

Summary

Week 51/2016 (19–25 December 2016)

- Influenza activity continues to increase across the region. Very high intensity was reported in one country (Finland).
- The proportion of virus detections among sentinel surveillance specimens increased to 47% from 38% last week.
- The great majority of influenza viruses detected this week were influenza A and of those subtyped, the majority were A(H3N2).
- Influenza cases from hospital settings increased in some countries, but comparison to last week was not possible as few countries reported data.
- A risk assessment on seasonal influenza in EU/EEA countries was published by ECDC on 24 December 2016 stating that influenza viruses, mainly A(H3N2), started circulating early. If A(H3N2) continues to predominate it is likely that people over 65 years will be the most severely affected age-group this season. More than half of the detected characterised A(H3N2) viruses belong to a new genetic clade, but all are antigenically similar to the vaccine strain (Click [here](#) to read the full document).

Season overview

- The overall sentinel specimen positivity reached 10% in week 46/2016, an indication of a slightly earlier start of the influenza season compared to previous seasons.
- Week 46/2016 is the earliest week that the overall positivity rate reached 10% in the last 7 years; during the previous 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 previous season in which influenza A(H1N1)pdm09 predominated.
- In an influenza season in which influenza A(H3N2) predominates, elderly populations can be expected to be most severely affected.

Primary care data

Influenza activity

In week 51/2016 influenza activity increased further in countries in the Region with 18 countries reporting widespread activity versus 13 countries that reported widespread activity in the previous week.

The percentage of influenza virus detections also further increased among sentinel specimens this week, from 38 % last week to 47% this week. Influenza activity was at

variable levels across the region with Finland reporting very high activity, 2 countries reporting high intensity, 15 medium and 21 countries reporting low intensity (Fig. 1). Of the 39 countries reporting any geographic spread of influenza, the majority (n=18) reported widespread activity while other countries reported no activity (n=2), sporadic (n=9), regional (n=5) or local activity (n=5) (Fig. 2).

