Flu News Europe

Joint ECDC–WHO/Europe weekly influenza update

Summary

Week 52/2016 (26 December 2016 - 1 January 2017)

- Influenza activity continued to increase across the region with high or very high intensity in 7 out of 43 reporting countries.
- The proportion of virus detections among sentinel surveillance specimens slightly increased to 50% from 47% the previous week.
- The great majority of influenza viruses detected were type A and, of those subtyped, the majority were A(H3N2).
- Influenza cases from hospital settings also increased with older adults (aged over 65) predominantly diagnosed with an influenza A virus infection.

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 2009-10; during the last 6 seasons this occurred between weeks 48 and 51.
- Since week 40/2016, influenza A viruses have predominated accounting for 95% of all sentinel detections; the great majority (99%) of subtyped influenza A viruses from sentinel sites have 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.
- Currently circulating A(H3N2) viruses are antigenically similar to the vaccine strain. While more than half of the A(H3N2) viruses characterised 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 suboptimal performance of the current vaccine against the circulating A(H3N2) strains, with a 30% vaccine effectiveness in persons of 65 years and older for laboratory-confirmed influenza A. 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.
- 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 52/2016 influenza activity increased. The percentage of influenza virus detections among sentinel specimens increased slightly compared to the previous week, from 47% to 50%. Influenza activity was at variable levels across the region: Albania and the Former Yugoslav Republic of Macedonia reported very high intensity, and 5, 22 and 11 countries reported high, medium or low intensity, respectively (Fig. 1). Of the 43 countries reporting any geographic spread of influenza, the majority (n=22) reported widespread activity while other countries reported regional (n=7), sporadic/local (n=13) or no (n=1) activity (Fig. 2). 22 countries of the Region reported widespread activity compared to 18 in the previous week.

