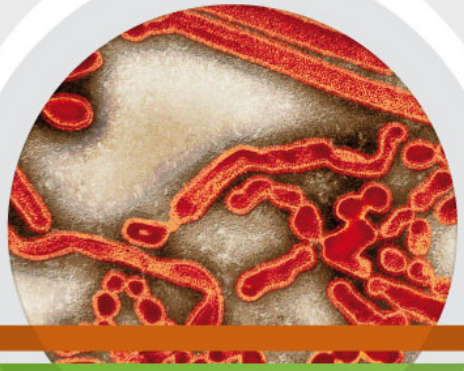


SURVEILLANCE REPORT

Weekly influenza surveillance overview

26 April 2013

Main surveillance developments in week 16/2013 (15–21 April 2013)

This first page contains the main developments for this week and can be printed separately or together with the more detailed information that follows.

Weekly reporting on influenza surveillance in Europe for the 2012–13 season started in week 40/2012 and will revert to bi-weekly reporting after week 16/2013. Active influenza transmission began around week 49/2012 with ILI/ARI rates peaking in almost all countries between weeks 52/2012 and 8/2013.

- This week twenty-four countries reported low-intensity transmission while three countries (Latvia, the Netherlands and Sweden) still reported medium intensity. Decreasing or stable trends were reported by almost all reporting countries.
- The proportion of influenza-positive sentinel specimens (26%) has continued to decrease since the peak observed in week 5/2013 (61%).
- Since week 40/2012, 47% of sentinel surveillance specimens testing positive for influenza virus have been type A and 53% type B. Of the influenza A viruses subtyped, the proportion of A(H1)pdm09 viruses was 62%.
- Twenty-five hospitalised, laboratory-confirmed influenza cases were reported by three countries for week 16/2013.

With influenza activity continuing to decline or having already returned to baseline levels in all reporting countries after more than three months of active transmission, the 2012–13 influenza season appears to be coming to an end.

Sentinel surveillance of influenza-like illness (ILI)/ acute respiratory infection (ARI): Clinical influenza activity at low intensity was reported by 24 countries and medium intensity was reported by three countries. For more information, **click here**.

Virological surveillance: Sentinel physicians from 22 countries collected 291 specimens, of which 76 (26%) tested positive for influenza virus. For more information, **click here**.

Hospital surveillance of influenza laboratory-confirmed cases: For week 16/2013, 25 hospitalised laboratory-confirmed influenza cases were reported by three countries. For more information, **click here**.

Sentinel surveillance (ILI/ARI)

Weekly analysis – epidemiology

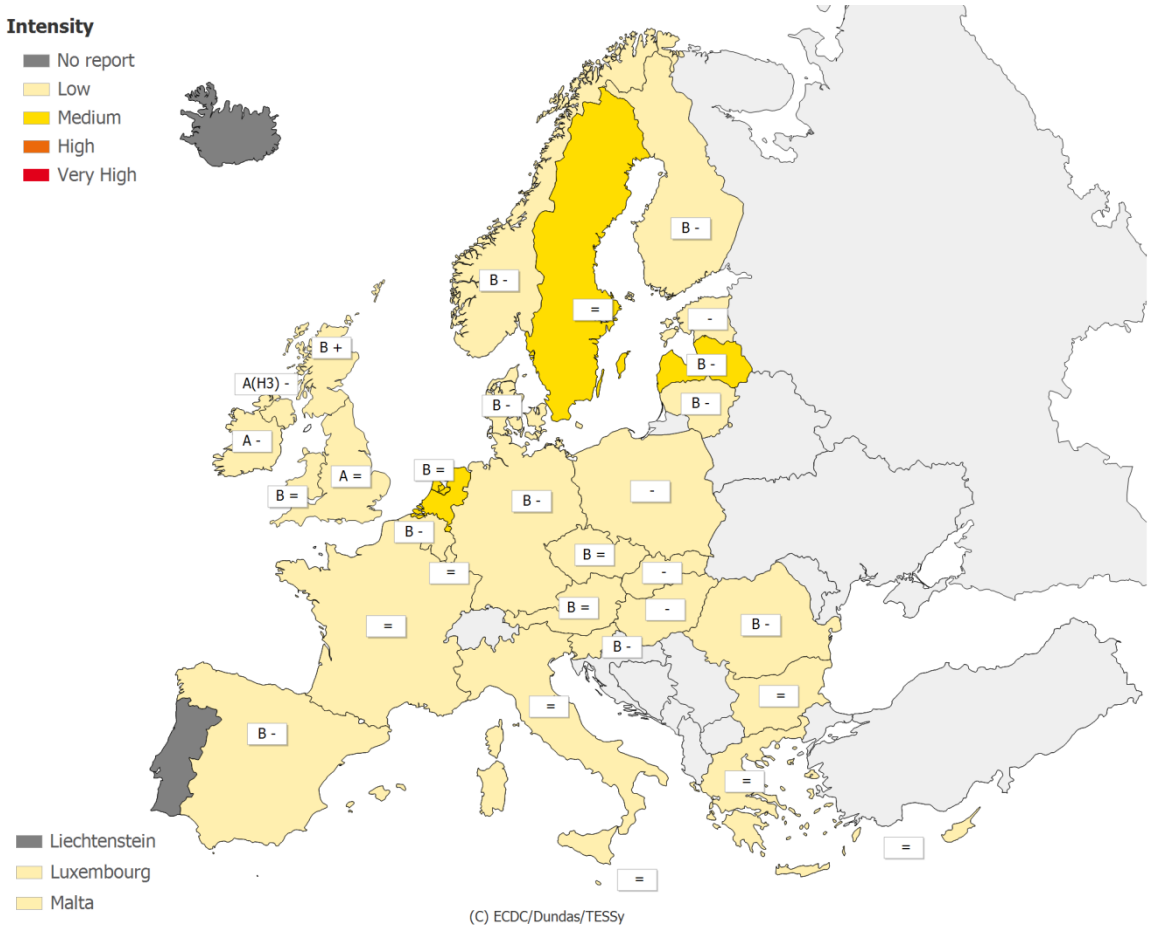
For week 16/2013, 27 countries reported clinical data. As for week 15/2013, three countries (Latvia, the Netherlands and Sweden) reported medium intensity while 24 countries reported low intensity. No country reported high intensity (Table 1, Map 1).

