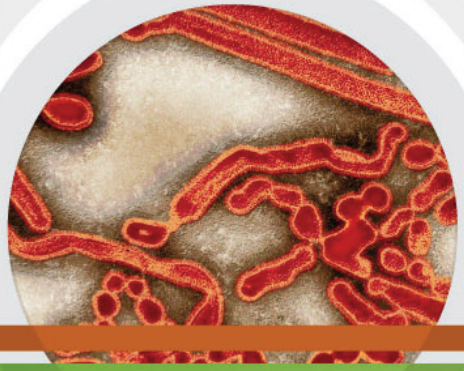


SURVEILLANCE REPORT

Weekly influenza surveillance overview

1 March 2013

Main surveillance developments in week 8/2013 (18–24 Feb 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 but active influenza transmission began around week 49/2012, approximately six weeks earlier than in the 2011/2012 season.

- 19 of 28 countries reporting indicated concomitantly high/medium-intensity transmission and wide geographic spread. Only six countries reported increasing trends compared to eleven in week 7. Fifteen countries have been reporting decreasing or stable trends for at least two consecutive weeks.
- The proportion of influenza virus-positive specimens from sentinel sites remained high (50%), but it has decreased from the peak (~60%) observed around weeks 5 to 7/2013.
- Since week 40/2012, an even distribution of influenza virus types has been observed, 50% each for type A and type B viruses. After a sustained increase between weeks 2 and 7/2013, the proportion of A(H1)pdm09 has remained at around 60% of A viruses with subtyping information.
- 111 hospitalised laboratory-confirmed influenza cases were reported by six countries (Belgium, France, Ireland, Romania, Slovakia, and Spain) with an even distribution of influenza type A and type B viruses.
- In February 2013, ECDC published its annual risk assessment for seasonal influenza 2012-13 based on data up to week 3/2013.

Influenza activity remained substantial in week 8/2013 across Europe but an increasing number of countries reported indications of declining transmission.

Sentinel surveillance of influenza-like illness (ILI)/acute respiratory infection (ARI): Nineteen countries reported concomitantly high/medium-intensity transmission and wide geographic spread. For more information, **click here**.

Virological surveillance: Twenty-five countries tested 2 103 sentinel specimens, of which 1 054 (50%) were positive for influenza virus. For more information, **click here**.

Hospital surveillance of influenza laboratory-confirmed cases: A total of 111 hospitalised laboratory-confirmed influenza cases were reported, with five fatalities. For more information, **click here**.

Sentinel surveillance (ILI/ARI)

Weekly analysis – epidemiology

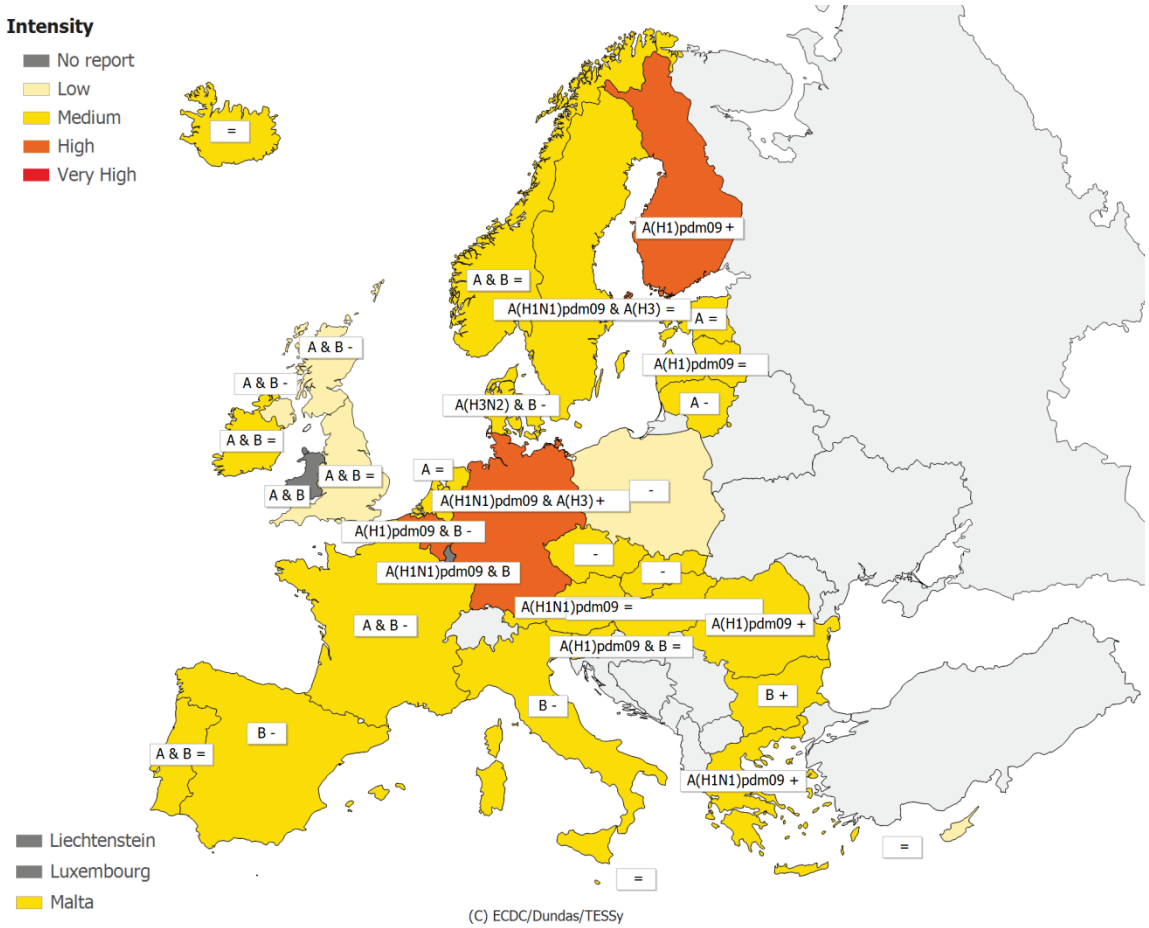
For week 8/2013, 28 countries reported clinical data. Of these, Belgium, Finland, and Germany reported high intensity, while 22 countries reported medium intensity and Cyprus, Poland and the UK reported low intensity (Table 1, Map 1). In most countries, the situation has remained unchanged since week 5/2013.

