Flu News Europe
Joint ECDC–WHO/Europe weekly influenza update

Summary

Week 1/2017 (2–8 January 2017)

- Influenza activity remained high across the region with high or very high intensity in 10 out of 43 reporting countries.
- The proportion of influenza virus detections among sentinel surveillance specimens was around 50% for the third consecutive week.
- The great majority of influenza viruses detected were type A and, of those subtyped, 99% were A(H3N2).
- The number of influenza cases from hospital settings also increased, markedly for predominantly adults aged over 65 diagnosed with influenza A virus infection.
- Excess all-cause mortality seems to have been increasing among the elderly, notably in France and Portugal (EuroMOMO).

Season overview

- Influenza activity started early this season compared to previous seasons.
- Week 46/2016 is the earliest week that the overall influenza-positivity rate in sentinel specimens reached 10% since the emergence of A(H1N1)pdm09 viruses in the 2009 season; during the last 6 seasons this occurred between weeks 48 and 51.
- Since week 40/2016, influenza A viruses have predominated, accounting for 96% of all sentinel detections; the great majority (99%) of subtyped influenza A viruses from sentinel sites has been A(H3N2). This is in contrast to the same period during the 2015-16 season in which influenza A(H1N1)pdm09 viruses predominated, but similar to the 2014-15 influenza season, when influenza A(H3N2) was predominant.
- In an influenza season in which A(H3N2) viruses predominate, elderly populations can be expected to be most severely affected.
- So far, circulating A(H3N2) viruses are antigenically similar to the vaccine strain. While about two-thirds of the A(H3N2) viruses characterized belong to a new genetic subclade (3C.2a1), these viruses are antigenically similar to the vaccine strain (clade 3C.2a).
- Early monitoring of vaccine effectiveness in Finland and Sweden suggests levels of effectiveness within estimates from multi-country studies during the seasons 2011-12 to 2014-15 with a 26% (95% CI 22%–30%) and 24% (95% CI 11%–34%) vaccine effectiveness in persons aged 65 years and older with laboratory-confirmed influenza A, respectively. Given the partial effectiveness of influenza vaccines, rapid use of neuraminidase inhibitors for laboratory-confirmed or probable cases of influenza should be considered for vaccinated and non-vaccinated patients at risk of complications following an influenza virus infection.
- A risk assessment on seasonal influenza in EU/EEA countries was published by ECDC on 24 December 2016. The above summary is in line with the findings of the risk assessment.

Primary care data

Influenza activity

In week 1/2017 influenza activity remained high. The percentage of influenza virus detections among sentinel specimens was the same as the previous week (50%). Influenza activity was at variable levels across the region: Albania and the Former Yugoslav Republic of Macedonia reported their second week of very high intensity, and 8, 21 and 12 countries reported high, medium and low intensity, respectively (Fig. 1). Of the 40 countries reporting any geographic spread of influenza, the great majority (n=31) reported widespread activity, compared with 22 in the previous week. Other countries reported regional (n=3), or sporadic/local (n=6) activity (Fig. 2).