All countries but the UK (Scotland) reported decreasing or stable trends (Table 1, Map 2).

Geographic patterns of influenza activity were reported as regional or local by nine, sporadic by 13 and widespread by one country (the Netherlands). Only Cyprus, Italy, Luxembourg and Poland reported no activity (Table 1, Map 2).

ILI/ARI rates peaked between weeks 52/2012 and 8/2013 in all reporting countries but Romania, where a peak was observed in week 11/2013. Since week 12/2013, all reporting countries have indicated declining rates or have already reached baseline levels.

Map 1. Intensity for week 16/2013

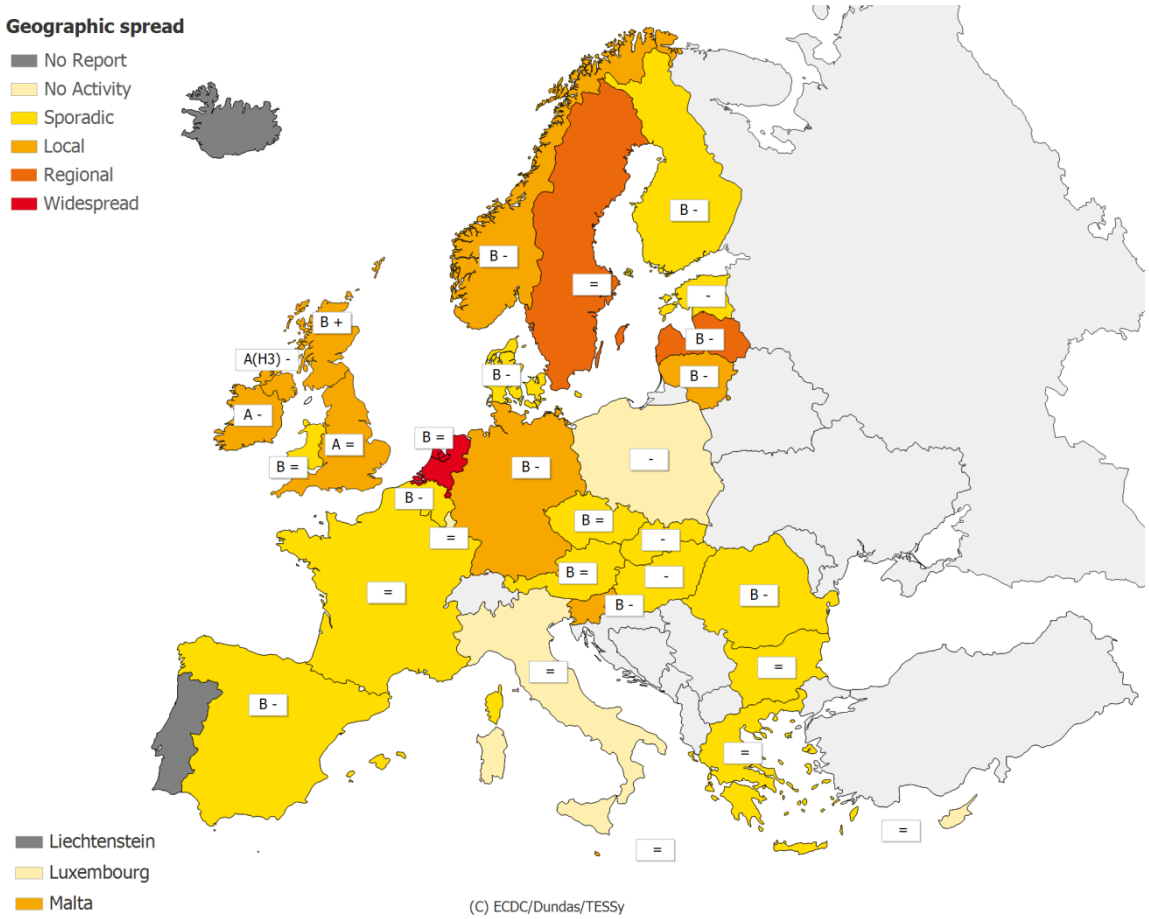


* A type/subtype is reported as dominant when at least ten samples have been detected as influenza positive in the country and of those > 40 % are positive for the type/subtype.

