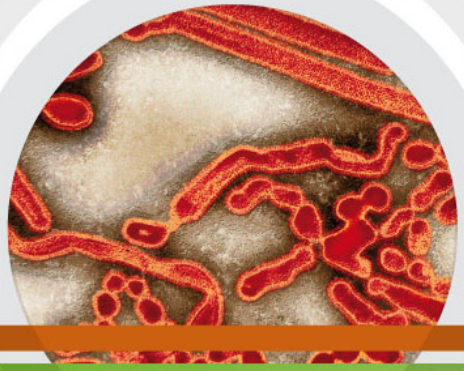


SURVEILLANCE REPORT

Weekly influenza surveillance overview

12 April 2013

Main surveillance developments in week 14/2013 (1–7 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 finish after week 20/2013. Active influenza transmission began around week 49/2012 with ILI/ARI rates peaking in almost all countries between weeks 52/2012 and 8/2013.

- Twenty-three of 29 reporting countries indicated low-intensity transmission.
- Decreasing or stable trends were reported by all reporting countries.
- The proportion of influenza-positive sentinel specimens (35%) has continued to decrease since the peak observed in week 5/2013 (61%), in line with the lower numbers of specimens being tested.
- 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 has been 63%.
- Thirty-nine hospitalised, laboratory-confirmed influenza cases were reported by six countries, including one fatality.

In all reporting countries, influenza activity continued to decline or had already returned to baseline levels. After more than three months of active transmission, a long period compared to other years, the 2012–13 influenza season is waning and getting closer to its end.

Sentinel surveillance of influenza-like illness (ILI)/ acute respiratory infection (ARI): Decreasing or stable trends were reported by all reporting countries. For more information, **click here**.

Virological surveillance: Twenty-five countries tested 499 sentinel specimens, of which 175 (35%) were positive for influenza virus. For more information, **click here**.

Hospital surveillance of influenza laboratory-confirmed cases: A total of 29 hospitalised, laboratory-confirmed influenza cases were reported, with one fatality. For more information, **click here**.

Sentinel surveillance (ILI/ARI)