Map of qualitative indicators in the European Region

Fig. 1. Intensity in the European Region, week 1/2017

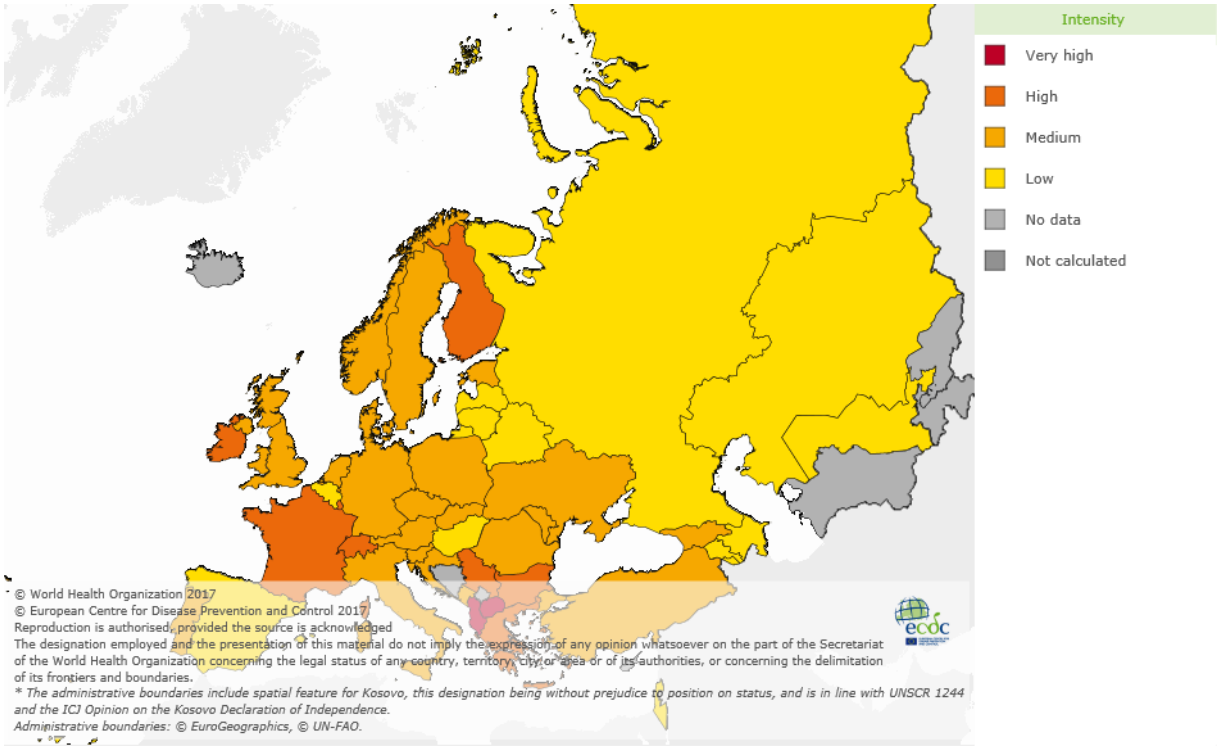
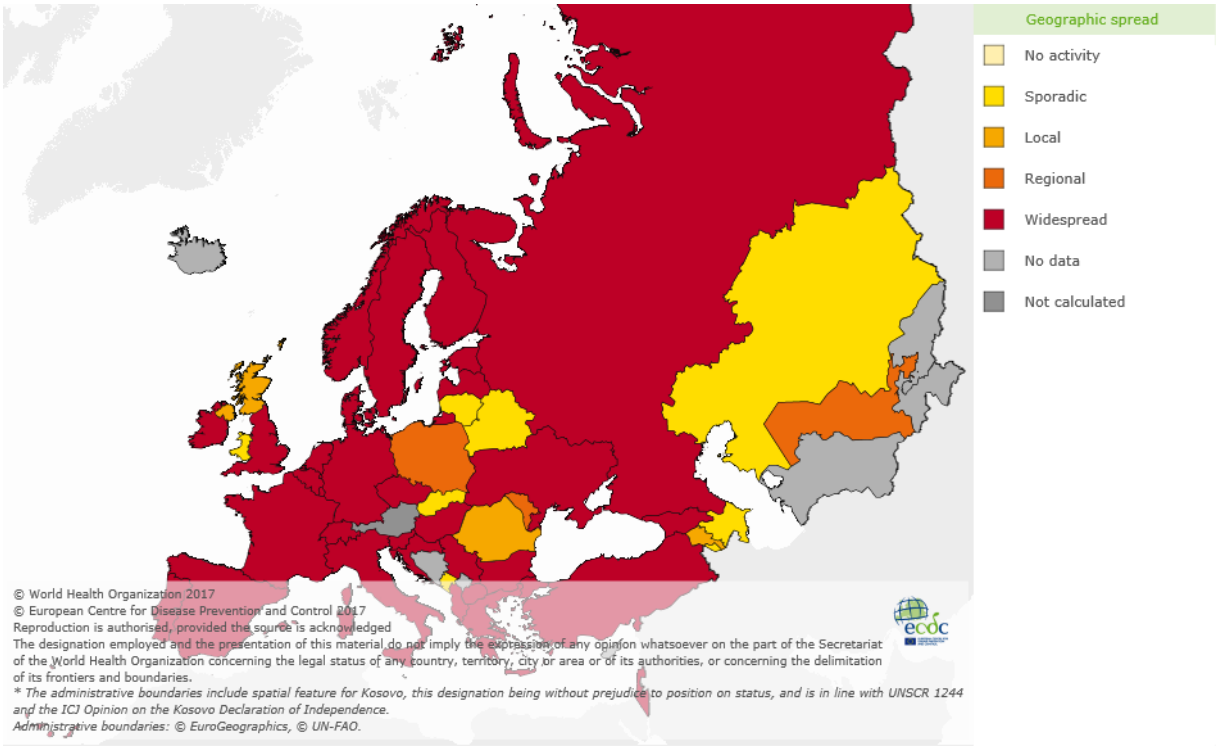


Fig. 2. Geographic spread in the European Region, week 1/2017



For interactive maps of influenza intensity and geographic spread, please see the Flu News Europe website.