Legend:

No report	Intensity level was not reported	**+**	Increasing clinical activity
Low	No influenza activity or influenza at baseline levels	**-**	Decreasing clinical activity
Medium	Usual levels of influenza activity	**=**	Stable clinical activity
High	Higher than usual levels of influenza activity	**A**	Type A
Very high	Particularly severe levels of influenza activity	**A(H3)**	Type A, Subtype H3
		B	Type B

Map 2. Geographic spread for week 16/2013



* A type/subtype is reported as dominant when at least ten samples have been detected as influenza positive in the country and of those > 40 % are positive for the type/subtype.

Legend:

No report	Activity level was not reported
No activity	No evidence of influenza virus activity (clinical activity remains at baseline levels)
Sporadic	Isolated cases of laboratory confirmed influenza infection
Local outbreak	Increased influenza activity in local areas (e.g. a city) within a region, or outbreaks in two or more institutions (e.g. schools) within a region (laboratory confirmed)
Regional activity	Influenza activity above baseline levels in one or more regions with a population comprising less than 50% of the country's total population (laboratory confirmed)
Widespread	Influenza activity above baseline levels in one or more regions with a population comprising 50% or more of the country's population (laboratory confirmed)

+	Increasing clinical activity
-	Decreasing clinical activity
=	Stable clinical activity
A	Type A
A(H3)	Type A, Subtype H3
B	Type B

Table 1. Epidemiological and virological overview by country, week 16/2013

Country	Intensity	Geographic spread	Trend	No. of sentinel specimens	Dominant type	Percentage positive	ILI per 100 000	ARI per 100 000	Epidemiological overview	Virological overview
Austria	Low	Sporadic	Stable	2	B	50.0	-	-	Graphs	Graphs
Belgium	Low	Sporadic	Decreasing	8	B	37.5	24.6	1189.6	Graphs	Graphs
Bulgaria	Low	Sporadic	Stable	0	None	0.0	-	578.1	Graphs	Graphs
Cyprus	Low	No activity	Stable	-	-	0.0	-*	-*	Graphs	Graphs
Czech Republic	Low	Sporadic	Stable	9	B	33.3	41.0	839.8	Graphs	Graphs
Denmark	Low	Sporadic	Decreasing	0	B	0.0	26.8	-	Graphs	Graphs
Estonia	Low	Sporadic	Decreasing	5	None	40.0	7.6	312.4	Graphs	Graphs
Finland	Low	Sporadic	Decreasing	10	B	10.0	-	-	Graphs	Graphs
France	Low	Sporadic	Stable	25	None	24.0	-	1189.0	Graphs	Graphs
Germany	Low	Local	Decreasing	47	B	34.0	-	866.5	Graphs	Graphs
Greece	Low	Sporadic	Stable	2	None	50.0	85.1	-	Graphs	Graphs
Hungary	Low	Sporadic	Decreasing	10	None	20.0	33.7	-	Graphs	Graphs
Iceland				0	-	0.0	-	-	Graphs	Graphs
Ireland	Low	Local	Decreasing	8	A	12.5	12.2	-	Graphs	Graphs
Italy	Low	No activity	Stable	3	-	0.0	72.5	-	Graphs	Graphs
Latvia	Medium	Regional	Decreasing	0	B	0.0	51.6	860.9	Graphs	Graphs
Lithuania	Low	Local	Decreasing	8	B	87.5	13.2	519.0	Graphs	Graphs
Luxembourg	Low	No activity	Stable	4	-	0.0	-*	-*	Graphs	Graphs
Malta	Low	Local	Stable	-	-	0.0	-*	-*	Graphs	Graphs
Netherlands	Medium	Widespread	Stable	14	B	35.7	52.0	-	Graphs	Graphs
Norway	Low	Local	Decreasing	5	B	60.0	32.0	-	Graphs	Graphs
Poland	Low	No activity	Decreasing	6	None	16.7	171.1	-	Graphs	Graphs
Portugal				2	None	0.0	-	-	Graphs	Graphs
Romania	Low	Sporadic	Decreasing	3	B	100.0	1.3	527.4	Graphs	Graphs
Slovakia	Low	Sporadic	Decreasing	-	None	0.0	106.6	1274.1	Graphs	Graphs
Slovenia	Low	Local	Decreasing	8	B	37.5	3.6	1015.7	Graphs	Graphs
Spain	Low	Sporadic	Decreasing	43	B	18.6	14.5	-	Graphs	Graphs
Sweden	Medium	Regional	Stable	12	None	16.7	5.4	-	Graphs	Graphs
UK - England	Low	Local	Stable	29	A	17.2	5.3	236.2	Graphs	Graphs
UK - Northern Ireland	Low	Local	Decreasing	0	A(H3)	0.0	25.6	369.0	Graphs	Graphs
UK - Scotland	Low	Local	Increasing	28	B	10.7	17.8	417.5	Graphs	Graphs
UK - Wales	Low	Sporadic	Stable	1	-	0.0	-	-		
Europe				**292**		**26.0**				**Graphs**

