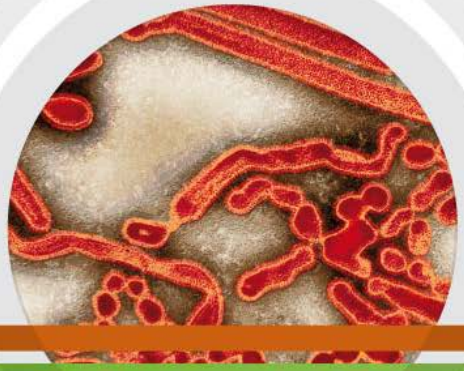


SURVEILLANCE REPORT

Weekly influenza surveillance overview

22 February 2013

Main surveillance developments in week 7/2013 (11–17 February 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.

- In week 7/2013, 19 of the 29 countries reporting indicated concomitantly high/medium-intensity transmission and wide geographic spread. Ten countries reported decreasing trends, the first time since the beginning of influenza transmission for five of them.
- In week 7/2013, the proportion of influenza-positive cases among sentinel specimens remained high (52%) but continued to decrease, as first observed in the previous week.
- Since week 40/2012, an even distribution of influenza virus types has been observed, 50% each for type A and type B viruses. Among influenza A viruses, an increasing proportion of A(H1)pdm09 over A(H3) has been reported since week 52/2012.
- For week 7/2013, 78 hospitalised laboratory-confirmed influenza cases were reported by five countries (Belgium, France, Romania, Slovakia, and Spain), 48 (62%) tested positive for influenza type A and 30 (38%) for type B.
- On 8 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 7/2013 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-six countries tested 2 184 sentinel specimens, of which 1 145 (52%) were positive for influenza virus. For more information, **click here**.

Hospital surveillance of influenza laboratory-confirmed cases: Seventy-eight hospitalised laboratory-confirmed influenza cases were reported, with two fatalities. For more information, **click here**.

Sentinel surveillance (ILI/ARI)

Weekly analysis – epidemiology

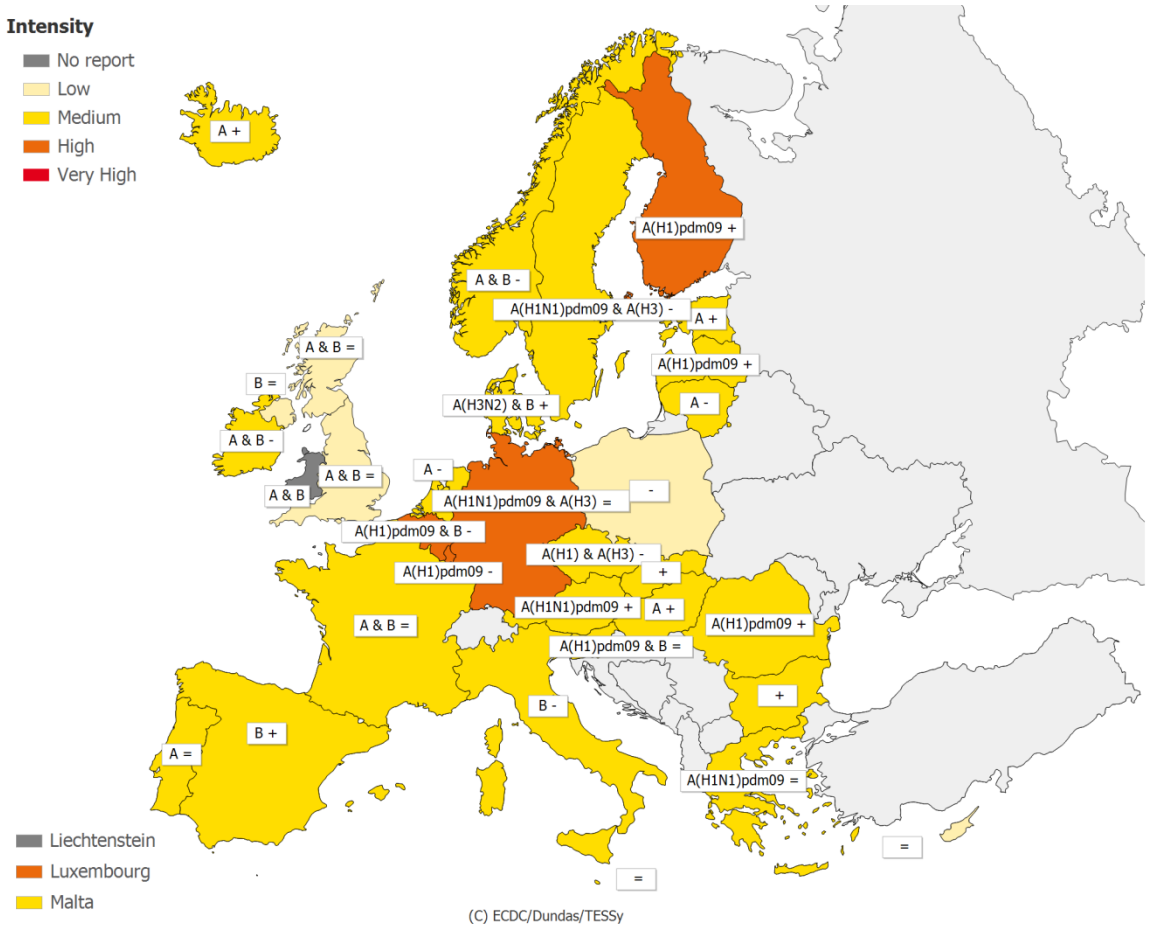
For week 7/2013, 29 countries reported clinical data. Of these, Belgium, Finland, Germany and Luxembourg reported high intensity, while 22 countries reported medium intensity and Cyprus, Poland and the UK reported low intensity (Table 1, Map 1). Finland reported high intensity for the first time this season. 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), regional or local by eight, and sporadic by Poland. Only Cyprus reported no activity (Table 1, Map 2).

