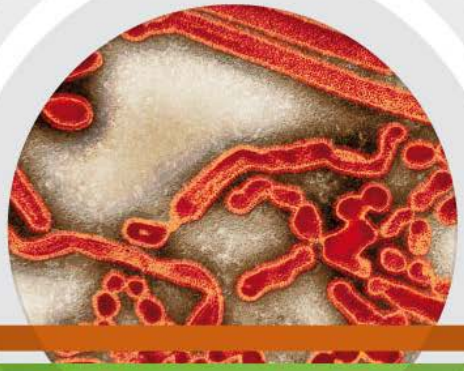


SURVEILLANCE REPORT

Weekly influenza surveillance overview

1 February 2013

Main surveillance developments in week 4/2013 (21–27 January 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.

- For week 4/2013, approximately two-thirds of the 29 countries reporting indicated medium-intensity transmission, wide geographic spread and increasing trends in a range of combinations, as reported for week 3/2013.
- For week 4/2013, the proportion of influenza-positive sentinel specimens was high (52%), representing an increase on week 3/2013 (45%).
- Since week 40/2012, a fairly 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 during the past two weeks.
- For week 4/2013, 71 hospitalised laboratory-confirmed influenza cases were reported by five countries (Belgium, Ireland, Romania, Spain, and the UK), 36 (51%) tested positive for influenza A viruses and 35 (49%) for type B viruses.

Influenza activity continued to rise in week 4/2013 across Europe, although the epidemic may have passed its peak in some north-western countries such as Norway and the UK.

Sentinel surveillance of influenza-like illness (ILI)/ acute respiratory infection (ARI): ILI/ARI activity of medium or high intensity was notified by 19 countries, with the majority of them indicating the geographic pattern of activity as widespread. For more information, **click here**.

Virological surveillance: Twenty-five countries tested 2 142 sentinel specimens, of which 1 108 (52%) were positive for influenza virus. For more information, **click here**.

Hospital surveillance of laboratory-confirmed influenza cases: Seventy-one hospitalised laboratory-confirmed influenza cases were reported with no fatalities. For more information, **click here**.

Sentinel surveillance (ILI/ARI)

Weekly analysis – epidemiology

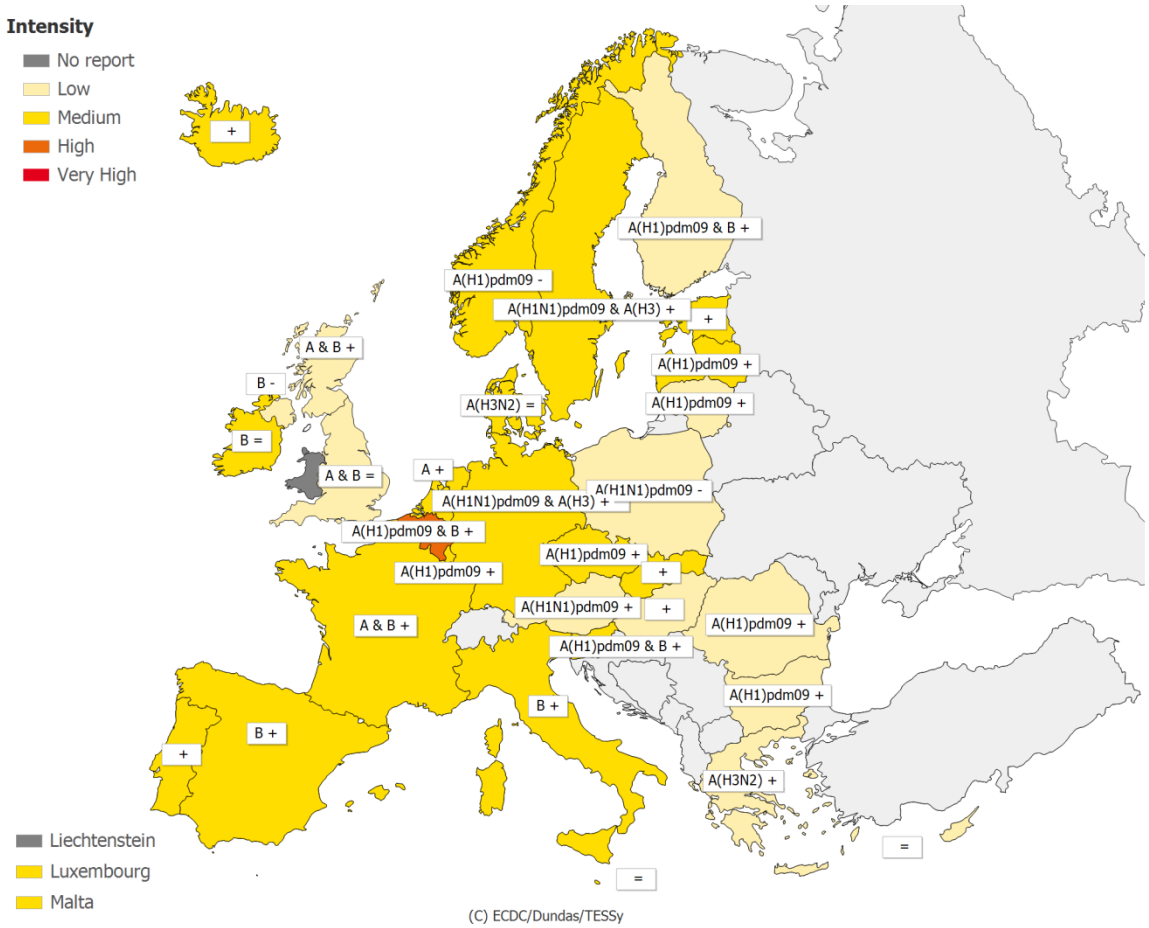
For week 4/2013, all countries (29/29) reported clinical data. Of these, 10 countries reported low-intensity transmission and 18 medium intensity, while Belgium reported high intensity (Table 1, Map 1). Estonia and Portugal reported medium intensity for the first time this season. Twelve countries have been reporting medium or high intensity for at least four consecutive weeks.