**Incidence per 100 000 is not calculated for these countries as no population denominator is provided.*
Liechtenstein does not report to the European Influenza Surveillance Network.

Description of the system

Surveillance is based on nationally organised sentinel networks of physicians, mostly general practitioners (GPs), covering at least 1 to 5% of the population in their countries. All EU/EEA Member States (except Liechtenstein) participate. Depending on their country's choice, each sentinel physician reports the weekly number of patients seen with ILI, ARI, or both to a national focal point. From the national level, both numerator and denominator data are then reported to the European Surveillance System (TESSy) database. Additional semi-quantitative indicators of intensity, geographic spread, and trend of influenza activity at the national level are also reported.

Virological surveillance

Weekly analysis – virology

For week 16/2013, 22 countries tested 292 sentinel specimens, of which 76 (26%) were positive for influenza virus, the lowest percentage observed this season since the peak of 61% in week 5/2013. Of the 76 influenza viruses detected, 18 (24%) were type A and 58 (76%) type B (Tables 1–2, Figure 1).

In addition, 772 non-sentinel source specimens (e.g. specimens collected for diagnostic purposes in hospitals) were found to be positive for influenza virus, of which 360 (47%) were type A and 412 (53%) type B (Table 2).

Of the 15 328 influenza virus detections in sentinel specimens since week 40/2012, 7 152 (47%) were type A and 8 176 (53%) were type B viruses. Of 6 355 influenza A viruses subtyped, 3 953 (62 %) were A(H1)pdm09 and 2 402 (38%) were A(H3) (Table 2, Figure 2). Of the 2 980 type B viruses ascribed to lineage, 2 695 (90%) were Yamagata and 285 (10%) Victoria (Table 2).

Of the 2 248 antigenic characterisations of influenza A viruses reported for sentinel and non-sentinel specimens since week 40/2012, 1 345 (60%) have been characterised as A/Victoria/361/2011(H3N2)-like and 886 (39%) as A(H1)pdm09 A/California/7/2009 (H1N1)-like. Of the 2 418 antigenic characterisations of influenza B viruses reported, 1 269 (52%) have been characterised as B/Estonia/55669/2011-like (B/Yamagata/16/88-lineage) and 471 (19%) as B/Wisconsin/1/2010-like (B/Yamagata/16/88-lineage) (Table 3).

Since week 40/2012, 1 635 genetic characterisations of influenza viruses were reported for sentinel and non-sentinel specimens. Of the 471 A(H1)pdm09 viruses characterised, 368 (78%) belonged to genetic group 6 represented by A/St Petersburg/27/2011. Of the 342 A(H3) viruses characterised, 264 (77%) belonged to the A/Victoria/208/2009 clade, falling within genetic group 3C, represented by A/Victoria/361/2011 (Table 4).

More details on circulating viruses can be found in the March report prepared by the Community Network of Reference Laboratories (CNRL) coordination team. The viruses circulating this season remain well-matched with the vaccine viruses for the 2012–13 season. However, observational studies, such as that done by the I-MOVE consortium, indicate that adjusted vaccine effectiveness is in the range 50–60% (see I-MOVE Report).

A total of 1 135 viruses have been tested for antiviral susceptibility, as reported by Denmark, Germany, Greece, the Netherlands, Norway, Portugal, Romania, Spain, Sweden and the UK. Ten A(H1N1)pdm09 viruses tested for neuraminidase inhibitor susceptibility carried the neuraminidase (NA)-H275Y amino acid substitution associated with highly-reduced inhibition by oseltamivir and one A(H1N1)pdm09 virus was shown to have highly-reduced inhibition by oseltamivir through phenotypic testing. These 11 specimens were taken from two immunocompromised oseltamivir-treated hospitalised patients in the Netherlands, six hospitalised oseltamivir-treated patients (four in Germany, one in Denmark and one in Sweden), one hospitalised (untreated) patient in Germany and two untreated outpatients with no epidemiological link in the UK. One A(H3N2) virus from Sweden showed the NA-D151N substitution previously associated with reduced inhibition by oseltamivir and zanamivir. No data on immune status or antiviral drug exposure were reported for this patient. One type B virus from an outpatient in the UK not exposed to antivirals showed reduced inhibition by oseltamivir and normal inhibition by zanamivir, associated with the NA-I221T substitution.

