Flu News Europe

Joint ECDC–WHO/Europe weekly influenza update

Summary

Week 6/2017 (6-12 February 2017)

- Influenza activity remained elevated across the region with 24 of 43 countries reporting medium to very high intensity and 22 reporting widespread influenza activity.
- The proportion of influenza virus detections among sentinel surveillance specimens decreased slightly to 42% from 45% in the previous week.
- The great majority of influenza viruses detected were type A (92%) and, of those subtyped, 99% were A(H3N2).
- The number of new hospitalized laboratory-confirmed influenza cases reported, primarily in people aged 65 years or older, continued to decrease.

Season overview

- Influenza activity started early in week 46/2016, which 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.
- 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 being A(H3N2).
- Confirmed cases of influenza virus type A infection reported from hospitals have predominantly been in adults aged over 65 years. Excess all-cause mortality has been observed substantially in people aged 15–64 years and markedly in people aged 65 years or older in the majority of the 19 reporting countries. This is commonly seen when the predominant viruses circulating are A(H3N2).
- Two-thirds of the A(H3N2) viruses genetically characterized belong to a recently emerged genetic subclade (3C.2a1). However, those that have been antigenically characterized are similar to the clade 3C.2a vaccine virus.
- Recent vaccine effectiveness estimates, for all age groups against A(H3N2) illness, from Canada (42%), from the US (43%) and from Europe (38%) are consistent with estimates from Sweden and Finland early in the season.
- Given typically suboptimal vaccination coverage and the partial effectiveness of influenza vaccines, rapid use of neuraminidase inhibitors (NAIs) for laboratory-confirmed or probable cases of influenza infection should be considered for vaccinated and non-vaccinated patients at risk of developing complications.
- No reduced susceptibility to oseltamivir or zanamivir has been observed for any of the 918 viruses tested so far this season.
- The progression of the season thus far has confirmed the conclusions of the ECDC risk assessment on seasonal influenza updated on 25 January 2017, namely expected severe outcomes in the elderly related to the large circulation of A(H3N2) putting some health care systems under pressure.

Primary care data

Influenza activity

Influenza activity in week 6/2017 was at variable levels across the region but slightly lower compared to the previous week: of the 43 countries reporting on influenza activity, 24 countries reported high or medium intensity (Fig. 1) and 22 reported widespread influenza activity (Fig.2).

The percentage of influenza virus detections among sentinel specimens was 42%, the lowest it has been since week 52/2016 (51-52%) and slightly decreased from 45% in week 5/2017. 42 countries reported on influenza virus dominance: 23 reported subtype A(H3), four type A and 15 no dominant type/subtype.

