

Summary

Week 49/2016 (5–11 December 2016)

- Influenza activity remained low, but is increasing across the region.
- The proportion of virus detections among sentinel surveillance specimens increased to 28%.
- The majority of influenza viruses detected for this week was A(H3N2).
- Laboratory-confirmed influenza cases from hospital settings increased in some countries.

Season overview

- In week 46/2016, influenza virus detections increased to 10% among sentinel surveillance specimens, which is a threshold indicative of increasing regional activity.
- This is the earliest week in a season that the positivity rate has reached 10% since the emergence of A(H1N1)pdm09 viruses in the 2009–2010 influenza season; during the last six seasons this occurred between weeks 48 and 51.
- Since week 40/2016, influenza A viruses have predominated; the great majority (99%) of subtyped influenza A viruses from sentinel sites have been A(H3N2).

Primary care data

Influenza activity

Influenza activity increased further in some countries in week 49/2016. Of 31 countries across the region that tested at least 10 sentinel specimens, 27 reported influenza virus positivity rates above 10%. Notably, Georgia, Kyrgyzstan and Portugal reported high proportions of sentinel samples positive for influenza (70% and above). Influenza virus detections have been reported across the region by countries in Western Europe, the Caucasus and Central Asia.

While the percentage of influenza virus detections had increased among sentinel specimens, overall influenza activity was at low levels with 37 countries reporting low intensity, eight countries reporting medium and one (Georgia) high intensity (Fig. 1). Of the 41 countries reporting any geographic spread of influenza, the majority reported sporadic activity ($n=23$) while six reported widespread (Croatia, France, the Netherlands, Norway, Portugal and Sweden), regional ($n=6$) and local activity ($n=6$) (Fig. 2).