One A(H1N1)pdm09 virus from a hospitalised patient in Spain showed the Y155H substitution that previously has been associated with highly-reduced inhibition by oseltamivir and zanamivir in seasonal A(H1N1) virus. Confirmation of the sensitivity level by phenotypic test is awaited. None of the remaining 509 A(H1N1)pdm09 viruses, 259 A(H3N2) and 342 type B viruses tested for neuraminidase inhibitor susceptibility showed genetic or phenotypic (IC_{50}) evidence for (highly) reduced inhibition. Forty-seven A(H1N1)pdm09 and 39 A(H3N2) viruses screened for M2-blocker susceptibility carried the S31N amino acid substitution in the M2 protein associated with M2-blocker resistance.

For week 16/2013, 11 countries reported 153 respiratory syncytial virus detections, continuing the decline observed since week 52/2012 toward the baseline level (Figure 4).

Table 2. Weekly and cumulative influenza virus detections by type, subtype and surveillance system, weeks 40/2012–16/2013

Virus type/subtype	Current period Sentinel	Current period Non-sentinel	Season Sentinel	Season Non-sentinel
Influenza A	18	360	7152	34202
A(H1)pdm09	3	46	3953	12218
A(H3)	8	76	2402	5345
A(sub-type unknown)	7	238	797	16639
Influenza B	58	412	8176	21171
B(Vic) lineage	4	1	285	176
B(Yam) lineage	22	16	2695	2215
Unknown lineage	32	395	5196	18780
Total influenza	**76**	**772**	**15328**	**55373**

Note: A(H1)pdm09 and A(H3) include both N-sub-typed and non-N-sub-typed viruses

Figure 1. Proportion of sentinel specimens positive for influenza virus, weeks 40/2012–16/2013

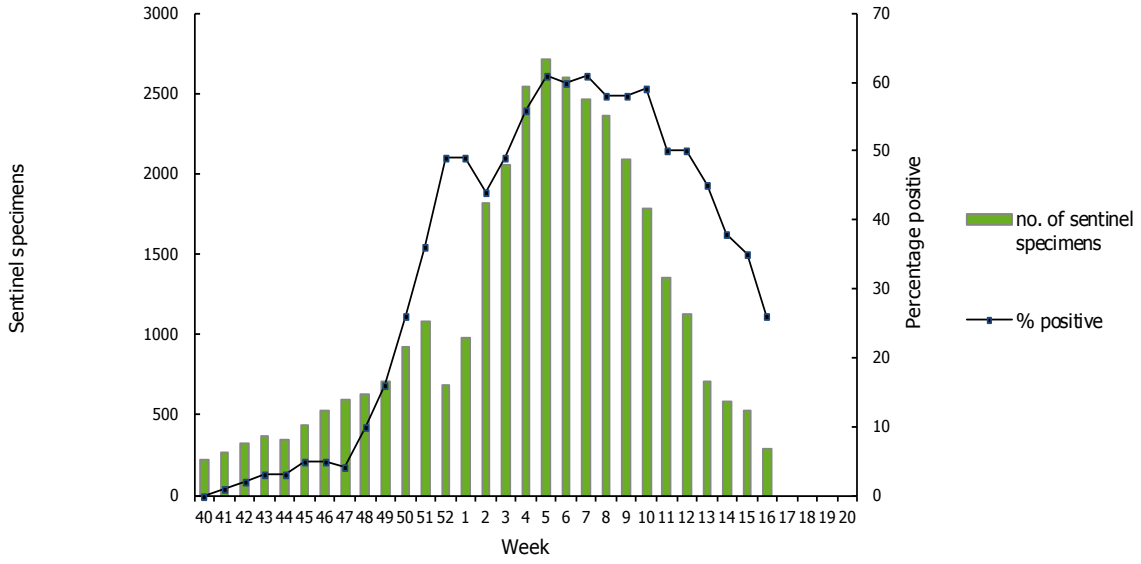


Figure 2. Number of sentinel specimens positive for influenza virus, by type, subtype and by week of report, weeks 40/2012–16/2013