Increasing trends were reported by 11 countries (Table 1, Map 2). This compared to 13 of 28 in week 6/2013. Stable trends were reported by eight countries and ten countries reported decreasing trends. Ireland, the Netherlands and Poland have been reporting decreasing trends for at least two consecutive weeks. Belgium, the Czech Republic, Italy, Lithuania, Luxembourg and Sweden have reported decreasing trends for the first time since the beginning of influenza transmission this season.

Overall, the situation reported for week 7/2013 suggests that additional countries are passing or have recently passed their peak, although influenza activity remains substantial.

Map 1. Intensity for week 7/2013



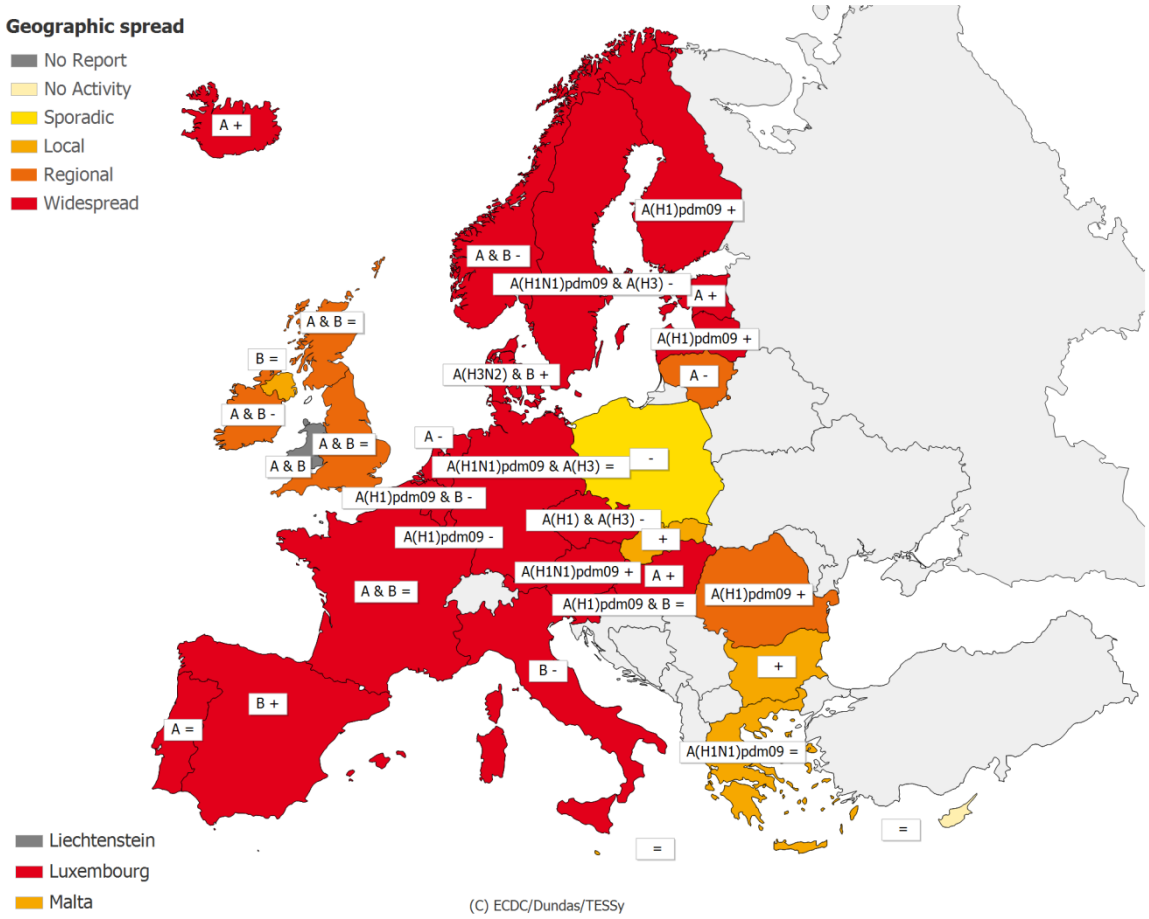
(C) ECDC/Dundas/TESSy

* 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	**+**	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(H1) & A(H3)	Type A, Subtype H1 and H3
		A(H1)pdm09	Type A, Subtype (H1)pdm09
		A(H1)pdm09 & B	Type B and Type A, Subtype (H1)pdm09
		A(H1N1)pdm 09	Type A, Subtype (H1N1)pdm09

Map 2. Geographic spread for week 7/2013



(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) & A(H3)	Type A, Subtype H1 and H3
A(H1)pdm09	Type A, Subtype (H1)pdm09
A(H1)pdm09 & B	Type B and Type A, Subtype (H1)pdm09
A(H1N1)pdm 09	Type A, Subtype (H1N1)pdm09
A(H1N1)pdm 09 & A(H3)	Type A, Subtype (H1N1)pdm09 and H3
A(H3N2) & B	Type B and Type A, Subtype H3N2
B	Type B