Weekly analysis – epidemiology

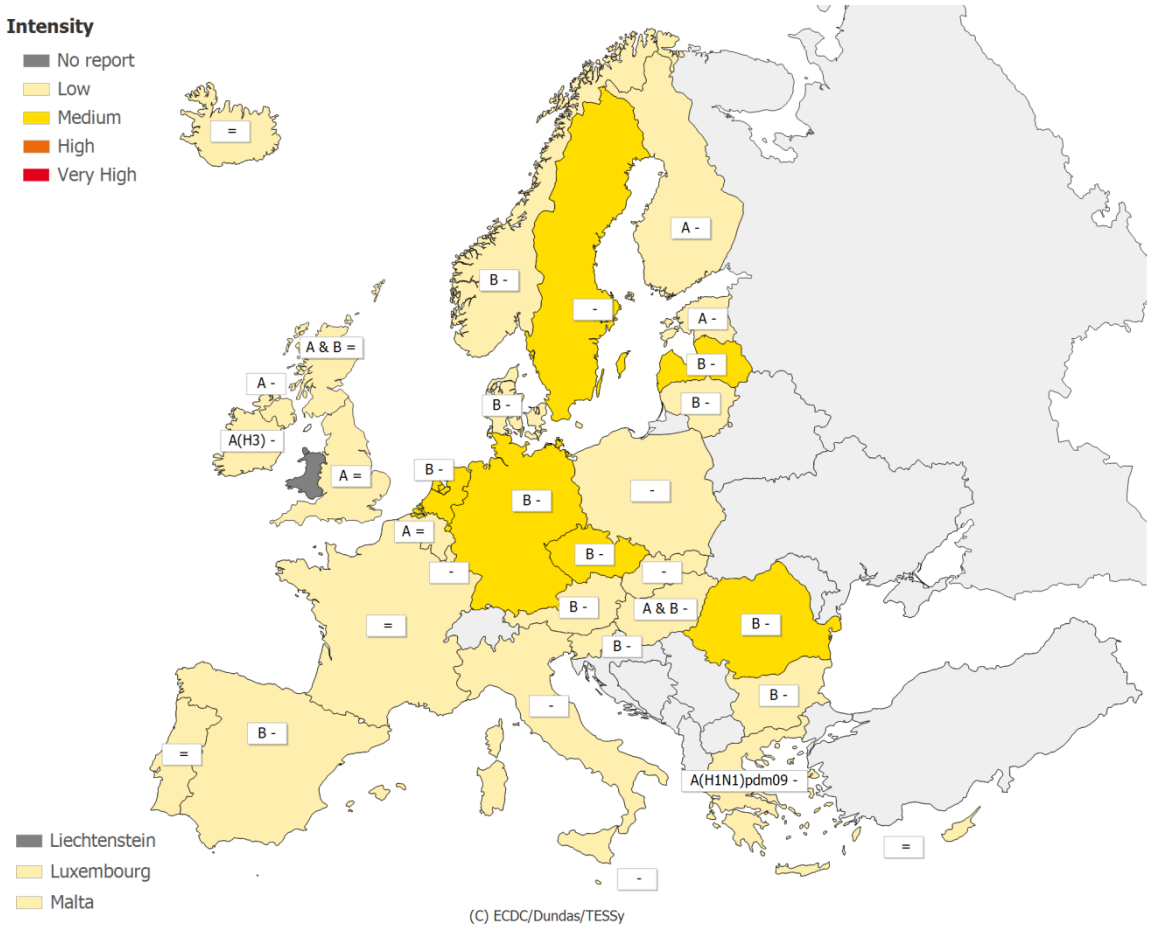
For week 14/2013, 29 countries reported clinical data. Six countries (the Czech Republic, Germany, Latvia, the Netherlands, Romania and Sweden) reported medium intensity while 23 countries reported low intensity, compared to 19 in week 13/2013. No country reported high intensity (Table 1, Map 1).

Geographic patterns of influenza activity were reported as widespread by five countries (Estonia, Latvia, Luxemburg, the Netherlands, and Sweden), regional or local by 13, and sporadic by nine. Only Cyprus and Poland reported no activity (Table 1, Map 2).

All countries reported decreasing or stable trends (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 14/2013