Map of qualitative indicators in the European Region

Fig. 1. Intensity in the European Region, week 6/2017

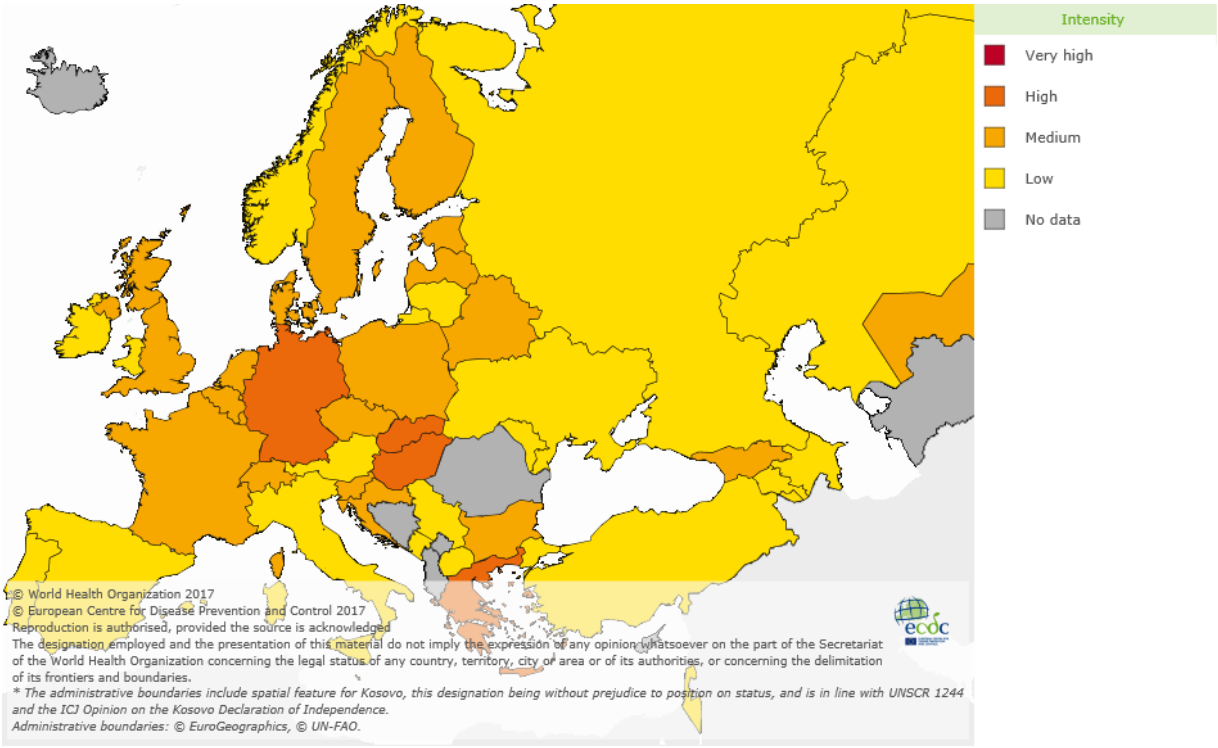
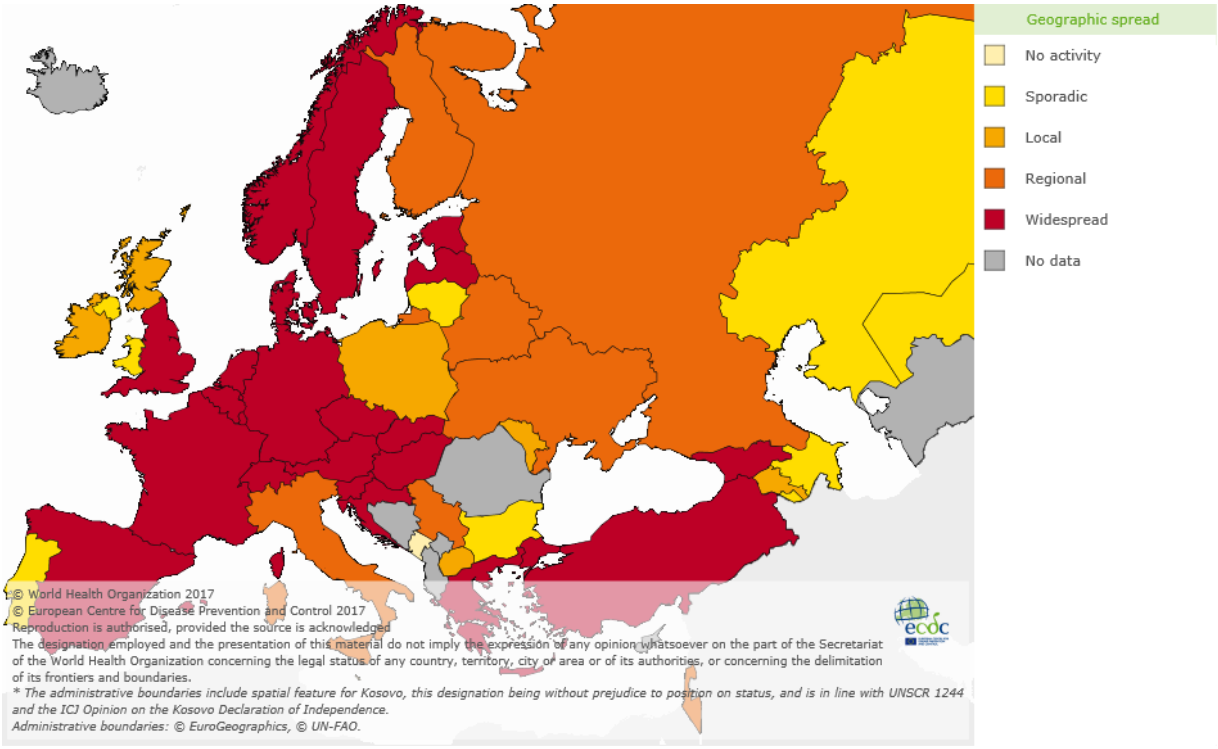