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

For week 1/2017, 1 402 of 2 783 (50%) sentinel specimens tested positive for influenza virus (Table 1). Of these, 97% were type A and 3% were type B. The great majority (>99%) of subtyped influenza A viruses were A(H3N2). The lineage of 12 influenza B viruses was determined with 7 being B/Yamagata lineage. Of 32 countries across the region that each tested at least 10 sentinel specimens, 26 reported proportions of influenza virus detections above 30% (range 32-71%).

Similar cumulative distributions of types and subtypes have been observed since week 40/2016: of all typed viruses, 96% were type A, with 99% of those subtyped being A(H3N2) (Fig. 3, Table 1). Of the 180 influenza B viruses which have been ascribed a lineage, 132 (73%) were of the B/Victoria lineage and 48 (27%) were of the B/Yamagata lineage.

Fig. 3. Influenza virus detections in sentinel-source specimens by type and subtype, by week and cumulatively

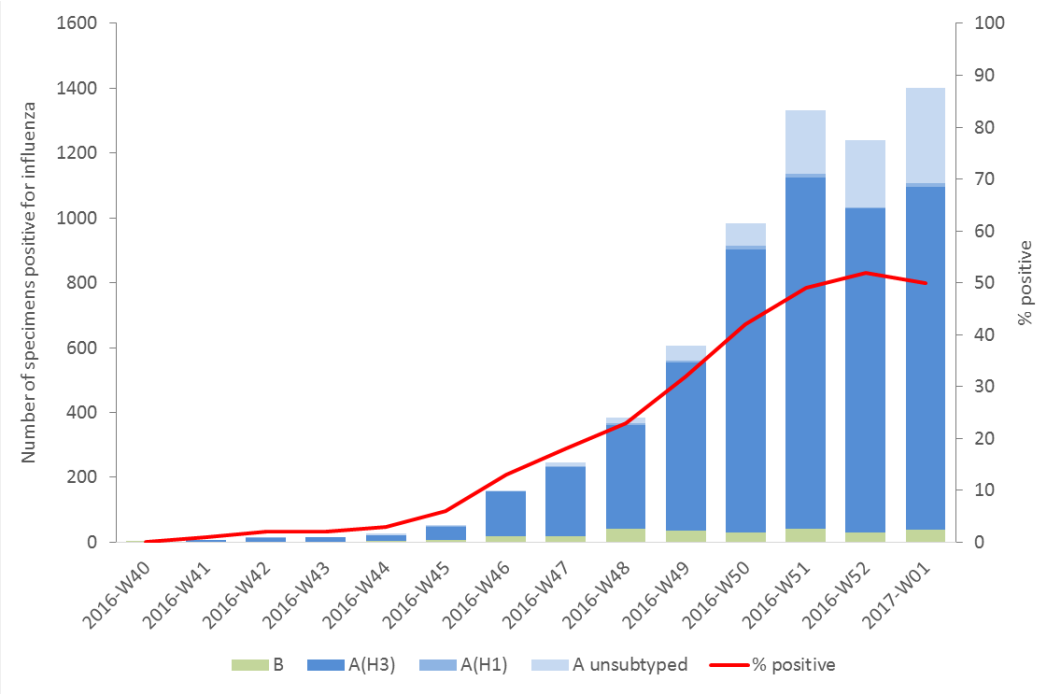


Table 1. Influenza virus detections in sentinel-source specimens by type and subtype, week 1/2017 and cumulatively

	Number of detections	
Virus type and subtype	**Current Week**	**Season 2016-2017**
Influenza A	**1 364**	**6 199**
A(H1N1)pdm09	11	52
A(H3N2)	1 057	5 295
A not subtyped	296	852
Influenza B	**38**	**270**
B/Victoria lineage	5	90
B/Yamagata lineage	7	48
Unknown lineage	26	132
Total detections (total tested)	**1 402 (2 783)**	**6 469 (20 994)**