The geographic pattern of influenza activity was reported as widespread by 19 countries (all of them reporting medium or high intensity), and regional or local by seven. Only Cyprus and Poland reported no activity (Table 1, Map 2).

Six countries, Bulgaria, Finland, Germany, Greece, Hungary and Romania, reported increasing trends (Table 1, Map 2), compared to 11 of 29 countries in week 7/2013. Stable trends were reported by 13 countries and nine countries reported decreasing trends. Fifteen countries have been reporting decreasing or stable trends for at least two consecutive weeks. Slovakia and Spain have reported decreasing trends for the first time since the beginning of influenza transmission this season.

Overall, the situation reported for week 8/2013 suggests that the declining trend which started in week 5/2013 is continuing with additional countries reporting decreasing activity.

Map 1. Intensity for week 8/2013



(C) ECDC/Dundas/TESSy

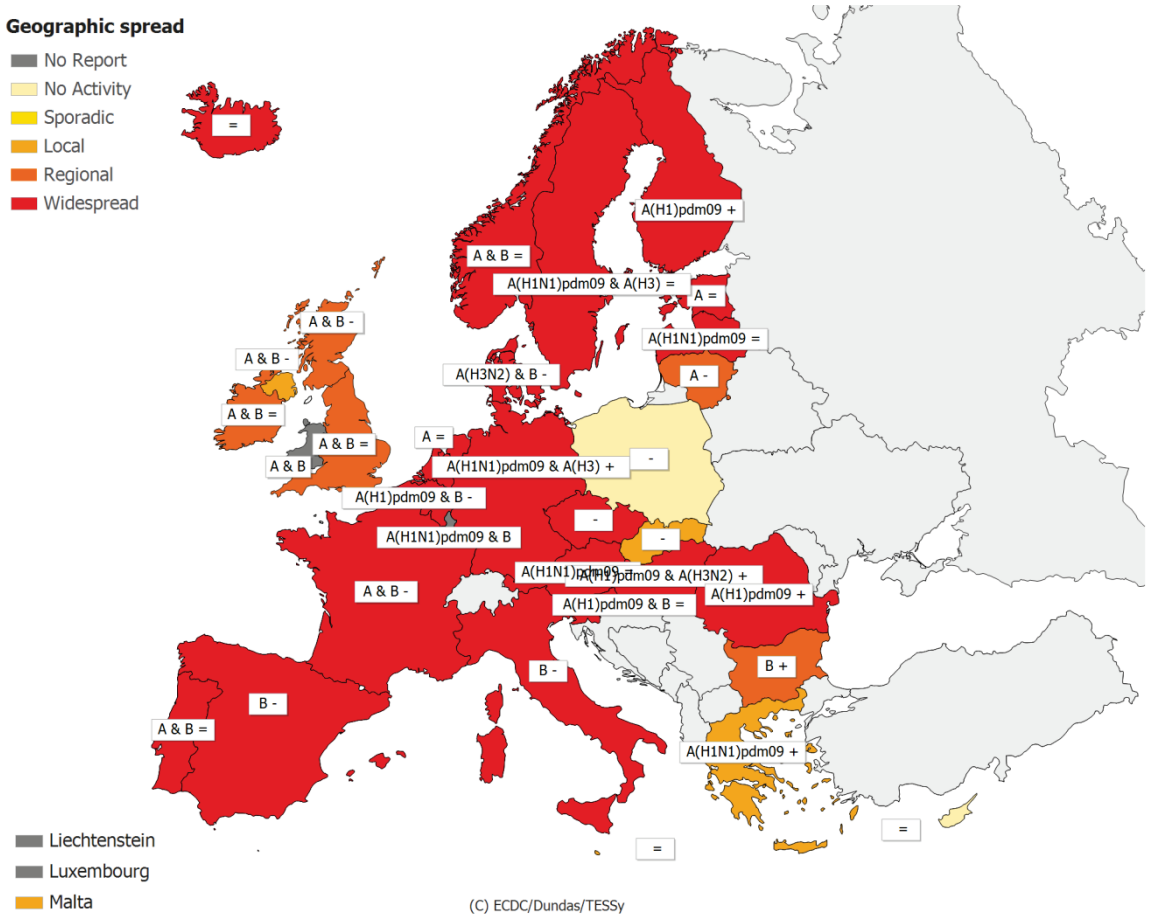
* A type/subtype is reported as dominant when at least ten samples have been detected as influenza positive in the country and of those > 40 % are positive for the type/subtype.