Fig. 2. Geographic spread in the European Region, week 6/2017



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 6/2017, 1 090 of 2 601 (42%) sentinel specimens tested positive for influenza viruses (Table 1). Of these, 92% were type A and 8% were type B. The great majority (99%) of subtyped influenza A viruses were A(H3N2). The lineage of 45 influenza B viruses was determined of which 32 (71%) fell in B/Yamagata and 13 (29%) in B/Victoria lineages. Of 30 countries across the region that each tested at least 10 sentinel specimens, 19 reported proportions of influenza virus detections above 30% (median 52, range 36% to 68%).

Since week 40/2016, similar cumulative distributions of influenza types and type A subtypes have been observed: of all typed viruses, 95% were type A, with 99% of those subtyped being A(H3N2).(Figure 3, Table 1). Of the 344 influenza B viruses which have been ascribed a lineage since week 40/2017, 182 (53%) were of the B/Victoria lineage and 162 (47%) were of the B/Yamagata lineage. The slight predominance of the B/Victoria lineage detections is due to reports from Kyrgyzstan where 137 (75%) of the 182 B/Victoria viruses were detected.

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

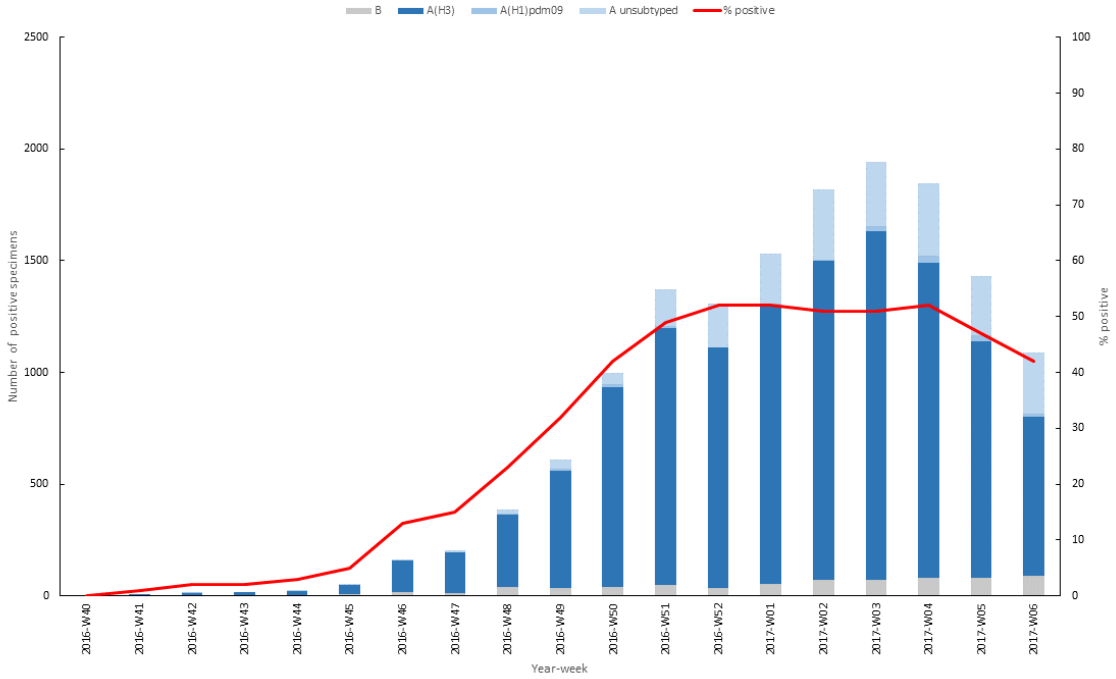


Table 1. Influenza virus detections in sentinel-source specimens by type and subtype, week 6/2017 and cumulatively

	Number of detections	
Virus type and subtype	**Current Week**	**Season 2016-2017**
Influenza A	**1 000**	**14 129**
A(H1N1)pdm09	10	143
A(H3N2)	713	11 806
A not subtyped	277	2 180
Influenza B	**90**	**687**
B/Victoria lineage	13	182
B/Yamagata lineage	32	162
Unknown lineage	45	343
Total detections (Total tested)	**1 090 (2061)**	**14 816 (37 964)**

Severity

For week 6/2017, of the 15 countries that conduct sentinel surveillance on severe acute respiratory infection (SARI), 13 reported data and 6 of the 9 countries that conduct surveillance on hospitalized laboratory-confirmed influenza cases reported data.