Severity

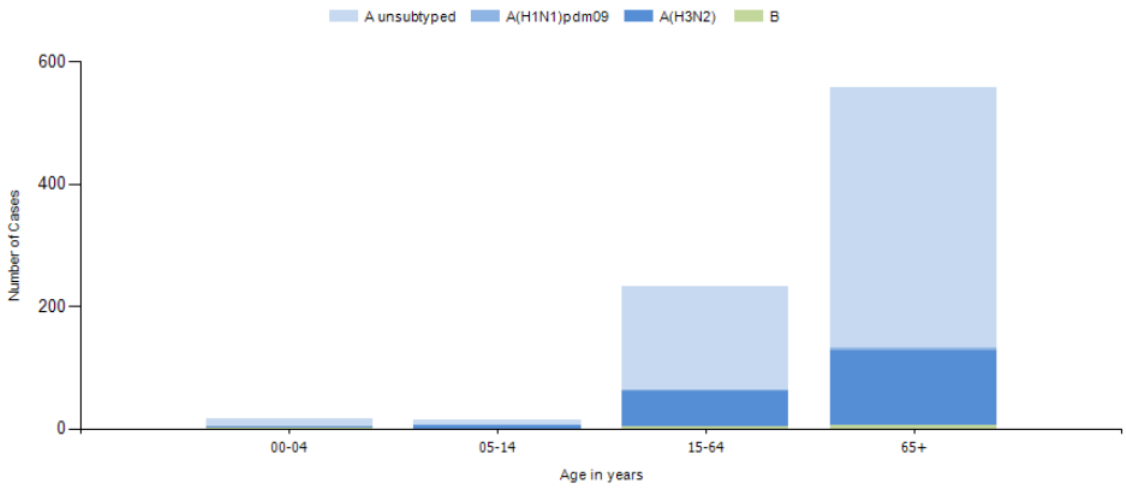
For week 1/2017, of the 15 countries that conduct sentinel surveillance on severe acute respiratory infection (SARI), 11 reported data and 7 out of 8 countries that conduct surveillance on hospitalized laboratory-confirmed influenza cases reported data.

Of 1 365 SARI cases reported, 320 were tested for influenza and 172 (54%) were positive: 158 A(H3N2) and 14 unsubtyped influenza type A viruses were detected. Since week 40/2016, 17 172 SARI cases have been reported from 15 countries with 3 494 being tested for influenza, of which 1 686 (48%) were positive: 1 453 (86%) were infected by type A and 233 (14%) by type B viruses. Of the influenza A viruses, 1 381 (95%) were A(H3N2) and 72 were unsubtyped.

In countries that conduct surveillance on hospitalized laboratory-confirmed influenza cases in intensive care units (ICU) or other wards, 157 reported cases were admitted to ICU in week 1/2017 by the Czech Republic, Finland, France, Romania, Spain and Sweden (126 were type A not subtyped, 29 were A(H3N2), 1 was A(H1N1)pdm09 and 1 was type B). From other wards, 73 cases were reported in week 1/2017 by Czech Republic, Ireland, Romania, and Spain (49 were type A not subtyped, 23 were A(H3N2) and 1 was type B).

Since week 40/2016, the Czech Republic, Ireland, Romania, Spain and the United Kingdom have reported 884 laboratory-confirmed influenza cases admitted to non-ICU wards; 527 infected with type A, 302 with A(H3N2), 37 with A(H1N1)pdm09 and 18 with type B influenza viruses. In total, the Czech Republic, Finland, France, Ireland, Romania, Spain and Sweden have reported 864 cases admitted to ICU; 637 infected with type A, 209 with A(H3N2), 7 with A(H1N1)pdm09 and 11 with type B influenza viruses.

Fig. 4. Distribution of virus (sub)type in influenza-confirmed cases admitted to ICU by age-group, cumulatively



Since the start of the season, most of the hospitalized laboratory-confirmed cases reported have occurred in people aged 65 years or more. Information on patient age and influenza virus (sub)type was available for 853 cases admitted to ICU; the majority (68%) of cases (n=579) were aged ≥65 years, 241 (28%) were aged 15–64 years and 33 (4%) were aged

under 15 years. A(H3N2) viruses predominated and accounted for 97% of the subtyped influenza A viruses in cases admitted to ICUs. 136 fatal cases have been reported, 92 from ICUs and 44 from other wards (49 A(H3N2), 85 type A not subtyped, and 2 type B) with 112 (82%) being in patients aged ≥65 years.

Mortality monitoring

Pooled analysis of data from 19 EU/EEA countries or regions reporting to the EuroMOMO project indicated that all-cause mortality seems to have been increasing among the elderly, notably in France and Portugal. This may be due to influenza and, for some countries, the extremely cold weather over the past 2 weeks. However, the observed increase in excess mortality is prone to uncertainty due to delayed adjustment and should be interpreted with caution.