The geographic pattern of influenza activity was reported as widespread by 19 countries, regional or local by four (Lithuania, Malta, Slovakia and the UK), and sporadic by five countries. Only Cyprus reported no activity (Table 1, Map 2).

Increasing trends were reported by 22 of the 29 countries (Table 1, Map 2). This compared to 17 of 26 in week 3/2013. Stable trends were reported by five countries and only Norway and Poland reported decreasing trends. Norway has been reporting decreasing trends for two consecutive weeks and the UK reported a mix of trends.

Overall, the situation reported for week 4/2013 is very similar to that observed in the previous week with medium-intensity transmission, wide geographic spread and increasing trends in most countries.

Map 1. Intensity for week 4/2013

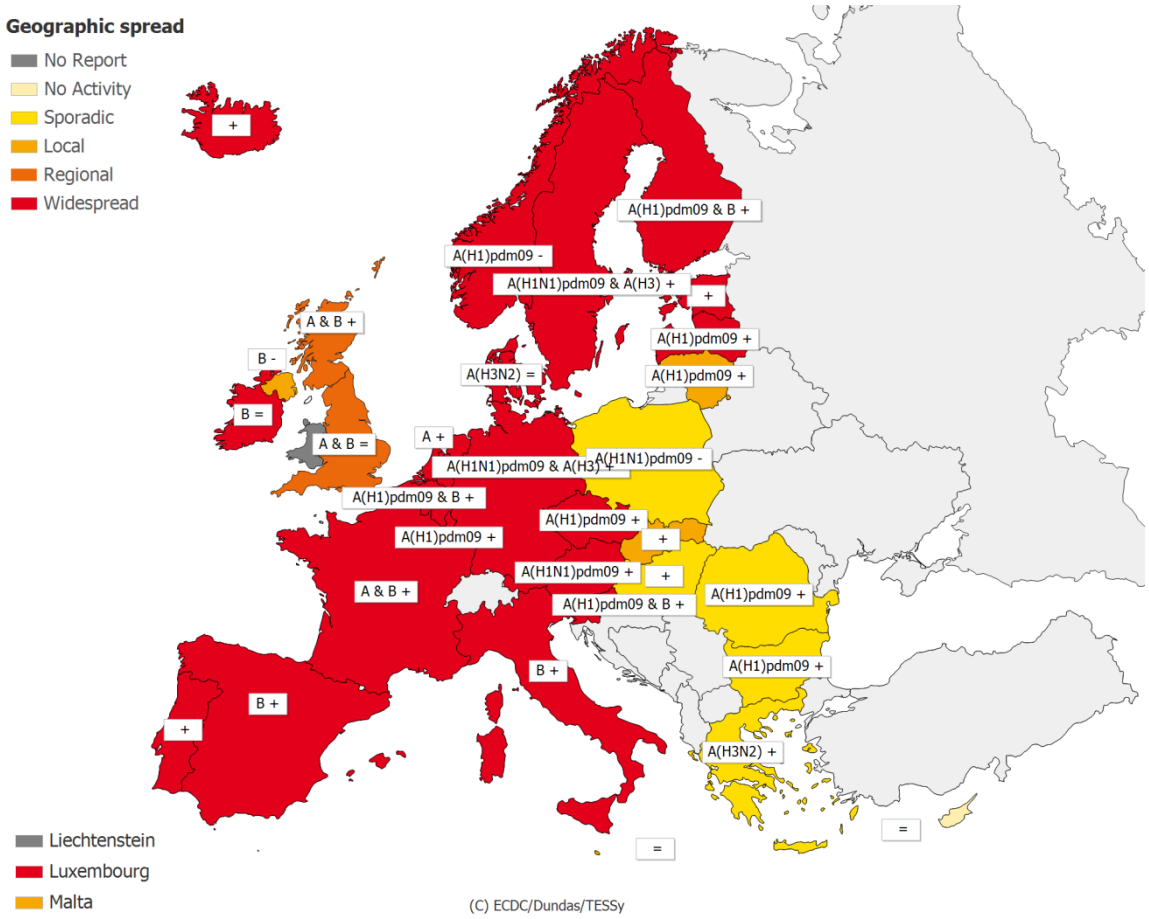


* A type/subtype is reported as dominant when at least ten samples have been detected as influenza positive in the country and of those > 40 % are positive for the type/subtype.

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(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

Map 2. Geographic spread for week 4/2013



* 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(H1)pdm09	Type A, Subtype (H1)pdm09
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(H3N2)	Type A, Subtype H3N2
B	Type B