Legend:

No report	Intensity level was not reported
Low	No influenza activity or influenza at baseline levels
Medium	Usual levels of influenza activity
High	Higher than usual levels of influenza activity
Very high	Particularly severe levels of influenza activity

+	Increasing clinical activity
-	Decreasing clinical activity
=	Stable clinical activity
A	Type A
A & B	Type A and B
A(H1)pdm09	Type A, Subtype (H1)pdm09
A(H1)pdm09 & A(H3N2)	Type A, Subtype (H1)pdm09 and H3N2
A(H1)pdm09 & B	Type B and Type A, Subtype (H1)pdm09
A(H1N1)pdm09	Type A, Subtype (H1N1)pdm09

Map 2. Geographic spread for week 8/2013



(C) ECDC/Dundas/TESSy

* 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(H1)pdm09	Type A, Subtype (H1)pdm09
A(H1)pdm09 & A(H3N2)	Type A, Subtype (H1)pdm09 and H3N2
A(H1)pdm09 & B	Type B and Type A, Subtype (H1)pdm09
A(H1N1)pdm09	Type A, Subtype (H1N1)pdm09
A(H1N1)pdm09 & A(H3)	Type A, Subtype (H1N1)pdm09 and H3
A(H1N1)pdm09 & B	Type B and Type A, Subtype (H1N1)pdm09
A(H3N2) & B	Type B and Type A, Subtype H3N2
B	Type B