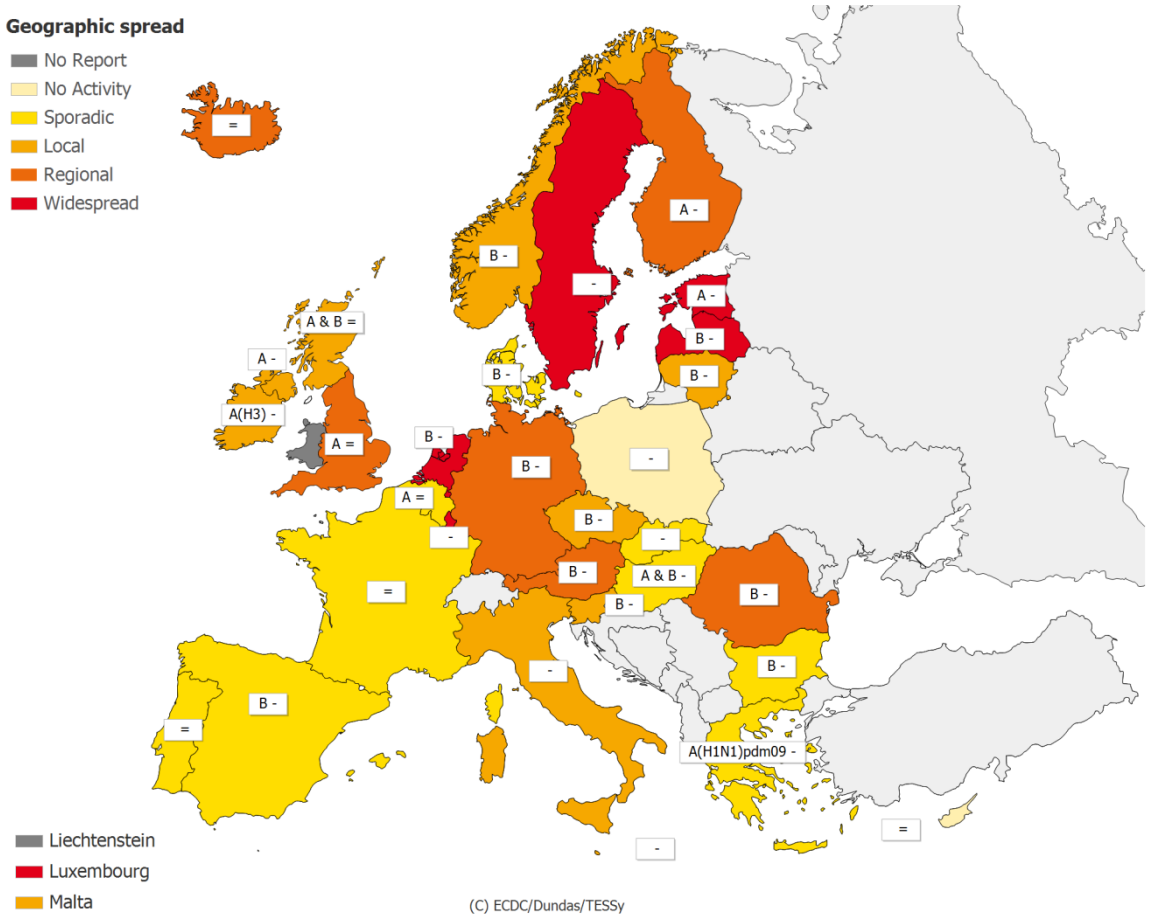


* A type/subtype is reported as dominant when at least ten samples have been detected as influenza positive in the country and of those > 40 % are positive for the type/subtype.

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 & B**	Type A and B
		A(H1N1)pdm 09	Type A, Subtype (H1N1)pdm09
		A(H3)	Type A, Subtype H3
		B	Type B

Map 2. Geographic spread for week 14/2013



* 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 & B	Type A and B
A(H1N1)pdm 09	Type A, Subtype (H1N1)pdm09
A(H3)	Type A, Subtype H3
B	Type B