Map of qualitative indicators in the European Region

Fig. 1. Intensity in the European Region, week 52/2016

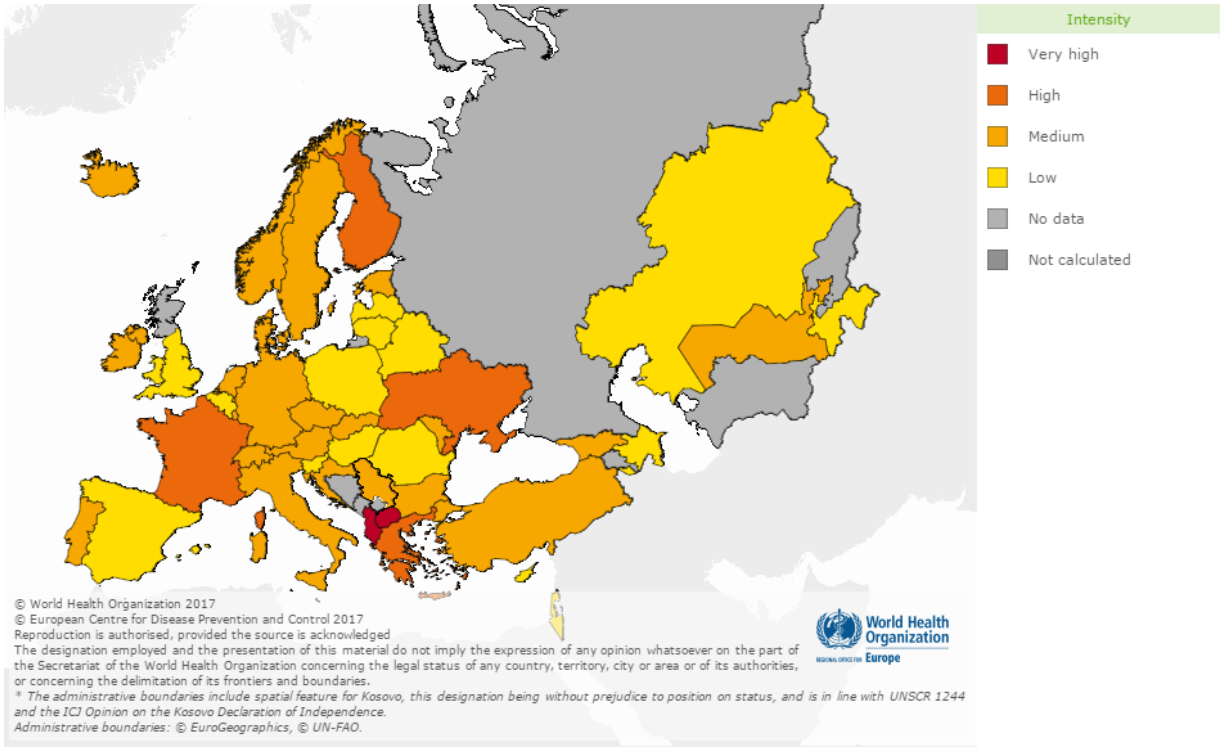
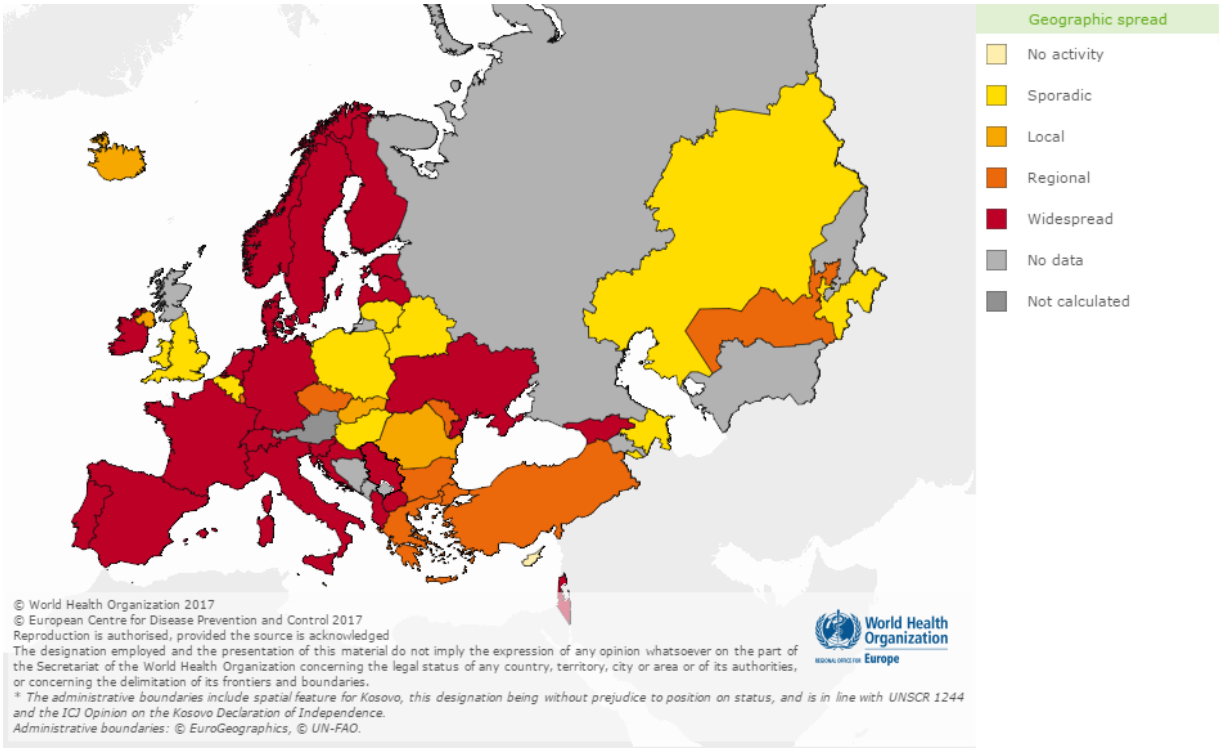