Map of qualitative indicators in the European Region

Fig. 1. Intensity in the European Region, week 51/2016

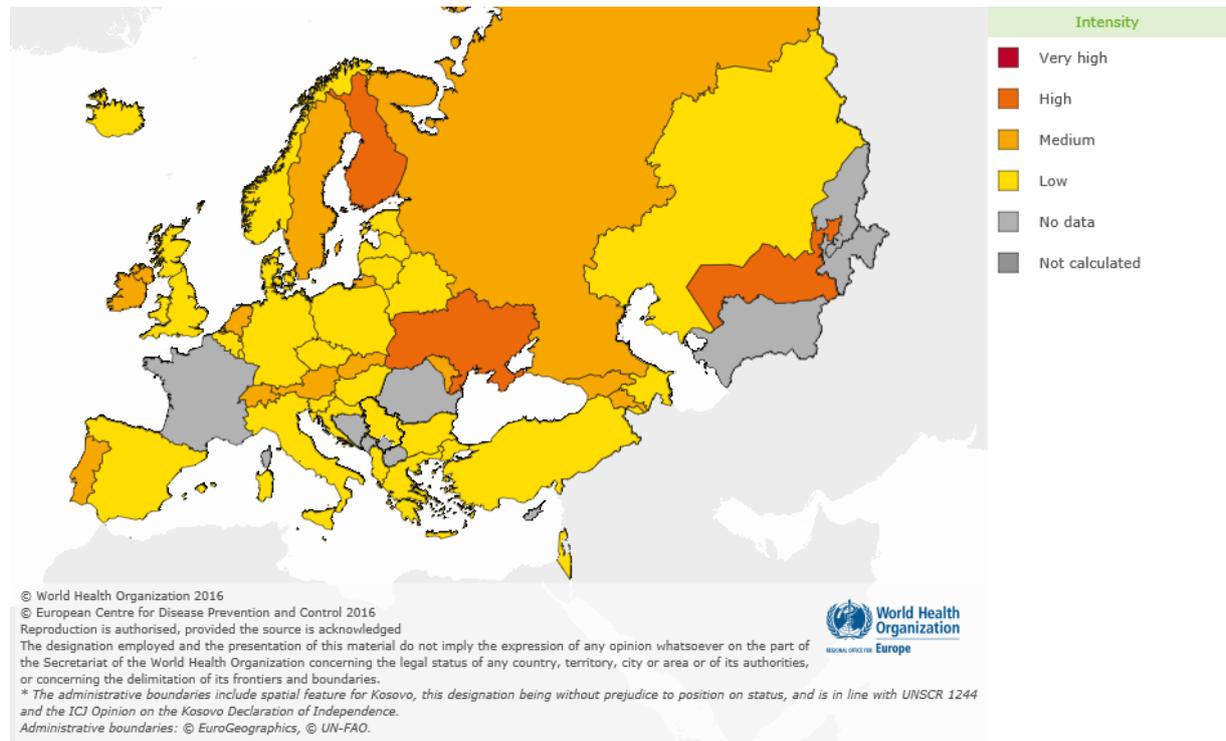
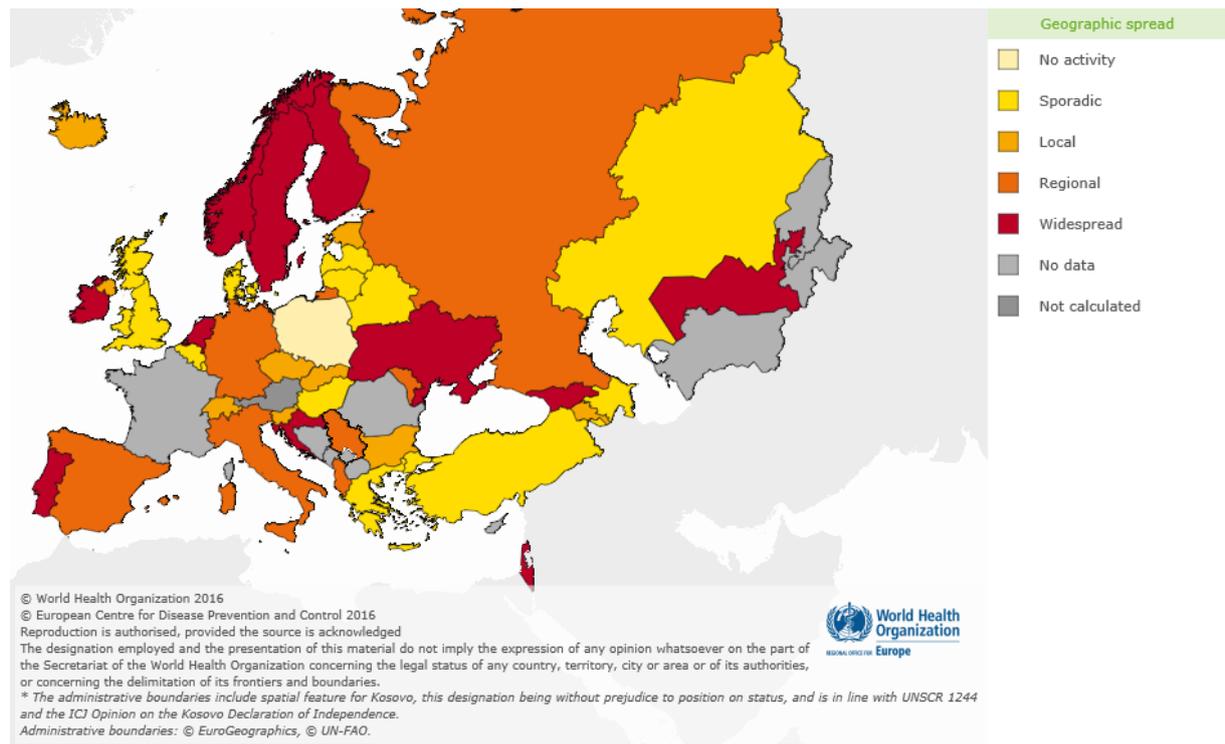


Fig. 2. Geographic spread in the European Region, week 51/2016



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 51/2016, 1 031 of 2 204 (47%) 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 23 influenza B viruses was determined and 21 were B/Victoria lineage. Of 30 countries across the region that tested at least 10 sentinel specimens, 20 reported proportions of influenza virus detections above 30%. Notably, Finland, Georgia, Hungary, Republic of Moldova, Portugal and Serbia reported high proportions (70% and above) of sentinel samples testing positive for influenza virus.

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 107 influenza B viruses which have been ascribed a lineage, 76 (71%) were of the B/Victoria lineage and 31 (29%) were of the B/Yamagata lineage.