Table 1. Epidemiological and virological overview by country, week 7/2013

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	Increasing	78	A(H1N1)pdm09	61.5	1657.6	-	Graphs	Graphs
Belgium	High	Widespread	Decreasing	93	A(H1)pdm09 & B	68.8	837.9	2096.1	Graphs	Graphs
Bulgaria	Medium	Local	Increasing	45	None	37.8	-	1279.5	Graphs	Graphs
Cyprus	Low	No activity	Stable	-	-	0.0	-*	-*	Graphs	Graphs
Czech Republic	Medium	Widespread	Decreasing	23	A(H1) & A(H3)	78.3	206.0	1349.4	Graphs	Graphs
Denmark	Medium	Widespread	Increasing	55	A(H3N2) & B	58.2	242.2	-	Graphs	Graphs
Estonia	Medium	Widespread	Increasing	50	A	54.0	30.0	704.5	Graphs	Graphs
Finland	High	Widespread	Increasing	59	A(H1)pdm09	55.9	-	-	Graphs	Graphs
France	Medium	Widespread	Stable	217	A & B	53.9	-	3203.5	Graphs	Graphs
Germany	High	Widespread	Stable	274	A(H1N1)pdm09 & A(H3)	63.1	-	2266.5	Graphs	Graphs
Greece	Medium	Local	Stable	20	A(H1N1)pdm09	30.0	176.6	-	Graphs	Graphs
Hungary	Medium	Widespread	Increasing	69	A	36.2	322.7	-	Graphs	Graphs
Iceland	Medium	Widespread	Increasing	0	A	0.0	89.2	-	Graphs	Graphs
Ireland	Medium	Regional	Decreasing	34	A & B	32.4	41.2	-	Graphs	Graphs
Italy	Medium	Widespread	Decreasing	155	B	65.8	920.4	-	Graphs	Graphs
Latvia	Medium	Widespread	Increasing	9	A(H1)pdm09	77.8	454.1	1459.3	Graphs	Graphs
Lithuania	Medium	Regional	Decreasing	45	A	55.6	181.8	766.8	Graphs	Graphs
Luxembourg	High	Widespread	Decreasing	53	A(H1)pdm09	52.8	-*	-*	Graphs	Graphs
Malta	Medium	Local	Stable	-	-	0.0	-*	-*	Graphs	Graphs
Netherlands	Medium	Widespread	Decreasing	39	A	69.2	118.4	-	Graphs	Graphs
Norway	Medium	Widespread	Decreasing	8	A & B	62.5	145.4	-	Graphs	Graphs
Poland	Low	Sporadic	Decreasing	37	None	16.2	284.0	-	Graphs	Graphs
Portugal	Medium	Widespread	Stable	24	A	50.0	45.4	-	Graphs	Graphs
Romania	Medium	Regional	Increasing	7	A(H1)pdm09	28.6	6.8	929.5	Graphs	Graphs
Slovakia	Medium	Local	Increasing	22	None	59.1	614.0	2964.1	Graphs	Graphs
Slovenia	Medium	Widespread	Stable	37	A(H1)pdm09 & B	81.1	61.3	1540.4	Graphs	Graphs
Spain	Medium	Widespread	Increasing	451	B	54.5	232.3	-	Graphs	Graphs
Sweden	Medium	Widespread	Decreasing	124	A(H1N1)pdm09 & A(H3)	27.4	19.4	-	Graphs	Graphs
UK - England	Low	Regional	Stable	107	A & B	9.3	22.3	362.4	Graphs	Graphs
UK - Northern Ireland	Low	Local	Stable	6	B	66.7	58.4	474.7	Graphs	Graphs
UK - Scotland	Low	Regional	Stable	39	A & B	53.8	39.9	545.4	Graphs	Graphs
UK - Wales				4	A & B	50.0	-	-	Graphs	Graphs
Europe				**2184**		**52.4**				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 7/2013, 26 countries tested 2 184 sentinel specimens, of which 1 145 (52%) were positive for influenza virus, a percentage that has decreased for the second consecutive week after peaking at 59% in week 5/2013. Of these 1 145 specimens, 532 (46%) were type A and 613 (54%) type B (Tables 1–2, Figure 1).

In addition, 3 785 non-sentinel source specimens (e.g. specimens collected for diagnostic purposes in hospitals) were found to be positive for influenza virus, of which 2 369 (63%) were type A and 1 416 (37%) type B (Table 2).

Of the 8 908 influenza virus detections in sentinel specimens since week 40/2012, 4 477 (50%) were type A, and 4 431 (50%) were type B viruses. Of 3 875 influenza A viruses subtyped, 2 546 (66%) were A(H1)pdm09 and 1 329 (34%) were A(H3) (Table 2, Figure 2). The proportion of A(H1)pdm09 has continued to increase since week 2/2013 (52%). Of the 741 type B viruses ascribed to lineage, 656 (89%) were Yamagata and 85 (11%) Victoria (Table 2).

Of the 1 966 antigenic characterisations of influenza viruses reported for sentinel and non-sentinel specimens since week 40/2012, 885 (45%) have been characterised as A/Victoria/361/2011(H3N2)-like (Table 3).

Of the 606 genetic characterisations of influenza viruses reported for sentinel and non-sentinel specimens since week 40/2012, 185 (31%) were A(H3) clade representative A/Victoria/208/2009, of which 135 (73%) fell 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 50-60% (see I-MOVE Report).