Table 1. Epidemiological and virological overview by country, week 14/2013

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	Regional	Decreasing	14	B	85.7	491.8	-	Graphs	Graphs
Belgium	Low	Sporadic	Stable	7	A	42.9	69.6	1394.1	Graphs	Graphs
Bulgaria	Low	Sporadic	Decreasing	0	B	0.0	-	633.4	Graphs	Graphs
Cyprus	Low	No activity	Stable	-	-	0.0	-*	-*	Graphs	Graphs
Czech Republic	Medium	Local	Decreasing	12	B	8.3	68.3	1008.2	Graphs	Graphs
Denmark	Low	Sporadic	Decreasing	3	B	100.0	45.3	-	Graphs	Graphs
Estonia	Low	Widespread	Decreasing	22	A	31.8	13.2	406.1	Graphs	Graphs
Finland	Low	Regional	Decreasing	10	A	20.0	-	-	Graphs	Graphs
France	Low	Sporadic	Stable	81	None	22.2	-	1279.5	Graphs	Graphs
Germany	Medium	Regional	Decreasing	90	B	42.2	-	1162.8	Graphs	Graphs
Greece	Low	Sporadic	Decreasing	11	A(H1N1) pdm09	54.5	160.1	-	Graphs	Graphs
Hungary	Low	Sporadic	Decreasing	12	A & B	41.7	63.5	-	Graphs	Graphs
Iceland	Low	Regional	Stable	0	-	0.0	19.7	-	Graphs	Graphs
Ireland	Low	Local	Decreasing	8	A(H3)	25.0	15.3	-	Graphs	Graphs
Italy	Low	Local	Decreasing	9	-	0.0	146.9	-	Graphs	Graphs
Latvia	Medium	Widespread	Decreasing	0	B	0.0	140.2	986.7	Graphs	Graphs
Lithuania	Low	Local	Decreasing	15	B	86.7	37.4	622.1	Graphs	Graphs
Luxembourg	Low	Widespread	Decreasing	2	None	50.0	-*	-*	Graphs	Graphs
Malta	Low	Local	Decreasing	-	-	0.0	-*	-*	Graphs	Graphs
Netherlands	Medium	Widespread	Decreasing	18	B	38.9	52.4	-	Graphs	Graphs
Norway	Low	Local	Decreasing	4	B	75.0	31.2	-	Graphs	Graphs
Poland	Low	No activity	Decreasing	9	None	33.3	217.6	-	Graphs	Graphs
Portugal	Low	Sporadic	Stable	-	-	0.0	30.2	-	Graphs	Graphs
Romania	Medium	Regional	Decreasing	6	B	50.0	6.6	716.9	Graphs	Graphs
Slovakia	Low	Sporadic	Decreasing	5	None	60.0	131.6	1400.6	Graphs	Graphs
Slovenia	Low	Local	Decreasing	15	B	73.3	8.5	1026.7	Graphs	Graphs
Spain	Low	Sporadic	Decreasing	60	B	35.0	25.2	-	Graphs	Graphs
Sweden	Medium	Widespread	Decreasing	30	None	20.0	5.7	-	Graphs	Graphs
UK - England	Low	Regional	Stable	38	A	7.9	6.2	299.4	Graphs	Graphs
UK - Northern Ireland	Low	Local	Decreasing	1	A	100.0	25.3	264.2	Graphs	Graphs
UK - Scotland	Low	Local	Stable	17	A & B	17.6	14.9	466.7	Graphs	Graphs
UK - Wales				-	-	0.0	-	-		
Europe				**499**		**35.1**				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 14/2013, 25 countries tested 499 sentinel specimens, of which 175 (35%) were positive for influenza virus, the lowest percentage observed since the peak of 61% in week 5/2013. Since week 5/2013, the number of sentinel specimens tested has decreased by a factor of five. Of the 175 viruses detected, 54 (31%) were type A and 121 (69%) type B (Tables 1–2, Figure 1).

In addition, 1 263 non-sentinel source specimens (e.g. specimens collected for diagnostic purposes in hospitals) were found to be positive for influenza virus, of which 561 (44%) were type A and 702 (56%) type B (Table 2).

Of the 14 956 influenza virus detections in sentinel specimens since week 40/2012, 7 007 (47%) were type A and 7 949 (53%) were type B viruses. Of 6 230 influenza A viruses subtyped, 3 909 (63%) were A(H1)pdm09 and 2 321 (37%) were A(H3) (Table 2, Figure 2). Of the 2 845 type B viruses ascribed to lineage, 2 575 (91%) were Yamagata and 270 (9%) Victoria (Table 2).

Of the 2 003 antigenic characterisations of influenza A viruses reported for sentinel and non-sentinel specimens since week 40/2012, 1 274 (64%) have been characterised as A/Victoria/361/2011(H3N2)-like and 713 (36%) as A(H1)pdm09 A/California/7/2009 (H1N1)-like. Of the 2 076 antigenic characterisations of influenza B viruses reported, 1 081 (52%) have been characterised as B/Estonia/55669/2011-like (B/Yamagata/16/88-lineage) and 438 (21%) as B/Wisconsin/1/2010-like (Table 3).

Since week 40/2012, 1 482 genetic characterisations of influenza viruses were reported for sentinel and non-sentinel specimens. Of the 406 A(H1)pdm09 viruses characterised, 307 (76%) belonged to genetic group 6 represented by A/St Petersburg/27/2011. Of the 330 A(H3) viruses characterised, 252 (76%) 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 1 102 viruses have been tested for antiviral susceptibility, as reported by Denmark, Germany, Greece, the Netherlands, Norway, Portugal, Romania, Spain, Sweden and the UK. Eight A(H1N1)pdm09 viruses tested for neuraminidase inhibitor susceptibility showed the NA-H275Y amino acid substitution associated with highly reduced inhibition by oseltamivir.