Map of qualitative indicators in the European Region

Fig. 1. Intensity in the European Region, week 49/2016

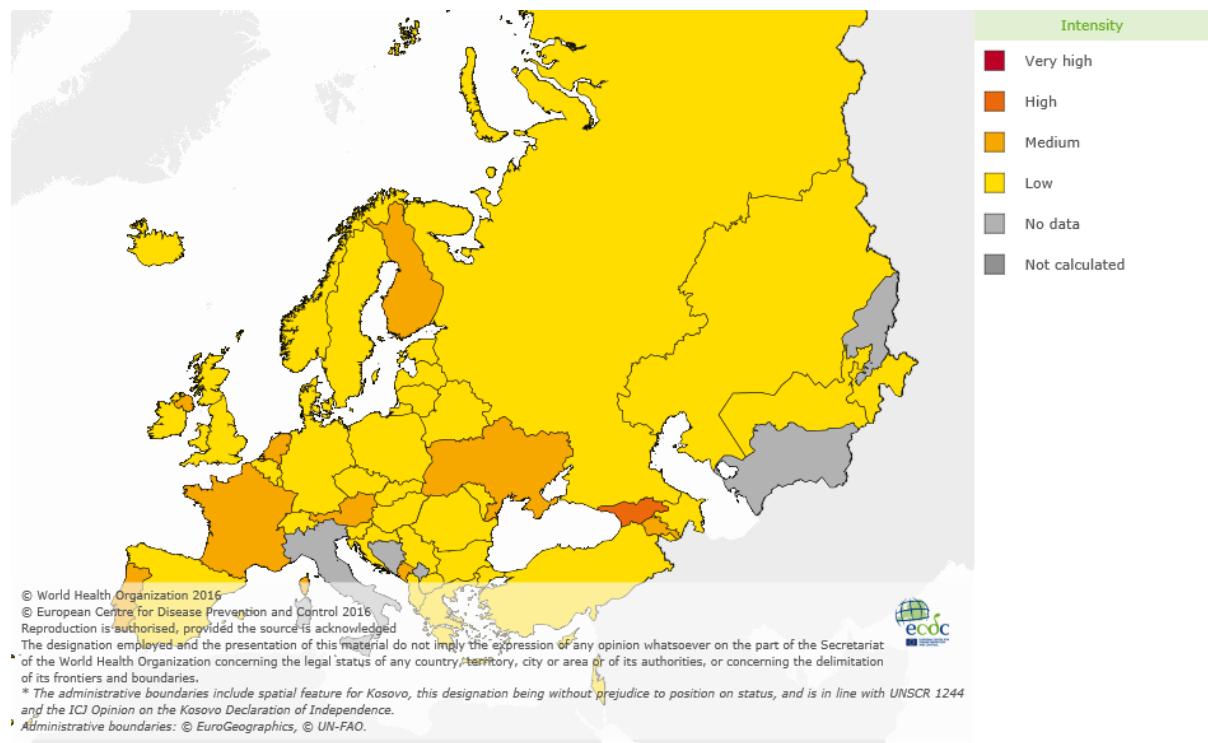
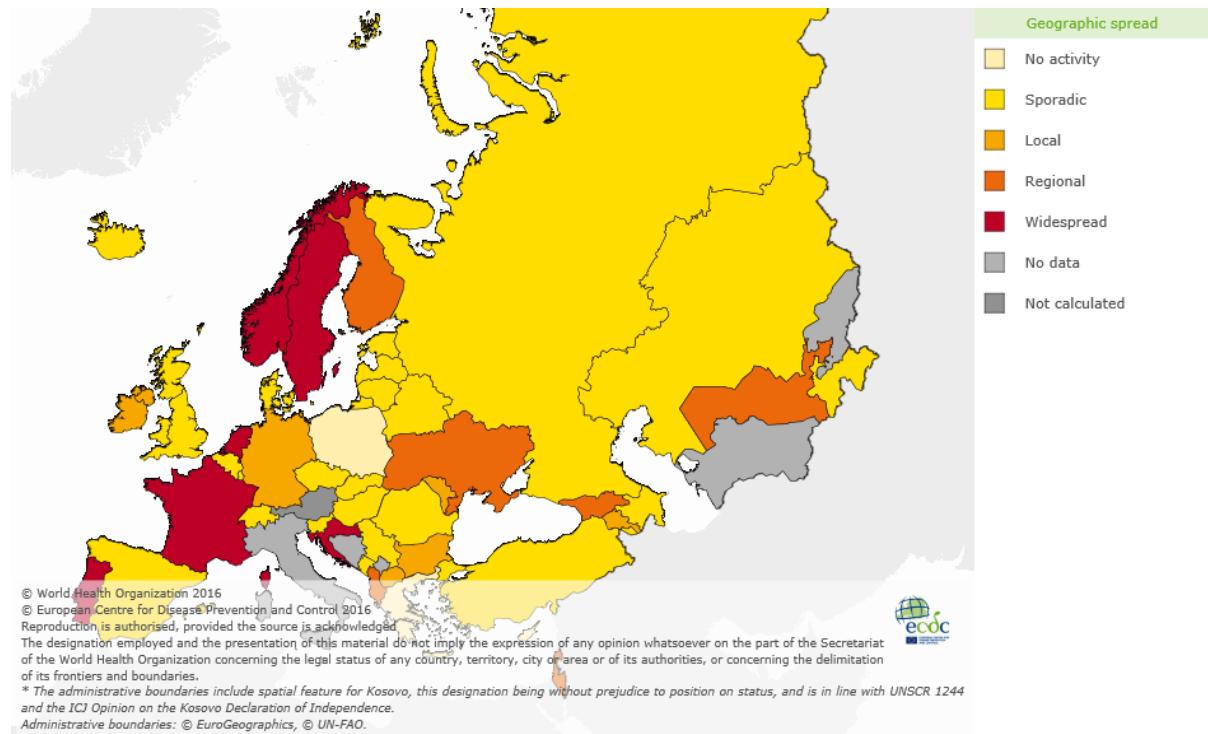


Fig. 2. Geographic spread in the European Region, week 49/2016



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 49/2016, 438 of 1 544 (28%) sentinel specimens tested positive for influenza virus (Table 1). Of these, 94% were type A and 6% were type B. The great majority (99%) of subtyped influenza A viruses were A(H3N2). The lineage of 22 influenza B viruses was determined, of which 55% were B/Victoria lineage and 45% were B/Yamagata lineage. Among countries that tested at least 10 sentinel specimens, 27 countries across the Region reported percentages of influenza virus detection above 10%. Notably, Georgia, Kyrgyzstan, and Portugal reported 70% or more sentinel specimens testing positive for influenza virus.

Similar distributions of types and subtypes have been observed since week 40/2016: of all typed viruses, 91% were type A, with 99% of those subtyped being A(H3N2) (Fig. 3, Table 1). Of the influenza B viruses which have been ascribed a lineage, 58% were of the B/Victoria lineage and 42% were of the B/Yamagata lineage.