Table 1. Epidemiological and virological overview by country, week 4/2013

Country	Intensity	Geographic spread	Trend	No. of sentinel specimens	Dominant type	Percent-age positive	ILI per 100 000	ARI per 100 000	Epidemio logical overview	Virological overview
Austria	Low	Widespread	Increasing	63	A(H1N1)pdm09	58.7	1284.0	-	Graphs	Graphs
Belgium	High	Widespread	Increasing	110	A(H1)pdm09 & B	73.6	679.3	2345.3	Graphs	Graphs
Bulgaria	Low	Sporadic	Increasing	45	A(H1)pdm09	8.9	-	1027.4	Graphs	Graphs
Cyprus	Low	No activity	Stable	-	-	0.0	-*	-*	Graphs	Graphs
Czech Republic	Medium	Widespread	Increasing	36	A(H1)pdm09	66.7	209.2	1418.4	Graphs	Graphs
Denmark	Medium	Widespread	Stable	23	A(H3N2)	69.6	189.4	-	Graphs	Graphs
Estonia	Medium	Widespread	Increasing	36	None	16.7	21.0	450.0	Graphs	Graphs
Finland	Low	Widespread	Increasing	32	A(H1)pdm09 & B	40.6	-	-	Graphs	Graphs
France	Medium	Widespread	Increasing	226	A & B	73.0	-	2825.7	Graphs	Graphs
Germany	Medium	Widespread	Increasing	275	A(H1N1)pdm09 & A(H3)	61.5	-	1766.6	Graphs	Graphs
Greece	Low	Sporadic	Increasing	15	A(H3N2)	60.0	124.3	-	Graphs	Graphs
Hungary	Low	Sporadic	Increasing	33	None	9.1	134.6	-	Graphs	Graphs
Iceland	Medium	Widespread	Increasing	0	-	0.0	97.0	-	Graphs	Graphs
Ireland	Medium	Widespread	Stable	37	B	48.6	48.9	-	Graphs	Graphs
Italy	Medium	Widespread	Increasing	118	B	52.5	791.1	-	Graphs	Graphs
Latvia	Medium	Widespread	Increasing	3	A(H1)pdm09	33.3	228.8	1946.2	Graphs	Graphs
Lithuania	Low	Local	Increasing	65	A(H1)pdm09	95.4	205.7	1178.0	Graphs	Graphs
Luxembourg	Medium	Widespread	Increasing	52	A(H1)pdm09	71.2	-*	-*	Graphs	Graphs
Malta	Medium	Local	Stable	-	-	0.0	-*	-*	Graphs	Graphs
Netherlands	Medium	Widespread	Increasing	37	A	62.2	113.9	-	Graphs	Graphs
Norway	Medium	Widespread	Decreasing	0	A(H1)pdm09	0.0	200.6	-	Graphs	Graphs
Poland	Low	Sporadic	Decreasing	217	A(H1N1)pdm09	19.8	518.0	-	Graphs	Graphs
Portugal	Medium	Widespread	Increasing	22	None	31.8	43.3	-	Graphs	Graphs
Romania	Low	Sporadic	Increasing	15	A(H1)pdm09	46.7	3.6	648.8	Graphs	Graphs
Slovakia	Medium	Local	Increasing	46	None	32.6	340.1	2236.8	Graphs	Graphs
Slovenia	Medium	Widespread	Increasing	48	A(H1)pdm09 & B	68.8	38.5	1448.5	Graphs	Graphs
Spain	Medium	Widespread	Increasing	343	B	51.3	156.5	-	Graphs	Graphs
Sweden	Medium	Widespread	Increasing	85	A(H1N1)pdm09 & A(H3)	40.0	14.1	-	Graphs	Graphs
UK - England	Low	Regional	Stable	84	A & B	39.3	11.1	343.2	Graphs	Graphs