These specimens were taken from two immunocompromised oseltamivir-treated hospitalised patients in the Netherlands, two hospitalised oseltamivir-treated patients in Germany, one in Denmark, one in Sweden and from two untreated outpatients with no epidemiological link to 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. None of the remaining 483 A(H1N1)pdm09 viruses, 258 A(H3N2) and 339 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 14/2013, 19 countries reported 246 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 40/2012–14/2013

Virus type/subtype	Current period Sentinel	Current period Non-sentinel	Season Sentinel	Season Non-sentinel
Influenza A	54	561	7007	32800
A(H1)pdm09	16	120	3909	11976
A(H3)	21	116	2321	4761
A(sub-type unknown)	17	325	777	16063
Influenza B	121	702	7949	19735
B(Vic) lineage	5	7	270	165
B(Yam) lineage	51	54	2575	2016
Unknown lineage	65	641	5104	17554
Total influenza	**175**	**1263**	**14956**	**52535**

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

Figure 1. Proportion of sentinel specimens positive for influenza virus, weeks 40/2012–14/2013

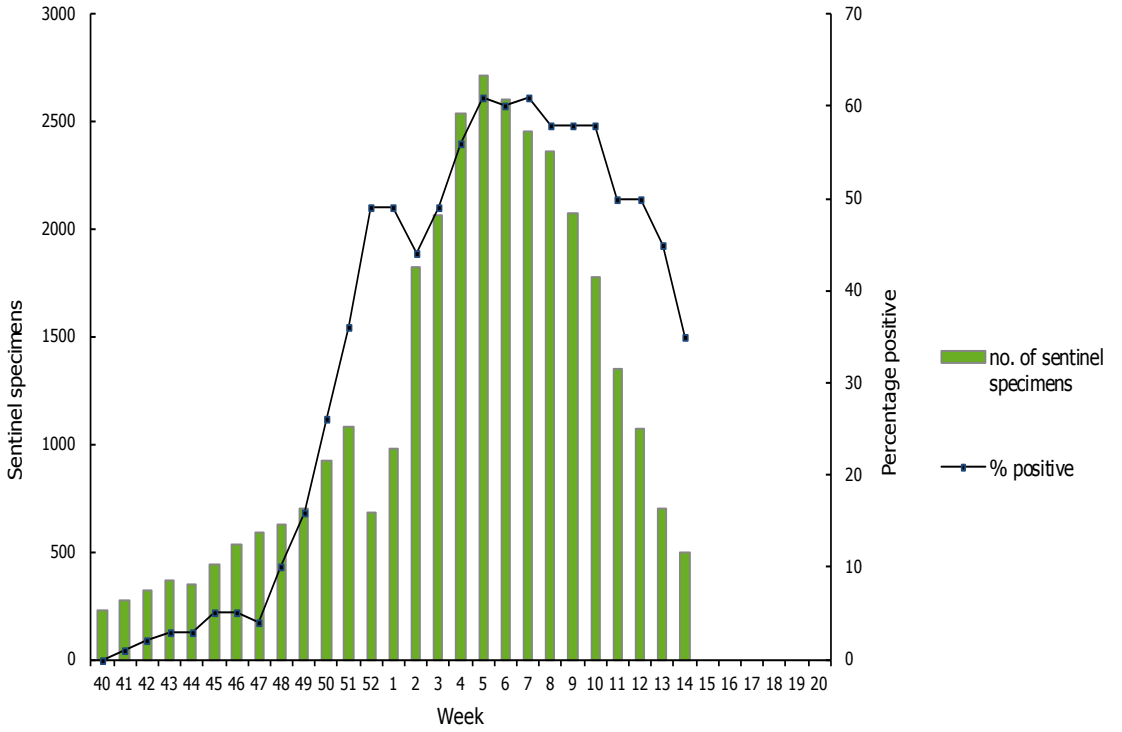


Figure 2. Number of sentinel specimens positive for influenza virus, by type, subtype and by week of report, weeks 40/2012–14/2013