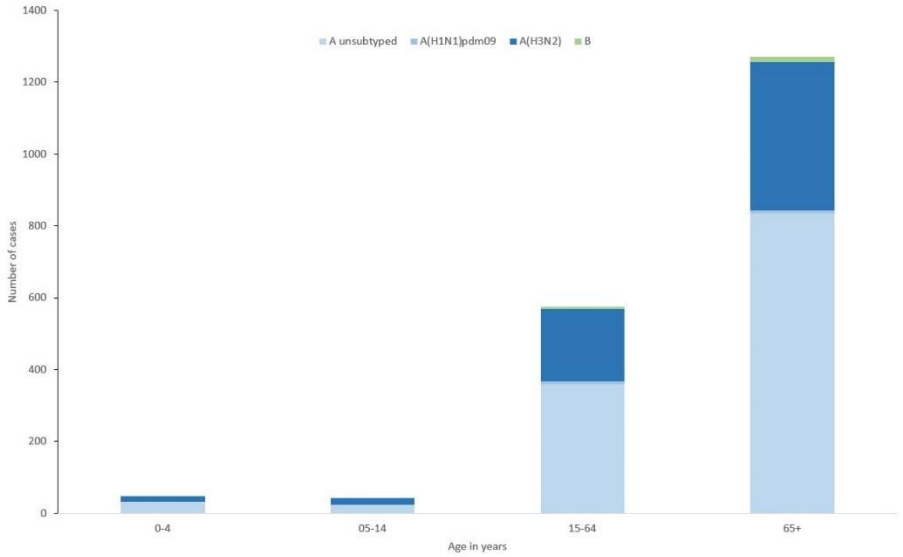
Of 1 374 SARI cases reported, 218 were tested for influenza virus and 52 (24%) were positive: two A unsubtyped, three A(H1N1)pdm09, 31 A(H3N2) and 16 type B viruses. Since week 40/2016, 23 903 SARI cases have been reported from 15 countries with 6 373 tested for influenza virus, of which 2 353 (37%) were positive: 1 992 (85%) were type A and 361 15%) type B viruses. Of the influenza A viruses, 1 872 (94%) were A(H3N2), 4 (<1%) were A(H1N1)pdm09 and 116 (6%) were not subtyped.

For week 6/2017, of nine countries that conduct surveillance on hospitalized laboratory-confirmed influenza cases in intensive care units (ICU) or other wards, the Czech Republic, Ireland, Romania, Spain, Sweden and the United Kingdom reported a total of 221 cases, 141 in ICU and 80 in other wards. Of 141 patients admitted to ICU in week 6/2017, a decrease from 54 cases in the previous week, 99 were infected with unsubtyped A viruses, 40 with A(H3N2), and two with type B viruses. From other wards, 80 cases were reported in week 6/2017 (a decrease of 37 cases compared to previous week) by the Czech Republic, Ireland, Romania and Spain. Of these, 46 were infected with unsubtyped A viruses and 34 with A(H3N2) viruses.

Since week 40/2016, the Czech Republic, Ireland, Romania, Slovakia and Spain have reported 3 070 laboratory-confirmed influenza cases admitted to non-ICU wards; 1 772 infected with unsubtyped A viruses, 1 278 with A(H3N2), four with A(H1N1)pdm09, and 16 with type B influenza viruses. In total, 2 929 cases have been admitted to ICU; 1 789 infected with unsubtyped influenza A viruses, 983 with A(H3N2), 111 with A(H1N1)pdm09, and 46 with type B influenza viruses.

Since the start of the season, most of the hospitalized laboratory-confirmed influenza cases reported have occurred in people aged 65 years or older (**Error! Not a valid bookmark self-reference.**). Information on patient age and influenza virus (sub)type was available for 2 096 cases admitted to ICU; the majority (65%) of cases (n=1 362) were aged ≥65 years, 635 (30%) were aged 15–64 years and 99 (5%) were aged under 15 years. A(H3N2) viruses predominated and accounted for 721 cases, 97% of the subtyped influenza A viruses in cases admitted to ICUs. 635 deaths have been reported, 359 from ICUs and 276 from other wards (338 infected with unsubtyped A viruses, 289 with A(H3N2), three with A(H1N1)pdm09 and five with type B viruses) with 515 (81%) cases among patients aged ≥65 years.