Table 1. Epidemiological and virological overview by country, week 8/2013

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	Medium	Widespread	Stable	68	A(H1N1)pdm09	66.2	1575.7	-	Graphs	Graphs
Belgium	High	Widespread	Decreasing	73	A(H1)pdm09 & B	60.3	745.0	2119.1	Graphs	Graphs
Bulgaria	Medium	Regional	Increasing	25	B	20.0	-	1317.7	Graphs	Graphs
Cyprus	Low	No activity	Stable	-	-	0.0	-*	-*	Graphs	Graphs
Czech Republic	Medium	Widespread	Decreasing	-	-	0.0	165.7	1255.3	Graphs	Graphs
Denmark	Medium	Widespread	Decreasing	37	A(H3N2) & B	54.1	165.2	-	Graphs	Graphs
Estonia	Medium	Widespread	Stable	56	A	32.1	28.4	695.5	Graphs	Graphs
Finland	High	Widespread	Increasing	48	A(H1)pdm09	60.4	-	-	Graphs	Graphs
France	Medium	Widespread	Decreasing	225	A & B	48.9	-	2661.7	Graphs	Graphs
Germany	High	Widespread	Increasing	301	A(H1N1)pdm09 & A(H3)	62.1	-	2660.6	Graphs	Graphs
Greece	Medium	Local	Increasing	33	A(H1N1)pdm09	51.5	180.2	-	Graphs	Graphs
Hungary	Medium	Widespread	Increasing	65	A(H1)pdm09 & A(H3N2)	44.6	405.4	-	Graphs	Graphs
Iceland	Medium	Widespread	Stable	0	-	0.0	93.2	-	Graphs	Graphs
Ireland	Medium	Regional	Stable	34	A & B	64.7	40.0	-	Graphs	Graphs
Italy	Medium	Widespread	Decreasing	99	B	62.6	910.3	-	Graphs	Graphs
Latvia	Medium	Widespread	Stable	11	A(H1N1)pdm09	72.7	452.6	1282.4	Graphs	Graphs
Lithuania	Medium	Regional	Decreasing	25	A	44.0	99.3	619.5	Graphs	Graphs
Luxembourg				59	A(H1N1)pdm09 & B	64.4	-*	-*	Graphs	Graphs
Malta	Medium	Local	Stable	-	-	0.0	-*	-*	Graphs	Graphs
Netherlands	Medium	Widespread	Stable	39	A	48.7	132.4	-	Graphs	Graphs
Norway	Medium	Widespread	Stable	3	A & B	100.0	132.7	-	Graphs	Graphs
Poland	Low	No activity	Decreasing	53	None	24.5	299.8	-	Graphs	Graphs
Portugal	Medium	Widespread	Stable	14	A & B	35.7	55.2	-	Graphs	Graphs
Romania	Medium	Widespread	Increasing	16	A(H1)pdm09	31.3	5.3	979.2	Graphs	Graphs
Slovakia	Medium	Local	Decreasing	27	None	55.6	593.4	2783.9	Graphs	Graphs
Slovenia	Medium	Widespread	Stable	36	A(H1)pdm09 & B	75.0	131.9	1647.2	Graphs	Graphs
Spain	Medium	Widespread	Decreasing	499	B	53.1	230.5	-	Graphs	Graphs
Sweden	Medium	Widespread	Stable	102	A(H1N1)pdm09 & A(H3)	27.5	24.1	-	Graphs	Graphs
UK - England	Low	Regional	Stable	103	A & B	7.8	15.3	361.8	Graphs	Graphs
UK - Northern Ireland	Low	Local	Decreasing	5	A & B	60.0	43.7	451.0	Graphs	Graphs
UK - Scotland	Low	Regional	Decreasing	40	A & B	30.0	25.2	532.7	Graphs	Graphs
UK - Wales				7	A & B	85.7	-	-	Graphs	Graphs
Europe				**2103**		**50.1**				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 8/2013, 25 countries tested 2 103 sentinel specimens, of which 1 054 (50%) were positive for influenza virus, the lowest percentage observed since the peak at 60% in week 5/2013. Of these 1 054 specimens, 511 (48%) were type A and 543 (52%) type B (Tables 1–2, Figure 1).

In addition, 3 614 non-sentinel source specimens (e.g. specimens collected for diagnostic purposes in hospitals) were found to be positive for influenza virus, of which 2 035 (56%) were type A and 1 579 (44%) type B (Table 2).

Of the 10 287 influenza virus detections in sentinel specimens since week 40/2012, 5 094 (50%) were type A, and 5 193 (50%) were type B viruses. Of 4 432 influenza A viruses subtyped, 2 898 (65%) were A(H1)pdm09 and 1 534 (35%) were A(H3) (Table 2, Figure 2). After a sustained increase since week 2/2013, the proportion of A(H1)pdm09 has remained unchanged at around 60% of A viruses with subtyping information compared to week 7. This is a very different virus distribution compared to North America where A(H3N2) viruses have predominated among subtyped viruses (See CDC Flu View and PHAC Flu Watch). Of the 935 type B viruses ascribed to lineage in Europe, 837 (90%) were Yamagata and 98 (10%) Victoria (Table 2).

Of the 1 416 antigenic characterisations of influenza A viruses reported for sentinel and non-sentinel specimens since week 40/2012, 1 024 (72%) have been characterised as A/Victoria/361/2011(H3N2)-like. Of the 972 antigenic characterisations of influenza B viruses reported, 474 (49%) have been characterised as B/Estonia/55669/2011-like (B/Yamagata/16/88-lineage) (Table 3).

Since week 40/2012, 797 genetic characterisations of influenza viruses were reported for sentinel and non-sentinel specimens. Of the 180 A(H1)pdm09 viruses characterised, 137 (76%) were A(H1)pdm09 genetic group 6 represented by A/St Petersburg/27/2011. Of the 261 A(H3) viruses characterised, 190 (73%) were A(H3) clade representative A/Victoria/208/2009, falling within genetic group 3C, represented by A/Victoria/361/2011 (Table 4).

