, 58% were A(H1N1)pdm09 and 42% A(H3N2). No influenza B viruses were ascribed to a lineage. The majority of cases were reported from three countries: the United Kingdom, France and Spain. Of 2 182 cases with known age, 49% were 15-64 years old and 37% were 65 years and older.

### 1.2) Hospitalized laboratory-confirmed influenza cases – other wards

There were no reports of laboratory-confirmed influenza in wards other than ICUs for week 20/2020.

Since week 40/2019, more influenza type A (n=6 083, 84%) than type B (n=1 151, 16%) viruses were detected. Of 1 709 subtyped influenza A viruses, 59% were A(H1N1)pdm09 and 41% A(H3N2). No influenza B viruses were ascribed to a lineage. The majority of cases were reported by Ireland and Spain. Of 7 232 cases with known age, 42% were 65 years and older and 31% were 15-64 years old.

## 2. SARI surveillance

For week 20/2020, 621 SARI cases were reported by 7 Member States or areas. Of 24 specimens tested for influenza viruses, 1 was positive for influenza type B virus.

Of the SARI cases tested for influenza viruses since week 40/2019, those testing positive (n=2 917) were mostly infected by type A viruses (56%). Of the 1 376 influenza type A virus infected cases for which subtyping was performed, 61% were A(H1N1)pdm09 and 39% were A(H3N2) viruses. Of the 682 influenza type B viruses ascribed to a lineage, 99% were B/Victoria.

Of 38 591 SARI cases reported since week 40/2019, 38 235 had a recorded age and, of these, 49% were 0–4 years old and 30% were 15–64 years old.

## **Mortality monitoring**

For week 20/2020, pooled estimates of all-cause mortality from 24 participating countries or regions in the [EuroMOMO](#) network show declining levels of excess mortality, after a high excess observed overall for the European countries, which has coincided with the COVID-19 pandemic. This excess mortality has been driven by a very substantial mortality excess in some countries, while other countries have seen no excess. The mortality excess has mainly been seen in the age group of ≥65 years, but also in the age group of 15-64 years.

Mortality now appears to be approaching normal expected levels in several of the affected countries. However, the data reported for the most recent weeks must be read with caution, despite the applied correction for delay in registration.

## 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 20/2020, 3 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; 2 were subtype A(H1N1)pdm09 and 1 was type B (Table 2).

For the season to date, more influenza type A (n=108 940, 74%) than type B (n=38 302, 26%) viruses have been detected. Of 36 893 subtyped A viruses, 20 302 (55%) were A(H1N1)pdm09 and 16 591 (45%) were A(H3N2). Of 2 096 influenza type B viruses ascribed to a lineage, 97% were B/Victoria (95% of type B viruses were reported without a lineage) (Table 2).

**Table 2. Influenza virus detections in non-sentinel source specimens by type and subtype, for week 20/2020 and cumulatively for the season**

Virus type and subtype	Current Week		Season 2019–2020	
	Number	% <sup>a</sup>	Number	% <sup>a</sup>
<b>Influenza A</b>	<b>2</b>	<b>66.7</b>	<b>108 940</b>	<b>74.0</b>
A(H1N1)pdm09	2	100	20 302	55.0
A(H3N2)	0	0	16 591	45.0
A not subtyped	0	-	72 047	-
<b>Influenza B</b>	<b>1</b>	<b>33.3</b>	<b>38 302</b>	<b>26.0</b>
B/Victoria lineage	0	-	2 030	96.9
B/Yamagata lineage	0	-	66	3.1
Unknown lineage	1	-	36 206	-
<b>Total detections (total tested)</b>	<b>3 (9 462)</b>	<b>-</b>	<b>147 242 (858 633)</b>	<b>-</b>

<sup>a</sup> 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

For specimens collected since week 40/2019, genetic characterization of 2 752 viruses has been reported (Table 3):

- 2 030 (74%) type A: 1 048 A(H3N2) and 982 A(H1N1)pdm09;
- 722 (26%) type B: 694 B/Victoria and 28 B/Yamagata.

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

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 to date, 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.