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



Mortality monitoring

Data from 19 countries or regions reporting to the EuroMOMO project were received for week 6/2017 and included in the pooled analyses of excess all-cause mortality. The majority of reporting countries across the European region continue to see a marked increase in all-cause excess mortality among the elderly aged 65 years or older. In addition, a substantial increase has been observed in the 15–64 years age group. This is probably due to the dominance of influenza A(H3N2) virus circulation.

Virus characteristics

Viruses detected in non-sentinel-source specimens

For week 6/2017, 6 327 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, 88% were type A (with 99% of the subtyped viruses being A(H3N2)), and 12% type B.

Similar cumulative distributions of types and subtypes as seen in sentinel detections have been observed since week 40/2016 with A(H3N2) viruses being dominant throughout Europe (Table 2).

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 490 type B viruses ascribed to a lineage, 64% were B/Yamagata lineage and 36% were B/Victoria lineage.

Table 2. Influenza viruses detected in non-sentinel-source specimens, by virus (sub)type, week 6/2017 and cumulatively

	Number of detections	
Virus type and subtype	**Current Week**	**Season 2016-2017**
Influenza A	**5 586**	**82 333**
A(H1N1)pdm09	23	259
A(H3N2)	1 875	31 804
A not subtyped	3 688	50 270
Influenza B	**741**	**3 842**
B/Victoria lineage	13	175
B/Yamagata lineage	19	315
Unknown lineage	709	3 352
Total detections (Total tested)	**6 327 (25 030)**	**86 175 (384 110)**

Genetic characterization

For specimens collected since week 40/2016, genetic characterizations of 1 649 viruses have been reported (Table 3).

Among 1 502 A(H3N2) viruses, 423 fell in the vaccine component clade (3C.2a), and 1 056 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 two clades are antigenically similar, though the 3C.2a1 subclade is evolving rapidly with emergence of numerous virus clusters defined by additional amino acid substitutions in haemagglutinin, the impact of which on antigenic characteristics is not yet clear.

Table 3. Viruses attributed to genetic groups, cumulative for weeks 40/2016–6/2017

Phylogenetic group	Number of viruses
A(H1N1)pdm09 A/Michigan/45/2015 (subgroup 6B.1)[b]	9
A(H1N1)pdm09 A/South Africa/3626/2013 (subgroup 6B)	4
A(H3N2) A/Bolzano/7/2016 (subgroup 3C.2a1)	1056
A(H3N2) A/Hong Kong/4801/2014 (subgroup 3C.2a)[a, b]	423
A(H3N2) A/Switzerland/9715293/2013 subgroup (3C.3a)	18
A(H3N2), subgroup not listed	5
B/Brisbane/60/2008 (Victoria lineage clade 1A)[a, b]	29
B (Victoria lineage), not attributed to clade	11
B/Phuket/3073/2013 (Yamagata lineage clade 3)[c]	38
B (Yamagata lineage), not attributed to clade	56

[a] Vaccine component for Northern Hemisphere 2016–2017 season
[b] Vaccine component for Southern Hemisphere 2017 season
[c] Vaccine component of quadrivalent vaccines for use in both seasons

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 suggested levels of effectiveness in persons aged 65 years or older (26%) and 24% vaccine effectiveness, respectively) similar to estimates from annual multi-country studies covering the 2011–2012 and 2014–2015 seasons. More recent VE estimates, for all age groups against A(H3N2) illness, from Canada (42%), from the US (43%) and from Europe (38%) are consistent with estimates from Sweden and Finland early in the season.

Given typically suboptimal vaccination coverage and the partial effectiveness of influenza vaccines, rapid use of neuraminidase inhibitors (NAIs) for laboratory-confirmed or probable cases of influenza infection should be considered for vaccinated and non-vaccinated patients at risk of developing complications.

Antiviral susceptibility testing

Neuraminidase inhibitor susceptibility has been assessed for 918 viruses (867 A(H3N2), 12 A(H1N1)pdm09 and 39 type B with collection dates since week 40/2016. None showed evidence of reduced inhibition to oseltamivir or zanamivir.

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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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Tables and figures should be referenced:

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