More details on circulating viruses can be found in the December 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 of 50-60% (see I-MOVE Report).

Since week 40/2012, a total of 381 viruses have been tested for antiviral susceptibility and reported on by Denmark, Germany, Greece, the Netherlands, Norway, Portugal, Spain, Sweden and the UK. Two A(H1N1)pdm09 viruses tested for NAI susceptibility showed the H275Y amino acid substitution associated with highly reduced inhibition by oseltamivir. Both viruses were from patients who were immunocompromised and treated with oseltamivir. None of the other 157 A(H1N1)pdm09 viruses and the 119 A(H3N2) and 98 B viruses tested for NAI susceptibility showed genetic (markers) or phenotypic (IC50) evidence for (highly) reduced inhibition. Thirty-one A(H1N1)pdm09 and 14 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 8/2013, 15 countries reported 835 respiratory syncytial virus detections, continuing the decline observed since week 52/2012 (Figure 4).

Table 2. Weekly and cumulative influenza virus detections by type, subtype and surveillance system, weeks 40/2012–8/2013

Virus type/subtype	Current period Sentinel	Current period Non-sentinel	Season Sentinel	Season Non-sentinel
Influenza A	511	2035	5094	23524
A(H1)pdm09	275	692	2898	9273
A(H3)	160	207	1534	2978
A(subtype unknown)	76	1136	662	11273
Influenza B	543	1579	5193	10977
B(Vic) lineage	8	6	98	91
B(Yam) lineage	104	51	837	1036
Unknown lineage	431	1522	4258	9850
Total influenza	**1054**	**3614**	**10287**	**34501**

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 40/2012–8/2013

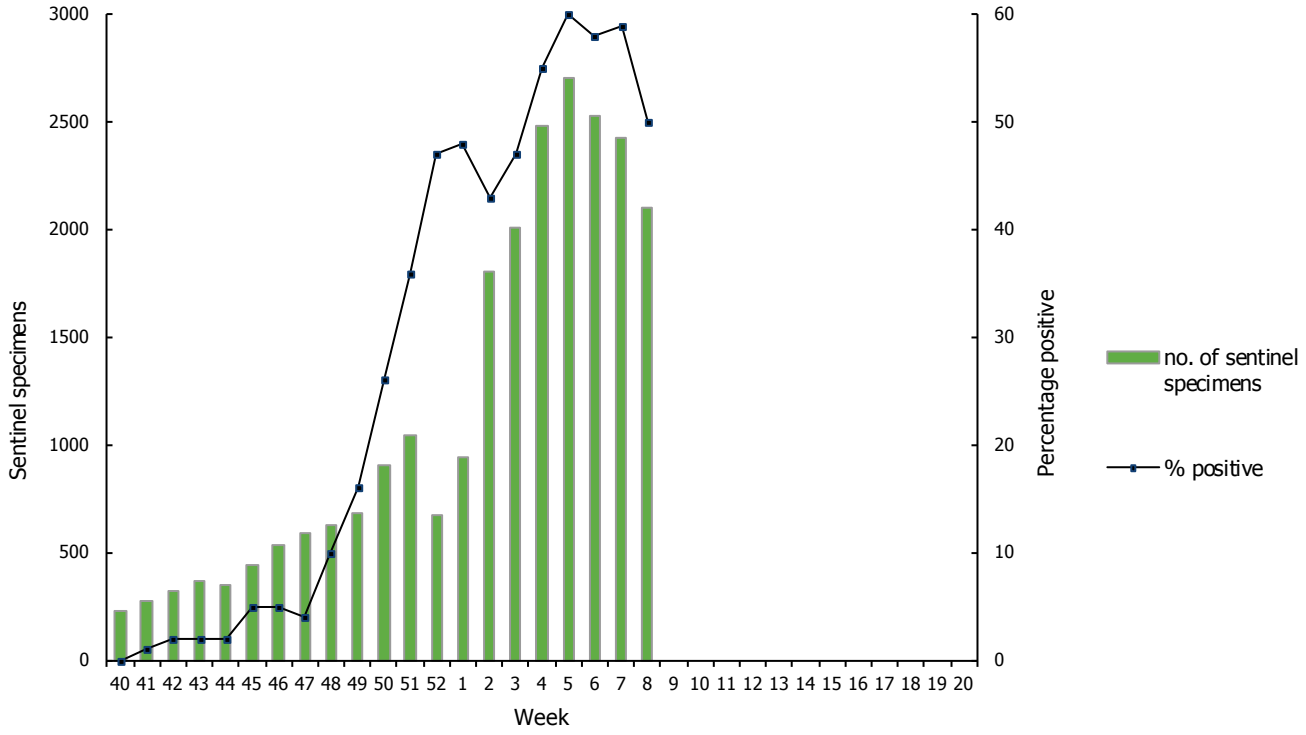


Figure 2. Number of sentinel specimens positive for influenza virus, by type, subtype and by week of report, weeks 40/2012–8/2013