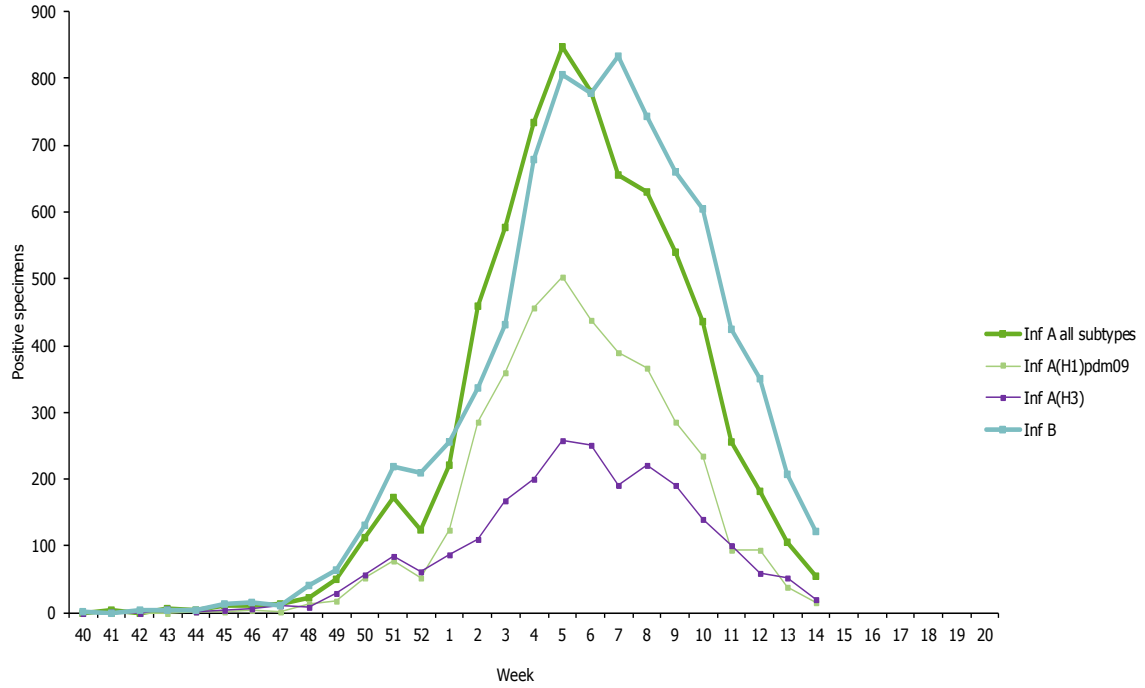


Figure 3. Number of non-sentinel specimens positive for influenza virus by type, subtype and week of report, weeks 40/2012–14/2013