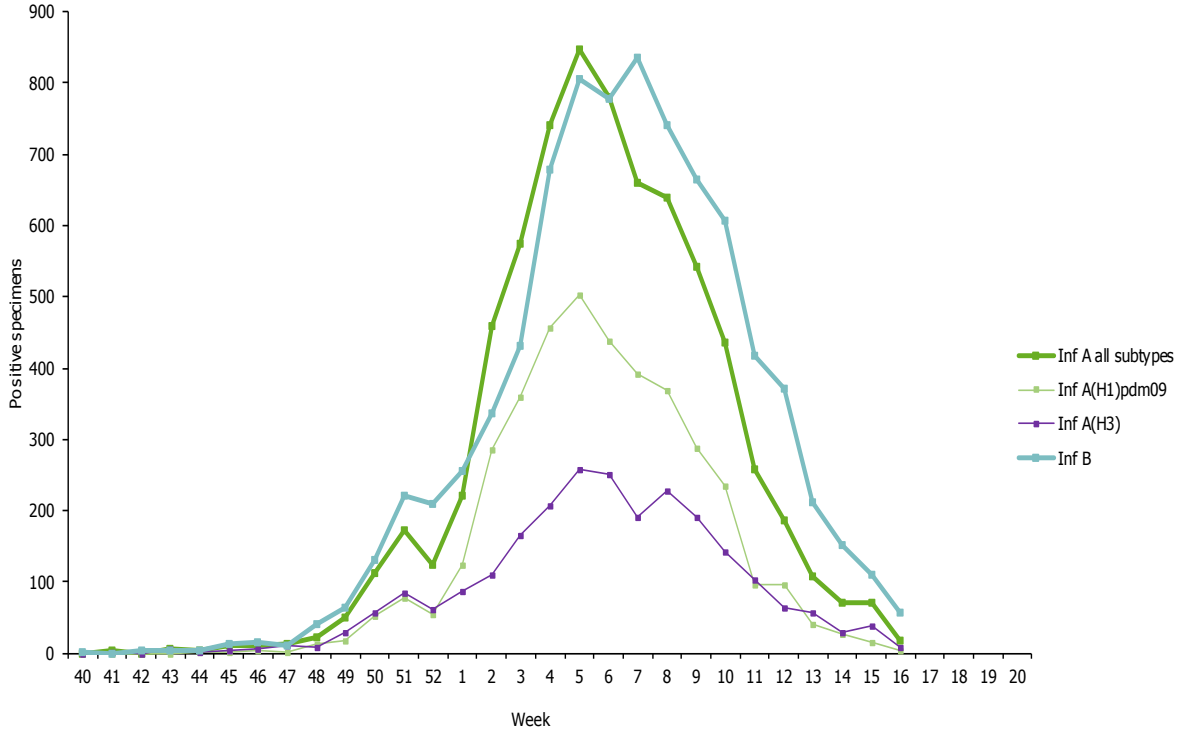


Figure 3. Number of non-sentinel specimens positive for influenza virus by type, subtype and week of report, weeks 40/2012–16/2013