Virus characteristics

Viruses detected in non-sentinel-source specimens

For week 1/2017, 8 103 specimens from non-sentinel sources (such as hospitals, schools, non-sentinel primary care facilities, nursing homes and other institutions) tested positive for influenza viruses (Table 2). Of these, 97% were type A (with 99% of the subtyped viruses being A(H3N2)), and 3% type B.

Similar cumulative distributions of types and subtypes have been observed since week 40/2016 with A(H3N2) viruses being dominant throughout Europe (Table 2). The distribution of typed viruses is similar to that of sentinel surveillance data with 97% type A and 3% type B influenza viruses. For the majority of viruses, no subtype or lineage was determined; however, for those that were, 99% of the subtyped influenza A viruses were A(H3N2), while of 171 type B viruses ascribed to a lineage, 64% were B/Yamagata lineage and 36% were B/Victoria lineage, which differs from sentinel detections where B/Victoria lineage viruses have dominated so far this season. The difference is mainly driven by the proportions of influenza B lineage detections in sentinel specimens in Kyrgyzstan (mainly B/Victoria lineage predominant) and detections among non-sentinel specimens in Norway (mainly B/Yamagata lineage predominant).

Table 2. Influenza viruses detected in non-sentinel-source specimens, by virus (sub)type, week 1/2017 and cumulatively

	Number of detections	
Virus type and subtype	**Current Week**	**Season 2016-2017**
Influenza A	**7 916**	**38 366**
A(H1N1)pdm09	10	105
A(H3N2)	2 476	13 230
A not subtyped	5 430	25 031
Influenza B	**187**	**1 045**
B/Victoria lineage	5	61
B/Yamagata lineage	7	110
Unknown lineage	175	874
Total detections (total tested*)	**8 103 (28 587)**	**39 411 (222 027)**

* Not all countries have a true non-sentinel testing denominator and these figures are likely to be an underestimate.

Genetic characterization

For specimens collected since week 40/2016, genetic characterization of 514 viruses has been reported (Table 3). Among A(H3N2) viruses, 154 fall in the vaccine component clade (3C.2a), and 319 in a subclade of clade 3C.2a viruses (3C.2a1) defined by N171K, often with N121K, amino acid substitutions in the haemagglutinin. Viruses in these 2 clades are antigenically similar.

Table 3. Viruses attributed to genetic groups, cumulative for weeks 40/2016–1/2017

Phylogenetic group	Number of viruses
A(H1N1)pdm09 A/Michigan/45/2015 (clade 6B.1)[b]	4
A(H3N2) A/Hong Kong/4801/2014 (clade 3C.2a)[a,b]	154
A(H3N2) A/Bolzano/7/2016 (clade 3C.2a1)	319
A(H3N2) A/Switzerland/9715293/2013 (clade 3C.3a)	1
B/Brisbane/60/2008 (Victoria lineage clade 1A)[a,b]	11
B/Phuket/3073/2013 (Yamagata lineage clade 3)	25

[a] Vaccine component for Northern Hemisphere 2016-2017 season

[b] Vaccine component for Southern Hemisphere 2017 season

The ECDC summary report for September 2016 provides detailed genetic and antigenic analyses of viruses collected between January and June 2016.

The recommended composition of trivalent influenza vaccines for the 2016-2017 season in the northern hemisphere is for inclusion of an A/California/7/2009 (H1N1)pdm09-like virus; an A/Hong Kong/4801/2014 (H3N2)-like virus; and a B/Brisbane/60/2008-like virus (B/Victoria lineage). For quadrivalent vaccines a B/Phuket/3073/2013-like virus (B/Yamagata lineage) virus is recommended. The recommended influenza A(H1N1)pdm09 component of the 2017 southern hemisphere influenza vaccine is an A/Michigan/48/2015 (H1N1)pdm09-like virus, the first update since A(H1N1)pdm09 viruses emerged in 2009.

Early monitoring of vaccine effectiveness in Finland and Sweden suggests levels of effectiveness within estimates from multi-country studies during the seasons 2011-12 to 2014-15 with a 26% (95% CI 22%–30%) and 24% (95% CI 11%–34%) vaccine effectiveness in persons aged 65 years and older with laboratory-confirmed influenza A, respectively. Given the partial effectiveness of influenza vaccines, rapid use of neuraminidase inhibitors for laboratory-confirmed or probable cases of influenza should be considered for vaccinated and non-vaccinated at-risk patients.

Antiviral susceptibility testing

Neuraminidase inhibitor susceptibility has been assessed for 328 viruses (316 A(H3N2), 5 A(H1N1)pdm09 and 7 type B) with collection dates since week 40/2016. None showed evidence of reduced inhibition.

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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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