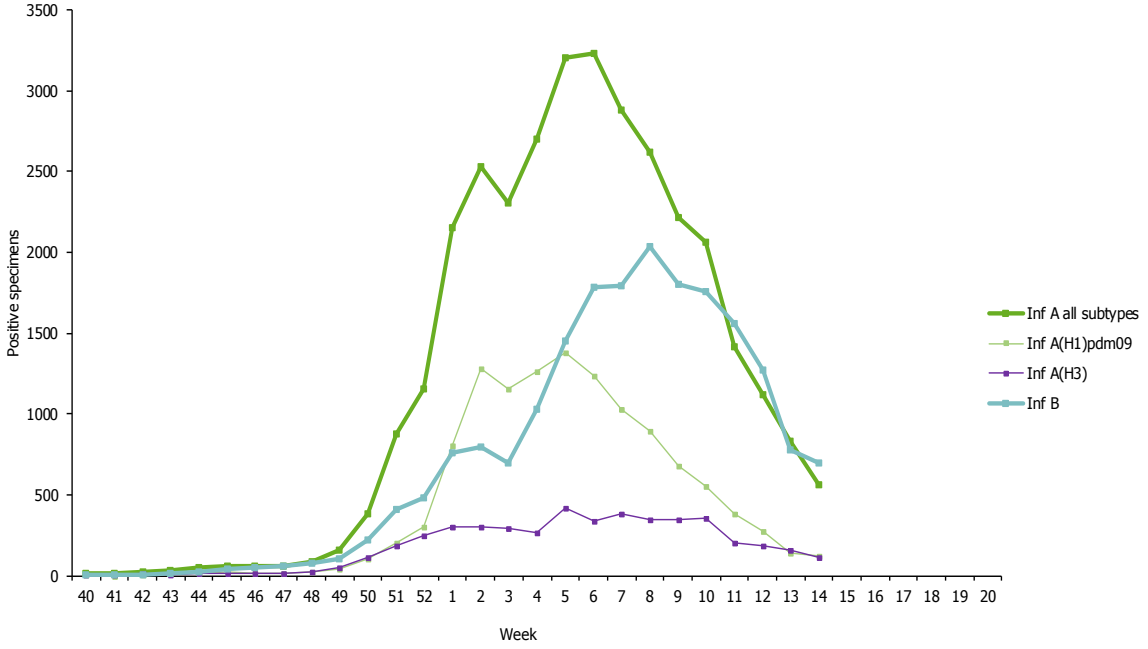


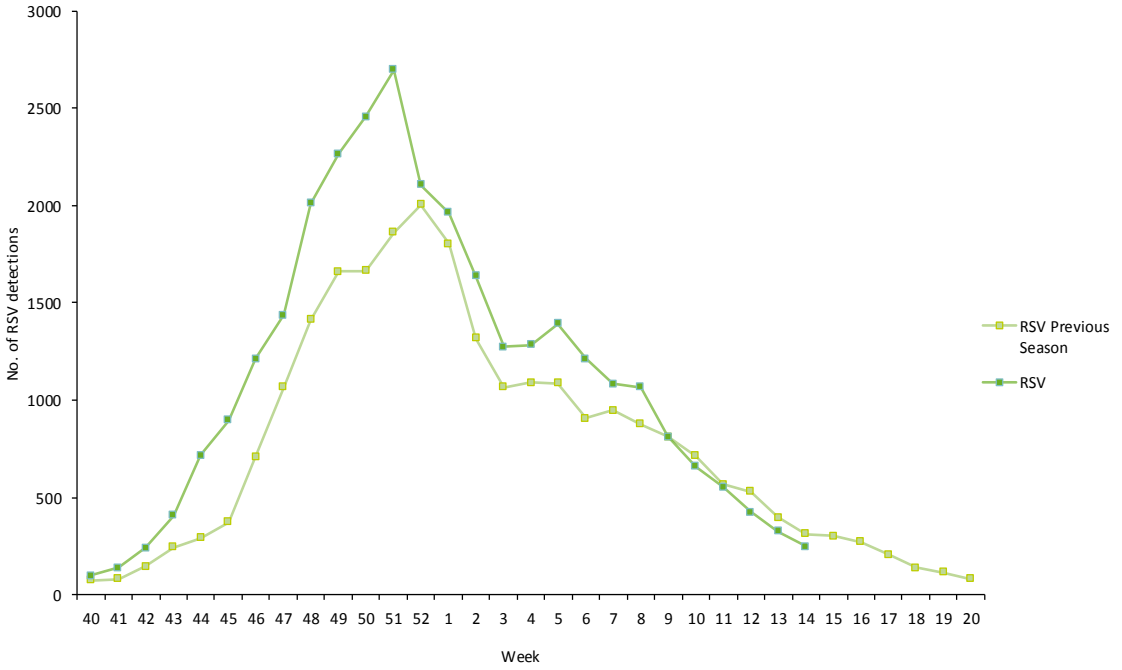
Table 3. Results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates, weeks 40/2012–14/2013