Since week 40/2012, a total of 289 viruses have been tested for antiviral susceptibility and reported by Denmark, Germany, Greece, the Netherlands, Norway, Portugal, Spain, Sweden and the UK. One A(H1N1)pdm09 tested for neuraminidase inhibitor susceptibility showed the H275Y amino acid substitution associated with oseltamivir highly reduced inhibition. None of the other 110 A(H1N1)pdm09 viruses, the 98 A(H3N2) and 75 B viruses tested for neuraminidase inhibitors susceptibility showed genetic (markers) or phenotypic (IC_{50}) evidence for (highly) reduced inhibition. Ten 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 7/2013, 13 countries reported 864 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 40/2012–7/2013

Virus type/subtype	Current period Sentinel	Current period Non-sentinel	Season Sentinel	Season Non-sentinel
Influenza A	532	2369	4477	20970
A(H1)pdm09	294	889	2546	8446
A(H3)	123	232	1329	2662
A(sub-type unknown)	115	1248	602	9862
Influenza B	613	1416	4431	9067
B(Vic) lineage	17	1	85	82
B(Yam) lineage	89	38	656	867
Unknown lineage	507	1377	3690	8118
Total influenza	**1145**	**3785**	**8908**	**30037**

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 40/2012–7/2013

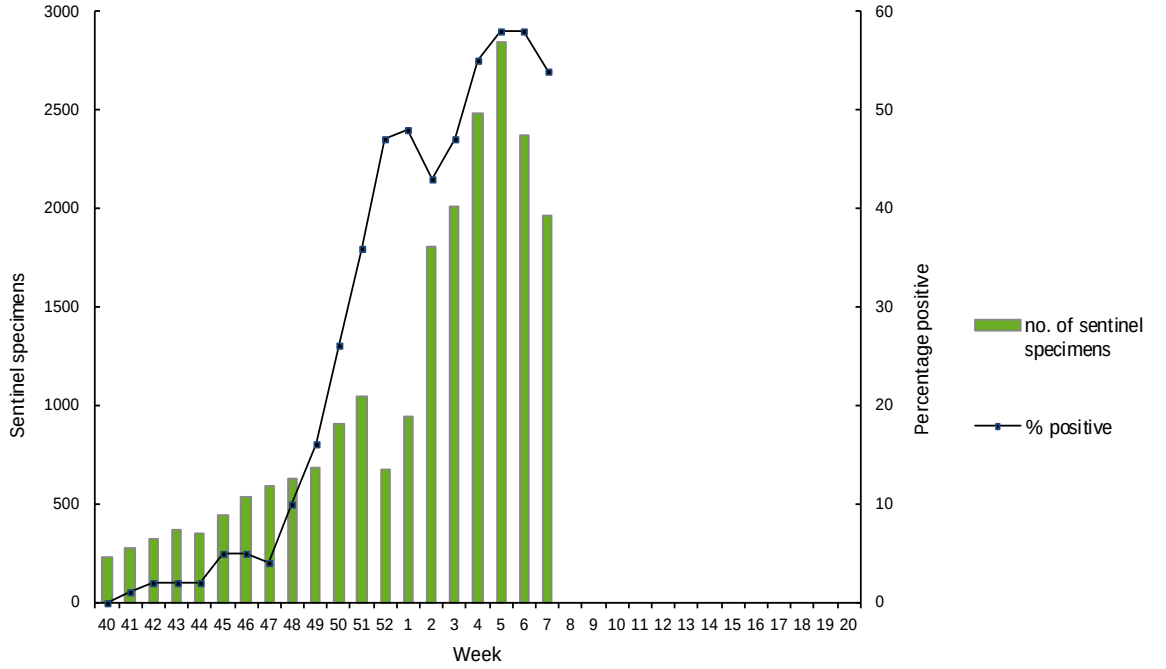


Figure 2. Number of sentinel specimens positive for influenza virus, by type, subtype and week of report, weeks 40/2012–7/2013