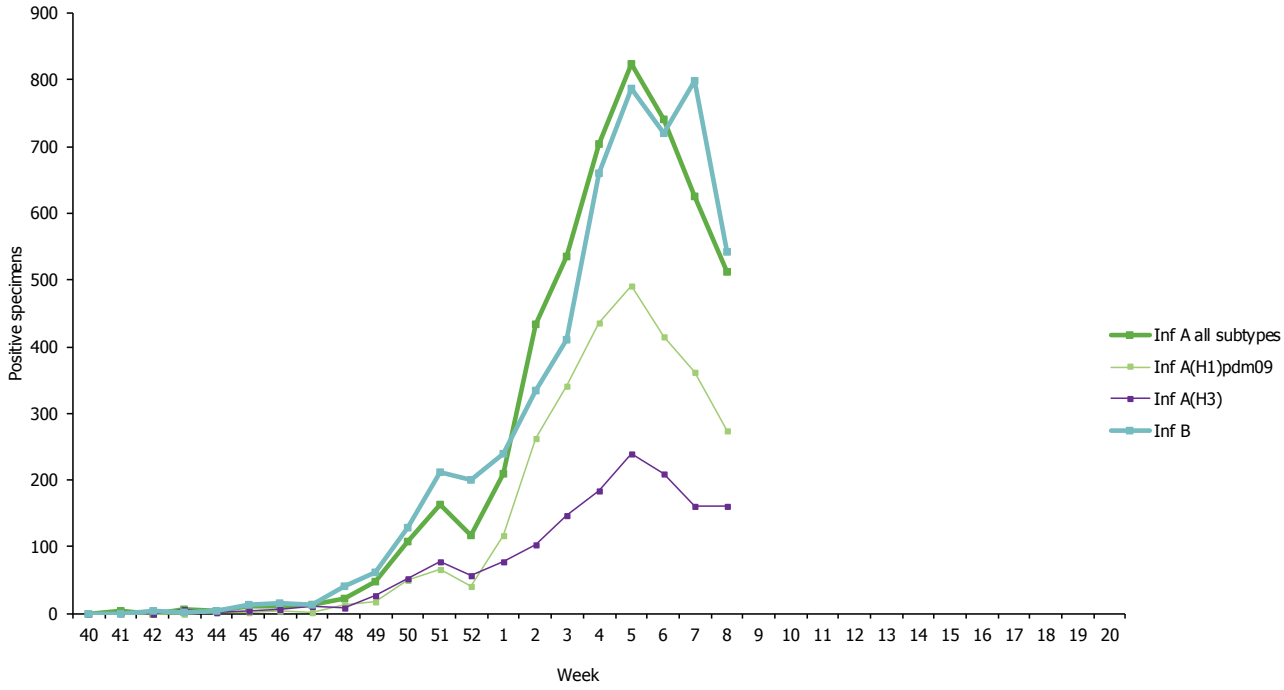


Figure 3. Number of non-sentinel specimens positive for influenza virus by type, subtype and week of report, weeks 40/2012–8/2013