Fig. 2. Geographic spread in the European Region, week 52/2016



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 52/2016, 981 of 1 974 (50%) sentinel specimens tested positive for influenza virus (Table 1). Of these, 98% were type A and 2% were type B. The great majority (>99%) of subtyped influenza A viruses were A(H3N2). The lineage of 9 influenza B viruses was determined and 6 were B/Victoria lineage. Of 29 countries across the region that each tested at least 10 sentinel specimens, 24 reported proportions of influenza virus detections above 30%.

Similar distributions of types and subtypes have been observed since week 40/2016: of all typed viruses, 95% were type A, with 99% of those subtyped being A(H3N2) (Fig. 3, Table 1). Of the 117 influenza B viruses which have been ascribed a lineage, 82 (70%) were of the B/Victoria lineage and 35 (30%) were of the B/Yamagata lineage.

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

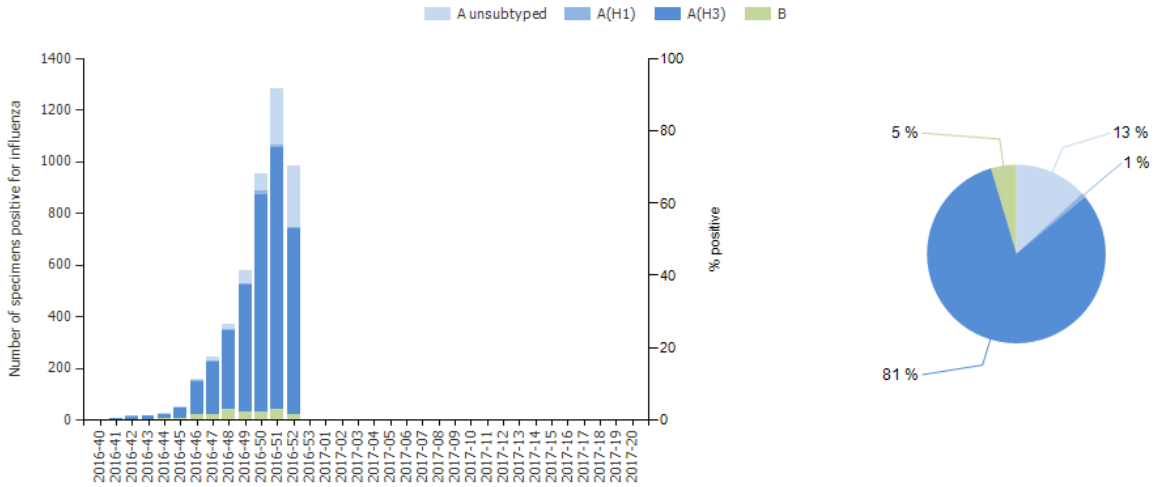


Table 1. Influenza virus detections in sentinel-source specimens by type and subtype, week 52/2016 and cumulatively

	Number of detections	
Virus type and subtype	**Current Week**	**Season 2016-2017**
Influenza A	**961**	**4 464**
A(H1N1)pdm09	1	39
A(H3N2)	722	3 808
A not subtyped	238	617
Influenza B	**20**	**216**
B/Victoria lineage	6	82
B/Yamagata lineage	3	35
Unknown lineage	11	99
Total detections (total tested)	**981 (1 974)**	**4 680 (17 513)**

Severity

For week 52/2016, 5 out of 7 countries that conduct surveillance on hospitalized laboratory-confirmed influenza cases reported data. Of the 15 countries that conduct sentinel surveillance on severe acute respiratory infection (SARI), 8 reported data.