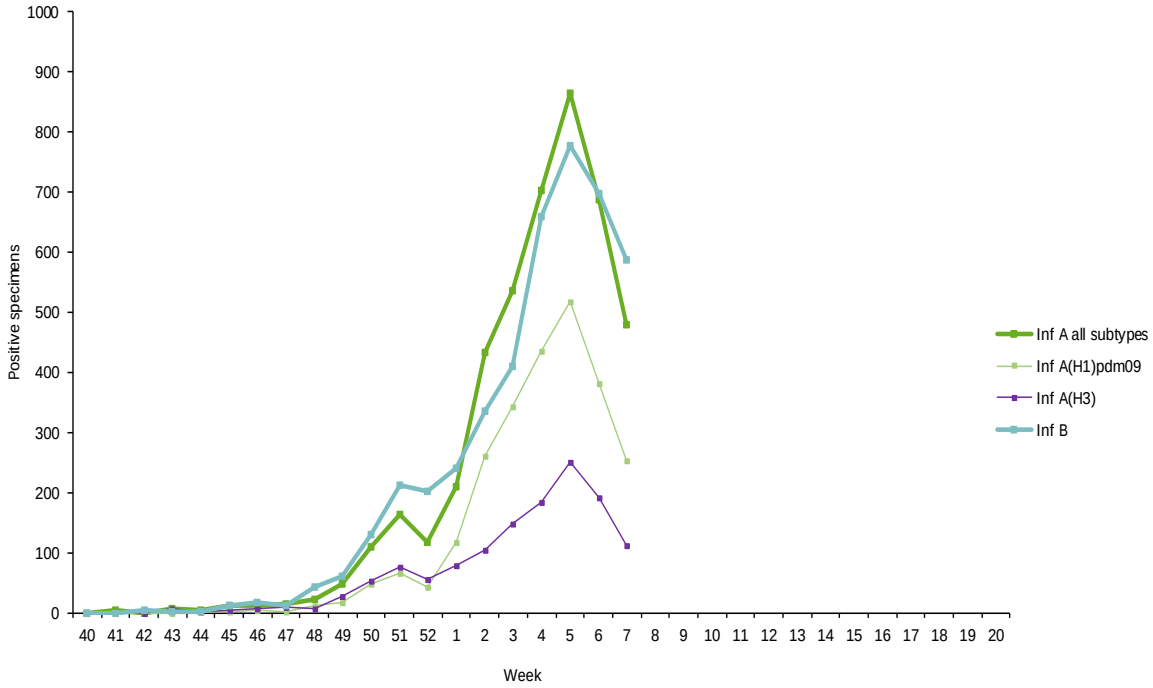


Figure 3. Number of non-sentinel specimens positive for influenza virus by type, subtype and week of report, weeks 40/2012–7/2013