**Table 3. Viruses attributed to genetic groups, cumulative for weeks 40/2019–20/2020**

Phylogenetic group	Number of viruses
A(H1)pdm09 group 6B.1A5A representative A/Norway/3433/2018	904
A(H1)pdm09 group 6B.1A7 representative A/Slovenia/1489/2019	19
A(H1)pdm09 group 6B.1A5B representative A/Switzerland/3330/2018	41
A(H1)pdm09 group 6B.1A1 representative A/Brisbane/02/2018 <sup>a</sup>	11
A(H1)pdm09 attributed to recognised group in the guidance but not listed here	7
A(H3) clade 3C.2a1b+T135K-B representative A/Hong Kong/2675/2019	81
A(H3) clade 3C.3a representative A/Kansas/14/2017 <sup>a</sup>	560
A(H3) clade 3C.2a1b+T135K-A representative A/La Ri oja/2202/2018	64
A(H3) clade 3C.2a1b+T131K representative A/South Australia/34/2019	342
A(H3) attributed to recognised group in the guidance but not listed here	1
B(Vic)-lineage clade 1A (del162-163) representative B/Colorado/06/2017 <sup>a</sup>	19
B(Vic)-lineage clade 1A (del162-164 subgroup) representative B/Hong Kong/269/2017	5
B(Vic)-lineage clade 1A (del162-164) representative B/Washington/02/2019 <sup>b</sup>	630
B(Vic) attributed to recognised group in the guidance but not listed here	40
B(Yam)-lineage clade representative B/Phuket/3073/2013 <sup>c</sup>	26
B(Yam) attributed to recognised group in the guidance but not listed here	2

<sup>a</sup> Vaccine component for 2019–2020 northern hemisphere.

<sup>b</sup> Vaccine component for 2020-2021 northern hemisphere.

<sup>c</sup> Vaccine component of quadrivalent vaccines for use in 2019–2020 and 2020-2021 northern hemisphere seasons.

ECDC published a [report](#) in May relating to viruses circulating globally, with collection dates after 31 August, but focusing on those from European Union/European Economic Area (EU/EEA) countries. Since the March 2020 characterization report, no 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, 1 076 virus specimens had been received, with collection dates after 31 August. A summary of viruses from EU/EEA countries characterized in April is given below. Previously published [influenza virus characterization reports](#) are also available on the ECDC website.

### **A(H1N1)pdm09 viruses**

Since the last report, no A(H1N1)pdm09 test viruses from EU/EEA countries were characterised antigenically but previous analyses have shown the great majority of test viruses to be well recognised by antisera raised against the 2019–20 vaccine virus, A/Brisbane/02/2018. Those viruses showing poor reactivity generally carried amino acid substitutions (notably N156K) in the HA1 150-loop region. The 267 EU/EEA test viruses with collection dates from week 40/2019 genetically characterised at the WIC have fallen within subclades of clade 6B.1A: 237 6B.1A5A, 20 6B.1A5B, 1 6B.1A6 and 9 6B.1A7.

### **A(H3N2) viruses**

Since the last report, no A(H3N2) viruses have been characterised antigenically, but previous analyses have shown clade 3C.3a-specific recognition by antisera raised against egg-propagated A/Kansas/14/2017, the current vaccine virus. Globally there have been approximately equal proportions of clade 3C.3a and subgroups 3C.2a1b+T131K and 3C.2a1b+T135K viruses detected. However, based on sequences available in GISAID from viruses detected since 1 February 2020, subgroups 3c.2a1b+T135KA/B are prevalent in the USA while those of clade 3C.3a and subgroup 3C.2a1b+T131K dominate in Europe. In total, 351 viruses from EU/EEA countries have been characterised genetically at the WIC: 183 clade 3C.3a, 111 3C.2a1b+T131K, 42 3C.2a1b+T135K-A and 15 3C.2a1b+T135K-B.

### **B/Victoria viruses**

No B/Victoria-lineage viruses were characterised antigenically in this reporting period. Viruses detected in EU/EEA countries during February and March 2020, based on sequences available in GISAID, have all fallen in the 1A( $\Delta$ 3)B subgroup. Viruses in this subgroup have been antigenically similar to B/Washington/02/2019, the vaccine virus for the 2020–2021 northern hemisphere influenza season. In total, 209 EU/EEA viruses have been characterised genetically at the WIC: 196 subgroup 1A( $\Delta$ 3)B and 13 subclade 1A( $\Delta$ 2).

### **B/Yamagata viruses**

No B/Yamagata-lineage viruses were characterised antigenically in this reporting period. All seven 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**

Based on WHO published recommendations on 21 February 2019, the composition of influenza vaccines for use in the **2019–2020 northern hemisphere influenza season** 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( $\Delta$ 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 2019 decision and the 21 March 2019 [addendum](#) are available on the [WHO website](#).

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

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( $\Delta$ 3)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( $\Delta$ 3)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](#).

## 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**

Since the beginning of the season, 1 789 influenza viruses have been tested for susceptibility to neuraminidase inhibitors: 758 A(H1N1)pdm09, 626 A(H3N2) and 405 type B viruses. Three A(H1N1)pdm09 viruses carried amino acid substitution H275Y in NA, with one of them also having H295S substitution, both of which are indicative of highly reduced inhibition (HRI) by oseltamivir; an additional A(H1N1)pdm09 virus showed reduced inhibition (RI) by oseltamivir and zanamivir by phenotypic assays. One A(H3N2) virus carried amino acid substitution R292K in NA and showed evidence of HRI by oseltamivir and reduced inhibition by 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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