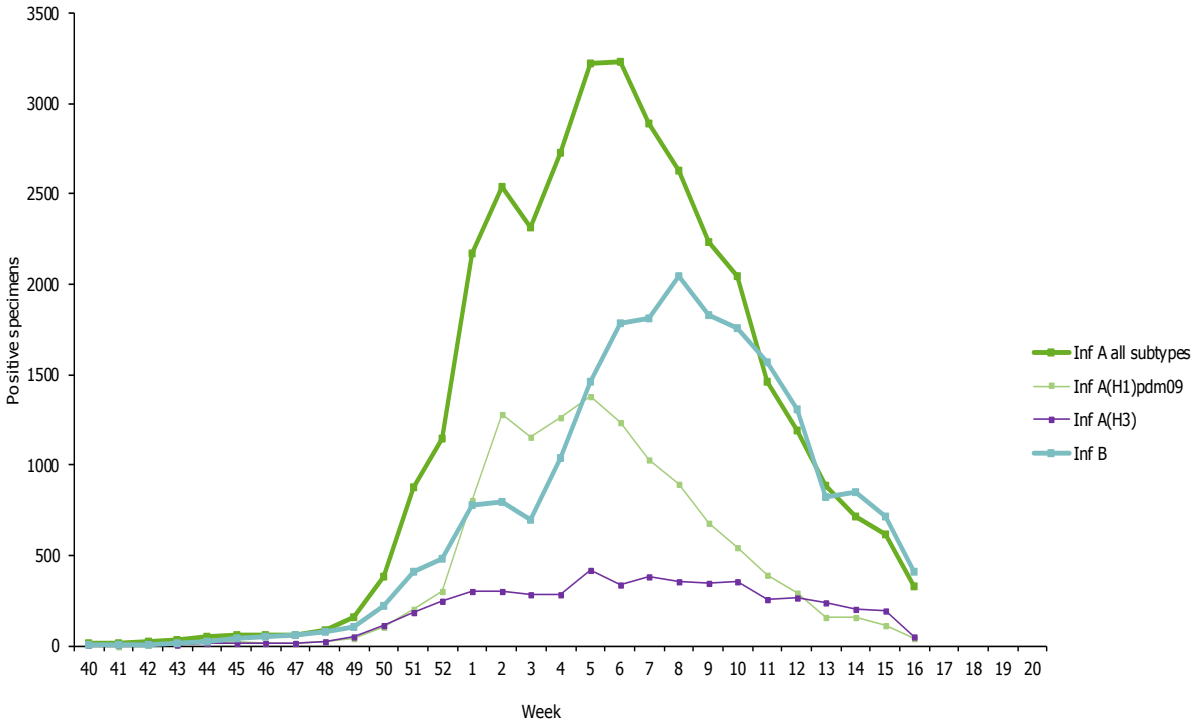


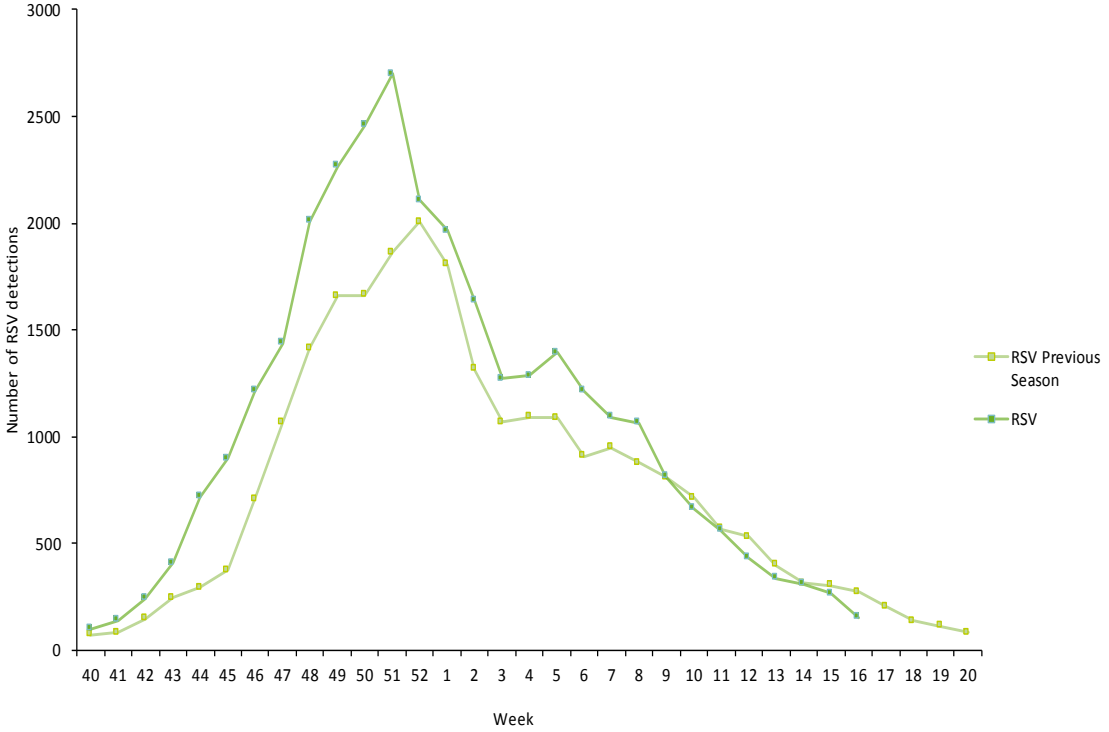
Table 3. Results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates, weeks 40/2012–16/2013

Antigenic group	Number of viruses
A(H1)pdm09 A/California/7/2009 (H1N1)-like	886
A(H1)pdm09 not attributed to category	11
A(H3) A/Perth/16/2009 (H3N2)-like	2
A(H3) A/Victoria/361/2011 (H3N2)-like	1345
A(H3) not attributed to category	4
B/Brisbane/60/2008-like (B/Victoria/2/87 lineage)	271
B(Vic) lineage not attributed to category	6
B/Estonia/55669/2011-like (B/Yamagata/16/88-lineage)	1269
B/Florida/4/2006-like (B/Yamagata/16/88 lineage)	15
B/Wisconsin/1/2010-like (B/Yamagata/16/88-lineage)	471
B/Bangladesh/3333/2007-like (B/Yamagata/16/88 lineage)	333
B(Yam) lineage not attributed to category	53
Total	4666

Table 4. Results of genetic characterisations of sentinel and non-sentinel influenza virus isolates, weeks 40/2012–16/2013

Phylogenetic group	Number of viruses
A(H1)pdm09 clade repr. A/California/7/2009	13
A(H1)pdm09 group 6 representative A/St Petersburg/27/2011	368
A(H1)pdm09 group 7 representative A/St Petersburg/100/2011	83
A(H1)pdm09 not attributed to clade/group	7
A(H3) clade repr. A/Victoria/208/2009	56
A(H3) clade repr. A/Victoria/208/2009 – A/Alabama/05/2010 group 5	20
A(H3) clade repr. A/Victoria/208/2009 – A/Iowa/19/2010 group 6	1
A(H3) clade repr. A/Victoria/208/2009 – A/Stockholm/18/2011 group 3A	1
A(H3) clade repr. A/Victoria/208/2009 – A/Victoria/361/2011 group 3C	264
B(Vic) lineage - clade representative B/Brisbane/60/2008	140
B(Yam) lineage - clade repr. B/Bangladesh/3333/2007	282
B(Yam) lineage - clade repr. B/Florida/4/2006	1
B(Yam)-lineage clade repr. B/Wisconsin/1/2010	151
B(Yam)-lineage clade repr. B/Estonia/55669/2011	241
B(Yam)-lineage clade representative B/Brisbane/3/2007	7
Total	1635

Figure 4. Respiratory syncytial virus (RSV) detections, sentinel and non-sentinel, weeks 40/2012–16/2013



Description of the system

According to the nationally defined sampling strategy, sentinel physicians take nasal or pharyngeal swabs from patients with ILI, ARI or both and send the specimens to influenza-specific reference laboratories for virus detection, (sub-)typing, antigenic or genetic characterisation and antiviral susceptibility testing.