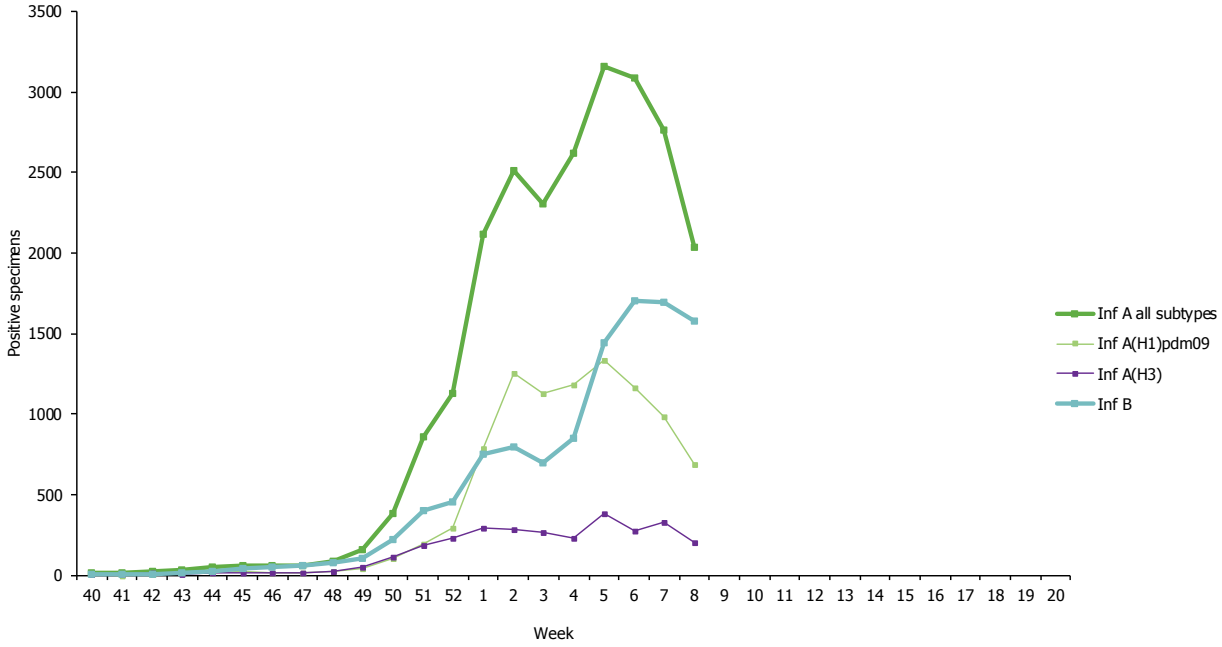


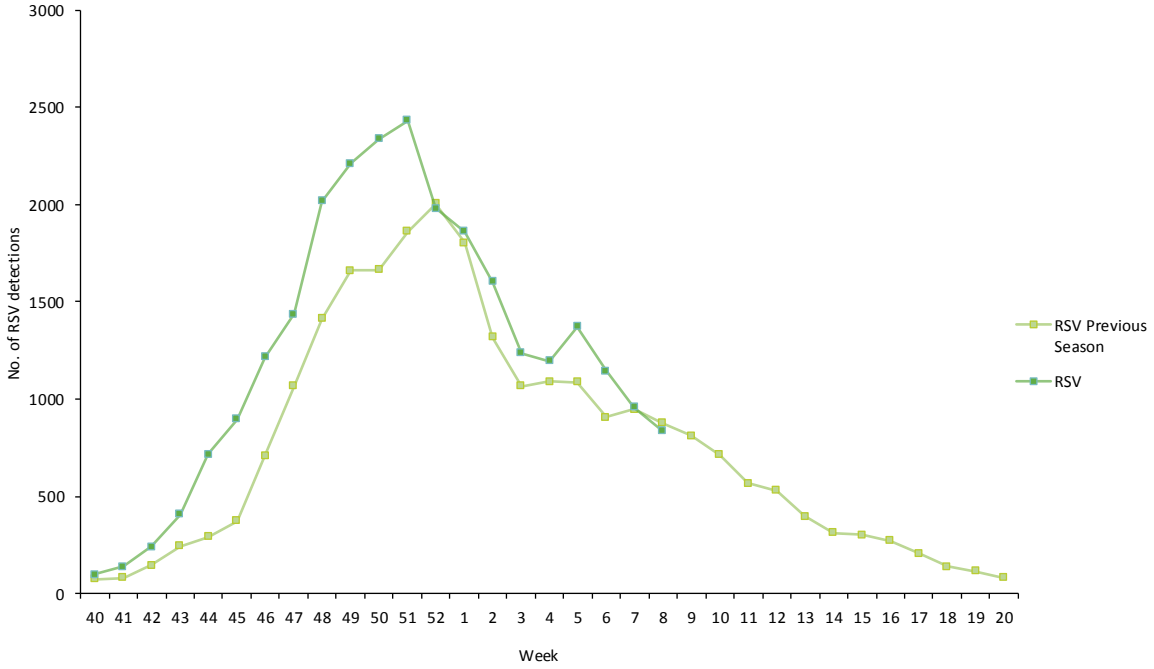
Table 3. Results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates, weeks 40/2012–8/2013