Antigenic group	Number of viruses
A(H1)pdm09 A/California/7/2009 (H1N1)-like	713
A(H1)pdm09 not attributed to category	10
A(H3) A/Perth/16/2009 (H3N2)-like	2
A(H3) A/Victoria/361/2011 (H3N2)-like	1274
A(H3) not attributed to category	4
B/Brisbane/60/2008-like (B/Victoria/2/87 lineage)	237
B(Vic) lineage not attributed to category	4
B/Estonia/55669/2011-like (B/Yamagata/16/88-lineage)	1080
B/Florida/4/2006-like (B/Yamagata/16/88 lineage)	23
B/Wisconsin/1/2010-like (B/Yamagata/16/88-lineage)	438
B/Bangladesh/3333/2007-like (B/Yamagata/16/88 lineage)	251
B(Yam) lineage not attributed to category	43
Total	**4079**

Table 4. Results of genetic characterisations of sentinel and non-sentinel influenza virus isolates, weeks 40/2012–14/2013

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	307
A(H1)pdm09 group 7 representative A/St Petersburg/100/2011	79
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	252
B(Vic) lineage - clade representative B/Brisbane/60/2008	128
B(Yam) lineage - clade repr. B/Bangladesh/3333/2007	274
B(Yam)-lineage clade repr. B/Wisconsin/1/2010	125
B(Yam)-lineage clade repr. B/Estonia/55669/2011	212
B(Yam)-lineage clade representative B/Brisbane/3/2007	7
Total	**1482**

Figure 4. Respiratory syncytial virus (RSV) detections, sentinel and non-sentinel, weeks 40/2012–14/2013



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 14/2013, 29 hospitalised, laboratory-confirmed influenza cases were reported by Belgium, France, Ireland, Romania, Spain and Sweden, including one fatality. Twenty-three cases tested positive for influenza A virus and six for influenza B virus (Table 5).

Of the 3 017 hospitalised laboratory-confirmed influenza cases reported since week 40/2012, 1 789 (59%) were related to influenza type A and 1 228 (41%) to type B. Of 1 116 subtyped influenza viruses, 768 (69%) were A(H1)pdm09 and 348 (31%) A(H3) (Table 5).

Of the 3 017 hospitalised laboratory-confirmed influenza cases reported since week 40/2012, 206 had a fatal outcome (Table 6). Of 136 fatal cases with known vaccination status, 19 (14%) had received the seasonal influenza vaccine.

Table 5. Number of hospitalised laboratory-confirmed influenza cases and fatalities by influenza type and subtype, week 14/2013 and cumulative for the season

Pathogen	Number of cases during current week	Cumulative number of cases since the start of the season	Cumulative number of fatal cases since the start of the season
Influenza A	23	1789	139
A(H1)pdm09	5	768	74
A(H3)	6	348	18
A(sub-typing not performed)	12	673	47
Influenza B	6	1228	67
Total	**29**	**3017**	**206**

Table 6. Cumulative number of hospitalised laboratory-confirmed influenza cases, weeks 40/2012–14/2013

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	389		10		
France	736		123		
Ireland	369		3		
Romania	106	1.82	20	0.34	5813728
Slovakia	46	0.85	4	0.07	5408148
Spain	447		40		
Sweden	114		6		
United Kingdom	810	1.37			59255492
Total	**3017**		**206**		

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). They are 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 14/2013 data, based on 12 countries or regions, showed a sustained peak of excess mortality among people aged 65 years or above, starting in week 1/2013. Although it seems to have ended, it may still be ongoing. Cumulative winter excess mortality among older people (cumulated from week 40/2012 to week 13/2013) showed excess mortality levels comparable to those of the 2011/2012 winter season.

No excess mortality in younger age groups has been detected so far this season.

Excess mortality levels in the most recent weeks are difficult to interpret because adjustment for delayed registrations may be imprecise. Further, results of pooled analysis may vary, depending on which countries are included in the weekly analysis.

Individual country analysis showed a diverse temporal pattern of all-cause mortality in people aged 65 years and above. While in some countries mortality increased at the end of 2012 (Denmark, Ireland, Sweden, UK (England and Scotland)), the increases observed in other countries started in 2013 (Belgium, France, Ireland and the Netherlands). Meanwhile Finland, Germany (Berlin), Greece, Hungary, Portugal and Spain have had only very moderate or no mortality increases so far (to around 2 z-scores above the baseline).

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