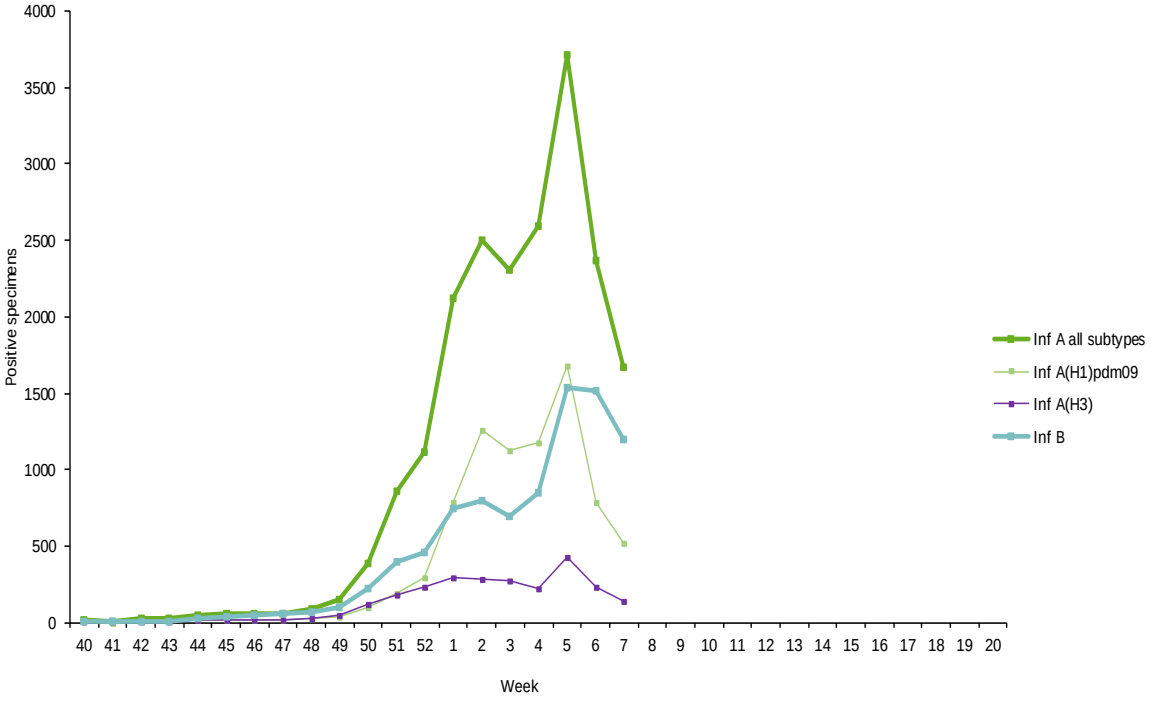


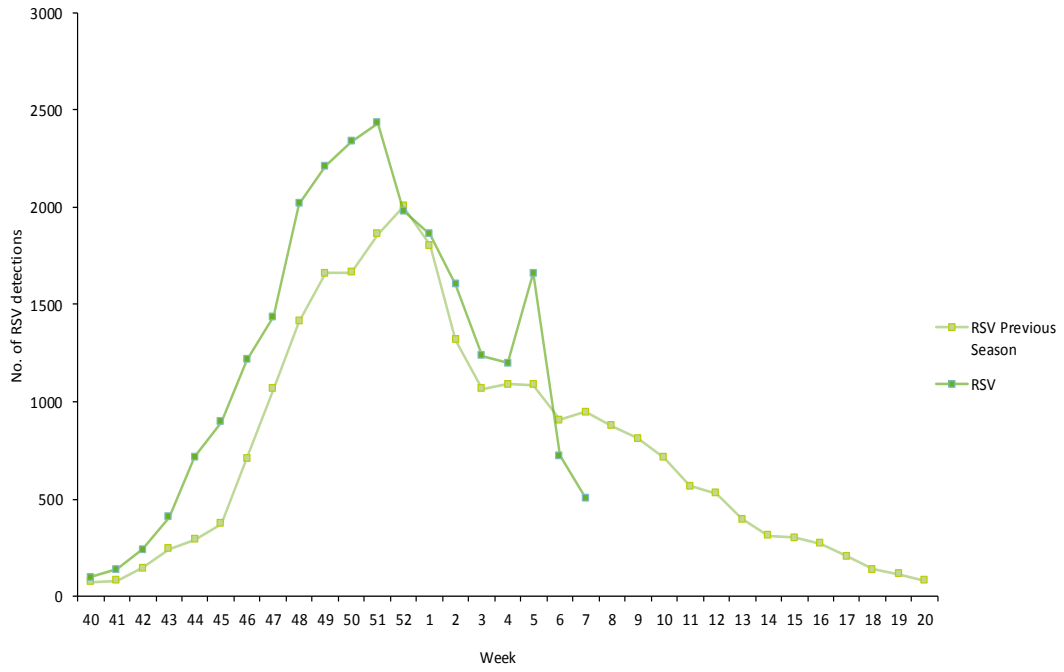
Table 3. Results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates, weeks 40/2012–7/2013

Antigenic group	Number of viruses
A(H1)pdm09 A/California/7/2009 (H1N1)-like	298
A(H1)pdm09 not attributed to category	2
A(H3) A/Perth/16/2009 (H3N2)-like	1
A(H3) A/Victoria/361/2011 (H3N2)-like	885
A(H3) not attributed to category	3
B/Brisbane/60/2008-like (B/Victoria/2/87 lineage)	97
B(Vic) lineage not attributed to category	2
B/Estonia/55669/2011-like (B/Yamagata/16/88-lineage)	382
B/Florida/4/2006-like (B/Yamagata/16/88 lineage)	3
B/Wisconsin/1/2010-like (B/Yamagata/16/88-lineage)	193
B/Bangladesh/3333/2007-like (B/Yamagata/16/88 lineage)	92
B(Yam) lineage not attributed to category	8

Table 4. Results of genetic characterisations of sentinel and non-sentinel influenza virus isolates, weeks 40/2012–7/2013