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

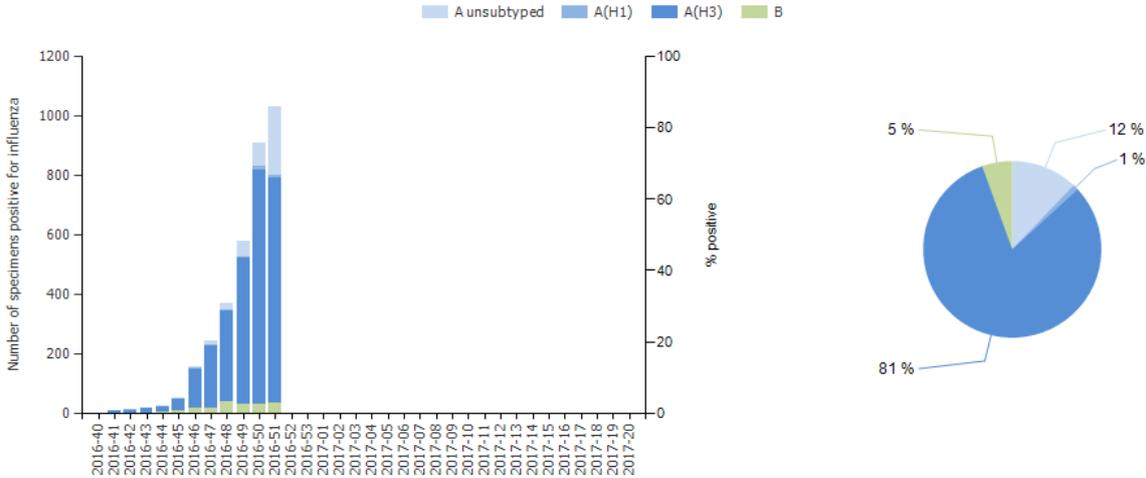


Table 1. Influenza virus detections in sentinel-source specimens by type and subtype, week 51/2016 and cumulatively

Virus type and subtype	Number of detections	
	Current Week	Season 2016-2017
Influenza A	997	3220
A(H1N1)pdm09	8	35
A(H3N2)	755	2773
A not subtyped	234	412
Influenza B	34	187
B/Victoria lineage	21	76
B/Yamagata lineage	2	31
Unknown lineage	11	80
Total detections (total tested)	1031 (2 204)	3 407 (15 052)

Severity

For week 51/2016, only three countries reported data based on hospitalized laboratory confirmed influenza cases. For the countries that conduct sentinel surveillance on severe acute respiratory infection (SARI) all 9 countries reported data.

Of 9 countries that conduct sentinel surveillance on severe acute respiratory infection (SARI), 1257 SARI cases were reported of which 271 were tested for influenza. Of the tested specimens 123 (45%) were positive for influenza; all were infected with A(H3N2) virus. Since week 40/2016, 12 705 SARI cases were reported from 15 countries. Among these, 837 (29%) of 2 862 tested positive for influenza virus. Of these, 747 (89%) were infected by type A and 90 by type B viruses. Of the influenza A viruses 721 were A(H3N2) and 26 were not subtyped.

In countries that conduct surveillance on hospitalized laboratory-confirmed influenza cases in intensive care units (ICU) or other wards, 10 cases were reported in ICU by Romania, Spain and Sweden, all were type A (7 A(H3N2) and 3 A not subtyped). From other wards, 12 cases were reported by Spain (6 were type A not subtyped and 6 were A(H3N2)).

Since week 40/2016, Ireland, Romania, Spain and the United Kingdom have reported 294 laboratory-confirmed influenza cases in non-ICU wards; 168 infected with type A, 109 with A(H3N2), 8 with A(H1N1)pdm09 and 9 with type B influenza virus. In total, Finland, France, Ireland, Romania, Spain and Sweden have reported 87 cases from ICU; 46 infected with type A, 35 with A(H3N2), 1 with A(H1N1)pdm09 and 5 with type B influenza.

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 87 cases in ICUs; the majority (65%) of the ICU cases (n=56) were aged >65 years, 23 (26%) were aged 15–64 years and 7 (8%) were aged under 15 years. A(H3N2) was the dominant influenza virus subtype and accounted for 94% of the subtyped A viruses in cases admitted to ICUs. 13 fatal cases have been reported, 6 from ICU and 7 from other wards, 5 infected by A(H3N2) and 8 by untyped type A influenza viruses.

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 51/2016, 5 936 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 98% 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 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 81 type B viruses ascribed to a lineage, 56% were B/Yamagata lineage and 44% were B/Victoria lineage, which differs from sentinel detections where B/Victoria lineage viruses have dominated so far this season.

Table 2. Influenza viruses detected in non-sentinel-source specimens, by virus (sub)type, week 51/2016 and cumulatively

Virus type and subtype	Number of detections	
	Current Week	Season 2016-2017
Influenza A	5 936	17 523
A(H1N1)pdm09	4	70
A(H3N2)	2100	6 160
A not subtyped	3 832	11 293
Influenza B	116	535
B/Victoria lineage	7	35
B/Yamagata lineage	2	46
Unknown lineage	107	454
Total detections (total tested*)	6 052 (19 497)	18 058 (153 327)

* 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 243 viruses has been reported (Table 3). Among A(H3N2) viruses, 95 fall in the vaccine component clade (3C.2a), and 132 in a subclade of clade 3C.2a viruses (3C.2a1) defined by N171K, often with N121K, amino acid substitution in haemagglutinin. These two clades are antigenically similar.

Table 3. Viruses attributed to genetic groups, cumulative for weeks 40–51/2016

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}	95
A(H3N2) A/Bolzano/7/2016 (clade 3C.2a1)	132
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)	7

^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.

Antiviral susceptibility testing

Neuraminidase inhibitor susceptibility has been assessed for 141 viruses (133 A(H3N2), 4 A(H1N1)pdm09 and 4 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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