For details of the current virus strains recommended by WHO for vaccine preparation click here.

Hospital surveillance – severe influenza disease

Weekly analysis of hospitalised laboratory-confirmed influenza cases

For week 16/2013, 25 hospitalised laboratory-confirmed influenza cases were reported by three countries (Romania, Spain and the UK). Twenty-three cases tested positive for influenza A virus and two for influenza B virus. Of the 3 225 hospitalised laboratory-confirmed influenza cases reported since week 40/2012, 1 955 (61%) cases were related to influenza type A and 1 270 (39%) to type B. Of 1 208 subtyped influenza A viruses, 820 (68%) were A(H1)pdm09 and 388 (32%) were A(H3) viruses (Table 5).

Since week 40/2012, eight countries have reported 3 225 hospitalised laboratory-confirmed influenza cases and 215 of these had a fatal outcome (Table 6). Of the 140 fatal cases with known vaccination status, 21 (15%) had received the seasonal vaccine.

Table 5. Number of hospitalised laboratory-confirmed influenza cases by influenza type and subtype, week 16/2013 and cumulative for the season

Pathogen	Number of cases during current week	Cumulative number of cases since the start of the season
Influenza A	23	1955
A(H1)pdm09	2	820
A(H3)	7	388
A(sub-typing not performed)	14	747
Influenza B	2	1270
Total	**25**	**3225**

Table 6. Cumulative number of hospitalised laboratory-confirmed influenza cases, weeks 40/2012–16 / 2013

Country	Number of cases	Incidence of cases per 100 000 population	Number of fatal cases reported	Incidence of fatal cases per 100 000 population	Estimated population covered
Belgium	407		10		
France	752		128		
Ireland	410		3		
Romania	110	1.89	20	0.34	5813728
Slovakia	46	0.85	4	0.07	5408148
Spain	487		44		
Sweden	125		6		
United Kingdom	888	1.5			59255492
Total	**3225**		**215**		

Country comments and specific information concerning hospitalised cases and mortality

This section is compiled from specific comments and published reports available from national websites (if so indicated). It is intended to provide additional information on influenza-associated hospitalisations (including emergency hospital consultations), higher-level care load and mortality.

The EUROMOMO mortality monitoring system:

Pooled analysis of week 16/2013 data, based on 13 countries or regions, showed a sustained peak of excess all-cause mortality among people aged 65 years and older starting in week 1/2013. This week's data showed that mortality levels had still been elevated in recent weeks, in contrast to last week's analysis which indicated that mortality had returned to normal levels around week 12. This indicates again the difficulty in interpreting excess mortality levels from the most recent weeks due to the fact that adjustment for delayed registrations may be imprecise. Furthermore, results of pooled analysis may vary depending on which countries are included in the weekly analysis.

Cumulative winter excess mortality among older people (cumulated from week 40/2012 to week 16/2013) indicated excess mortality levels comparable to those of the 2011/2012 winter season.

Individual country analysis showed a diverse temporal pattern of all-cause mortality in people aged 65 years and above during the winter season 2012/2013. In most countries all-cause mortality has been within the normal range for the past three to four weeks, however some countries still showed mortality levels of above 2 z-scores from the baseline among people aged 65 years and older. Investigation is underway to establish whether these are real increases or artifacts due to imprecise adjustment for delayed registration. For countries that had seen an increase in all-cause mortality this winter, some observed increases at the end of 2012 – Denmark, Ireland, Sweden and the UK (England, Scotland) – while others observed increases some weeks later at the beginning of 2013 (Belgium, France, Germany (Hesse), Ireland and the Netherlands). There are several countries that have had no or only very moderate increases in mortality (i.e. to around 2 z-scores above the baseline) so far (Finland, Greece, Portugal and Spain).

The diverse mortality pattern may be explained by the pattern of influenza activity this season in Europe, but other factors such as the long, cold winter may also have played a role.

This report was written by an editorial team at the European Centre for Disease Prevention and Control (ECDC): Eeva Broberg, Julien Beauté and René Snacken. The bulletin text was reviewed by the Community Network of Reference Laboratories for Human Influenza in Europe (CNRL) coordination team: Adam Meijer, Rod Daniels, John McCauley and Maria Zambon. On behalf of the EISN members, the bulletin text was reviewed by Amparo Larrauri Cámara (Instituto de Salud Carlos III, Spain), Vincent Enouf (Institut Pasteur, France) and Anne Mazick (Statens Serum Institut, Copenhagen). In addition, the report is reviewed by experts of WHO Regional Office for Europe.