Phylogenetic group	Number of viruses
A(H1)pdm09 group 6 representative A/St Petersburg/27/2011	121
A(H1)pdm09 group 7 representative A/St Petersburg/100/2011	35
A(H1)pdm09 not attributed to clade/group	6
A(H3) clade repr. A/Victoria/208/2009	30
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	135
B(Vic) lineage - clade representative B/Brisbane/60/2008	57
B(Yam) lineage - clade repr. B/Bangladesh/3333/2007	59
B(Yam)-lineage clade repr. B/Wisconsin/1/2010	57
B(Yam)-lineage clade repr. B/Estonia/55669/2011	79
B(Yam)-lineage clade representative B/Brisbane/3/2007	7

Figure 4. Respiratory syncytial virus (RSV) detections, sentinel and non-sentinel, weeks 40/2012–7/2013



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 78 hospitalised laboratory-confirmed influenza cases reported by five countries (Belgium, France, Romania, Slovakia, and Spain) for week 7/2013, 48 (62%) tested positive for influenza A virus and 30 (38%) for type B (Table 5). Two cases with a fatal outcome were reported in week 7/2013.

Since week 40/2012, 1 398 hospitalised laboratory-confirmed influenza cases have been reported by eight countries (Table 6). In total, 784 (56%) cases were related to influenza type A and 614 (44%) to type B. Of 431 subtyped influenza A viruses, 298 (69%) were A(H1)pdm09 and 133 (31%) were A(H3) viruses (Table 5).

Since week 40/2012, 70 fatalities have been reported, 46 of which were reported by France where reporting included only cases admitted to intensive care units. Of the 49 fatal cases with known vaccination status, six had received the seasonal vaccine.

Table 5. Number of hospitalised laboratory-confirmed influenza cases by influenza type and subtype, week 7/2013 and cumulative for the season

Pathogen	Number of cases during current week	Cumulative number of cases since the start of the season
Influenza A	48	784
A(H1)pdm09	22	298
A(H3)	1	133
A(sub-typing not performed)	25	353
Influenza B	30	614
Total	**78**	**1398**

Table 6. Cumulative number of hospitalised laboratory-confirmed influenza cases, weeks 40/2012–7/2013

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	204		2		
France	395		46		
Ireland	98				
Romania	30	0.52	1	0.02	5813728
Slovakia	24	0.44	2	0.04	5404322
Spain	156		14		
Sweden	46		5		
United Kingdom	447	0.75			59255492
Total	**1400**		**70**		

Country comments and specific information concerning hospitalised cases and mortality

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

Czech Republic: Link here. Up to the end of week 7/2013, a cumulative total of 405 laboratory-confirmed severe influenza cases, including 85 deaths, were reported by intensive and resuscitation care units. Further details regarding the current influenza situation were published as a Rapid Communication in Eurosurveillance on 7 February 2013.

Information from other sources

The EUROMOMO mortality monitoring system: link here.

Pooled analysis of week 7/2013, based on 14 countries or regions, showed increased mortality among people aged 65 and above: all-cause mortality was around 3 z-scores above the baseline in week 1 to week 3/2013, and around 4 z-scores in week 4 to week 6/2013. No increased mortality in younger age groups has been detected so far this season. 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 increases to approximately 3 z-scores above the baseline were observed at the end of 2012 (Denmark, Ireland, Sweden, and the UK (England and Scotland), in others increases started later (France and Netherlands). In some countries (Belgium, Finland and Switzerland) mortality increased only moderately (approximately 2 z scores above the baseline), and for others no mortality increases have been observed so far (Germany (Berlin, Hesse), Hungary, Portugal, and Spain). The highest and longest sustained excess mortality was observed in Denmark, where influenza activity has been 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 pattern of influenza activity in Europe this season, but other factors such as extreme cold may play a role**.**

Influenza in Europe at a glance: a weekly infographic
As ECDC continues to monitor and report influenza activity in Europe on a weekly basis throughout the season, a new weekly infographic representation of influenza in Europe has been created to visually aid the process. The infographic displays and highlights influenza trends, intensity and the type of viruses circulating. Comments on this are especially welcome and should be sent to influenza@ecdc.europa.eu.

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.