Of 1 304 SARI cases reported, 284 were tested for influenza and 101 (36%) were positive: 85 influenza A(H3N2) and 16 type B viruses were detected. Since week 40/2016, 14 927 SARI cases have been reported from 15 countries with 3 494 being tested for influenza of which 1 157 (33%) were positive: 995 (86%) were infected by type A and 162 (14%) by type B viruses. Of the influenza A viruses 964 were A(H3N2) and 31 were A not subtyped.

In countries that conduct surveillance on hospitalized laboratory-confirmed influenza cases in intensive care units (ICU) or other wards, 151 cases were reported in ICU by France, Ireland, Romania, Spain and Sweden (126 were type A not subtyped, 21 were A(H3N2), 1 was A(H1N1)pdm09 and 3 were type B). From other wards, 189 cases were reported by Ireland, Romania, Spain and United Kingdom (121 were type A not subtyped, 44 were A(H3N2), 21 were A(H1N1)pdm09 and 3 were type B).

Since week 40/2016, Ireland, Romania, Spain and the United Kingdom have reported 702 laboratory-confirmed influenza cases in non-ICU wards; 406 infected with type A, 242 with A(H3N2), 37 with A(H1N1)pdm09 and 17 with type B influenza viruses. In total, Finland, France, Ireland, Romania, Spain and Sweden have reported 498 cases from ICU; 368 infected with type A, 116 with A(H3N2), 4 with A(H1N1)pdm09 and 10 with type B influenza viruses.

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 492 cases in ICUs; the majority (69%) of cases (n=341) were aged ≥65 years, 131 (27%) were aged 15–64 years and 20 (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. 53 fatal cases have been reported, 40 from ICU and 13 from other wards (18 A(H3N2), 33 type A not subtyped, and 2 type B).

Mortality monitoring

Pooled analysis of data from 19 EU/EEA countries or regions reporting to the EuroMOMO project indicated that all-cause mortality was within normal, expected levels during recent weeks.

Virus characteristics

Viruses detected in non-sentinel-source specimens

For week 52/2016, 7 336 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, 98% were type A and 2% type B, with 99% of the subtyped influenza A viruses being A(H3N2).

Similar 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 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). Of 121 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 72 B/Victoria and 23 B/Yamagata detections from sentinel specimens in Kyrgyzstan and 28 B/Victoria and 43 B/Yamagata detections from non-sentinel sources in Norway.

Table 2. Influenza viruses detected in non-sentinel-source specimens, by virus (sub)type, week 52/2016 and cumulatively

	Number of detections	
Virus type and subtype	**Current Week**	**Season 2016-2017**
Influenza A	**7 197**	**27 494**
A(H1N1)pdm09	9	85
A(H3N2)	1 609	8 567
A not subtyped	5 579	18 842
Influenza B	**139**	**742**
B/Victoria lineage	2	44
B/Yamagata lineage	23	77
Unknown lineage	114	621
Total detections (total tested*)	**7 336 (18 178)**	**28 236 (181 036)**

* 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 298 viruses has been reported (Table 3). Among A(H3N2) viruses, 104 fall in the vaccine component clade (3C.2a), and 179 in a subclade of clade 3C.2a viruses (3C.2a1) defined by N171K, often with N121K, amino acid substitution in haemagglutinin. Viruses in these 2 clades are antigenically similar.

Table 3. Viruses attributed to genetic groups, cumulative for weeks 40–52/2016

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]	104
A(H3N2) A/Bolzano/7/2016 (clade 3C.2a1)	179
A(H3N2) A/Perth/16/2009grA/Switzerland/9715293/2013 (clade 3C.3a)	1
B/Brisbane/60/2008 (Victoria lineage clade 1A)[a,b]	4
B/Phuket/3073/2013 (Yamagata lineage clade 3)	6

[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 suboptimal performance of the current vaccine against the circulating A(H3N2) strains, with a 30% vaccine effectiveness in persons of 65 years and older for laboratory-confirmed influenza A. 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 135 viruses (128 A(H3N2), 4 A(H1N1)pdm09 and 3 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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