Antigenic group	Number of viruses
A(H1)pdm09 A/California/7/2009 (H1N1)-like	384
A(H1)pdm09 not attributed to category	3
A(H3) A/Perth/16/2009 (H3N2)-like	1
A(H3) A/Victoria/361/2011 (H3N2)-like	1024
A(H3) not attributed to category	4
B/Brisbane/60/2008-like (B/Victoria/2/87 lineage)	120
B(Vic) lineage not attributed to category	2
B/Estonia/55669/2011-like (B/Yamagata/16/88-lineage)	474
B/Florida/4/2006-like (B/Yamagata/16/88 lineage)	4
B/Wisconsin/1/2010-like (B/Yamagata/16/88-lineage)	234
B/Bangladesh/3333/2007-like (B/Yamagata/16/88 lineage)	128
B(Yam) lineage not attributed to category	10

Table 4. Results of genetic characterisations of sentinel and non-sentinel influenza virus isolates, weeks 40/2012–8/2013

Phylogenetic group	Number of viruses
A(H1)pdm09 group 6 representative A/St Petersburg/27/2011	137
A(H1)pdm09 group 7 representative A/St Petersburg/100/2011	37
A(H1)pdm09 not attributed to clade/group	6
A(H3) clade repr. A/Victoria/208/2009	51
A(H3) clade repr. A/Victoria/208/2009 – A/Alabama/05/2010 group 5	19
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	190
B(Vic) lineage - clade representative B/Brisbane/60/2008	69
B(Yam) lineage - clade repr. B/Bangladesh/3333/2007	95
B(Yam)-lineage clade repr. B/Wisconsin/1/2010	76
B(Yam)-lineage clade repr. B/Estonia/55669/2011	109
B(Yam)-lineage clade representative B/Brisbane/3/2007	7

Figure 4. Respiratory syncytial virus (RSV) detections, sentinel and non-sentinel, weeks 40/2012-8/2013



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

Of the 111 hospitalised laboratory-confirmed influenza cases reported by six countries (Belgium, France, Ireland, Romania, Slovakia, and Spain) for week 8/2013, 53 (48%) tested positive for influenza virus type A and 58 (52%) for type B (Table 5). Five cases with a fatal outcome were reported for week 8/2013.

Since week 40/2012, 1 705 hospitalised laboratory-confirmed influenza cases have been reported by eight countries (Table 5). In total, 917 (54%) cases were related to influenza virus type A and 788 (46%) to type B. Of 516 subtyped influenza A viruses, 354 (69%) were A(H1)pdm09 and 162 (31%) were A(H3) viruses (Table 6).

Since week 40/2012, 97 fatalities have been reported, 67 of which were reported by France where only cases admitted to intensive care are under surveillance. Of the 61 fatal cases with known vaccination status, eight had received the seasonal vaccine.

Table 5. Cumulative number of hospitalised laboratory-confirmed influenza cases, weeks 40/2012-8/2013

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	246		3		
France	494		67		
Ireland	201		1		
Romania	36	0.62	3	0.05	5813728
Slovakia	33	0.61	3	0.06	5408148
Spain	202		15		
Sweden	46		5		
United Kingdom	447	0.75			59255492
Total	**1705**		**97**		

Table 6. Number of hospitalised laboratory-confirmed influenza cases by influenza type and subtype, week 8/2013 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	53	917	60
A(H1)pdm09	19	354	32
A(H3)	9	162	6
A(subtyping not performed)	25	401	22
Influenza B	58	788	37
Total	**111**	**1705**	**97**

Information from other sources

The EUROMOMO mortality monitoring system:

Pooled analysis of week 8/2013 data, based on 15 countries or regions, showed similar increased mortality patterns to the previous week: all-cause mortality among people aged 65 and above was approximately 3 z-scores above the baseline in weeks 1–3/2013 and has, since week 4/2013, been around 4 z-scores above the baseline. No increased mortality in younger age groups has been detected so far this season. Results of pooled analysis may vary dependent on which countries are included in the weekly analysis here.

Individual country analysis showed a diverse temporal pattern of all-cause mortality in people aged 65 years and above. While in some countries mortality increases of approximately 3 z-scores above the baseline were observed at the end of 2012 (Denmark, UK (England & Scotland), Ireland, Sweden), in others, increases started later (France, the Netherlands). In some countries (Belgium, Finland), mortality increased only moderately (around 2 z-scores above the baseline), while others have not reported mortality increases so far this season (Germany (Berlin & Hesse), Hungary, Portugal, Spain). The highest and longest sustained excess mortality was seen in Denmark, where influenza activity was dominated by A(H3N2) circulation (excess mortality from week 51/2012 to week 6/2013 with peak values of 7 z-scores in week 1/2013 and 5 z-scores in week 5/2013).

The diverse mortality pattern may be explained by the variable influenza activity this season in Europe, but other factors such as extreme cold may 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.