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

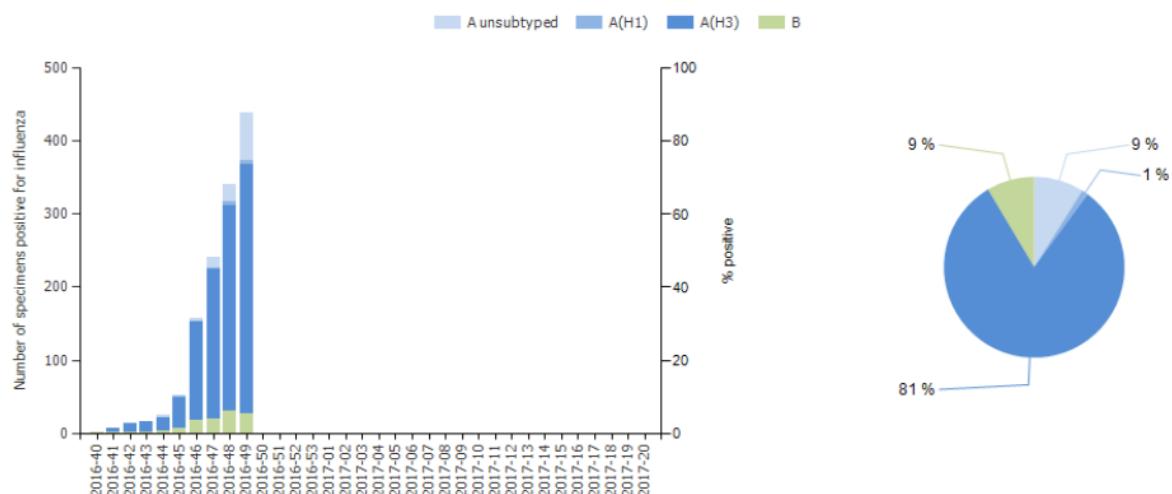


Table 1. Influenza virus detections in sentinel-source specimens by type and subtype, week 49/2016 and cumulatively

Virus type and subtype	Number of detections	
	Current Week	Season 2016-2017
Influenza A	411	1 184
A(H1N1)pdm09	4	15
A(H3N2)	341	1 053
A not subtyped	66	116
Influenza B	27	111
B/Victoria lineage	12	37
B/Yamagata lineage	10	27
Unknown lineage	5	47
Total detections (total tested)	438 (1 544)	1 295 (10 295)

Severity

For week 49/2016, 13 countries reported laboratory-confirmed influenza cases based on hospital surveillance.

For week 49/2016, of those countries, territories and regions that conduct surveillance based on sentinel severe acute respiratory infection (SARI), 123 influenza virus-positive cases were reported. Of these, 74% were reported from Armenia (n=59) and Ukraine (n=32). Of all influenza cases reported, 122 (99%) were infected by type A viruses with 103 being A(H3N2) and 19 not subtyped. One influenza B virus was not ascribed to a lineage.

For week 49/2016, of those countries, territories and regions that conduct surveillance based on hospitalized laboratory-confirmed influenza cases in intensive care units (ICU) or other wards, four cases in total, 3 with influenza A and 1 with A(H3N2) infection were reported in ICU by Ireland, Spain and Sweden, and 38 cases in total, 25 with influenza A and 13 with A(H3N2) infection were reported in other wards by Ireland, Romania and Spain.

Since week 40/2016, Ireland, Romania, Spain and the United Kingdom have reported 117 cases in other wards; 113 infected with type A and 4 with type B influenza virus. In total, France, Finland, Ireland, Spain and Sweden have reported 36 cases from ICU; 33 infected with type A and 3 with type B influenza virus.

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 49/2016, 2 795 specimens from non-sentinel sources (such as hospitals, schools, non-sentinel primary care units, nursing homes and other care institutions) tested positive for influenza viruses (Table 2). Similar to the previous week, 97% were type A and 3% 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 96% type A and 4% type B viruses. For the majority of viruses, no subtype or lineage was determined; however, 97% of the subtyped influenza A viruses were A(H3N2). Of 25 type B viruses ascribed to a lineage, 15 were B/Yamagata lineage and 10 were B/Victoria lineage.

Table 2. Influenza viruses detected in non-sentinel-source specimens, by virus (sub)type, week 49/2016 and cumulatively

Virus type and subtype	Number of detections	
	Current Week	Season 2016-2017
Influenza A	2 717	6 177
A(H1N1)pdm09	4	55
A(H3N2)	763	2 062
A not subtyped	1 950	4 060
Influenza B	78	290
B/Victoria lineage	2	10
B/Yamagata lineage	1	15
Unknown lineage	75	265
Total detections (total tested*)	2 795 (17 161)	6 467 (110 098)

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

Table 3. Viruses attributed to genetic groups, cumulative for weeks 40–49/2016

Phylogenetic group	Number of viruses
A(H1N1)pdm09 A/Michigan/45/2015 (clade 6B.1) ^b	3
A(H3N2) A/Hong Kong/4801/2014 (clade 3C.2a) ^{a,b}	62
A(H3N2) A/Bolzano/7/2016 (clade 3C.2a1)	82
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)	2

^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 85 viruses (79 A(H3N2), 4 A(H1N1)pdm09 and 2 type B) with collection dates from 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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