UK - Northern Ireland	Low	Local	Decreasing	3	B	66.7	47.9	417.3	Graphs	Graphs
UK - Scotland	Low	Regional	Increasing	73	A & B	38.4	40.5	534.4	Graphs	Graphs
UK - Wales				-	-	0.0	-	-		
Europe				**2142**		**51.7**				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 4/2013, 25 countries tested 2 142 sentinel specimens, of which 1 108 (52%) were positive for influenza virus: 592 (53%) were type A and 516 (47%) type B (Tables 1–2, Figure 1). This proportion of influenza-positive cases represents an increase on week 3/2013 (45%), but probably fits with the fluctuation observed since week 52/2012 (44-48%). In addition, 2 640 non-sentinel source specimens (e.g. specimens collected for diagnostic purposes in hospitals) were found to be positive for influenza virus, of which 2 047 (78%) were type A and 593 (22%) type B (Table 2).

Of the 4 321 influenza virus detections in sentinel specimens since week 40/2012, 2 160 (50%) were type A, and 2 161 (50%) were type B viruses. Of 1 904 influenza A viruses subtyped, 1 182 (62%) were A(H1)pdm09 and 722 (38%) were A(H3) (Table 2, Figure 2). The proportion of A(H1)pdm09 has increased over the past two weeks. Of the 390 type B viruses ascribed to a lineage, 337 (86%) were Yamagata and 53 (14%) Victoria (Table 2).

The overall pattern of virus co-circulation in EU/EAA countries is considerably different from that reported in the United States where approximately 80% are influenza type A viruses, with very few influenza A(H1)pdm09 viruses, and 20% are B viruses (see CDC Flu View week 3/2013).

Of the 1 143 antigenic characterisations of influenza viruses reported for sentinel and non-sentinel specimens since week 40/2012, 649 (57%) have been characterised as A(H3)/Victoria/361/2011-like (Table 3).

Of the 338 genetic characterisations of influenza viruses reported for sentinel and non-sentinel specimens since week 40/2012, 136 (40%) were A(H3) clade representative A/Victoria/208/2009, of which 98 (72%) came 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.

Since week 40/2012, a total of 267 viruses have been tested for antiviral susceptibility and reported on by Denmark, Germany, the Netherlands, Norway, Spain, Sweden and the UK. One A(H1N1)pdm09 virus tested for susceptibility to neuraminidase inhibitors (NAI) showed the H275Y amino acid substitution associated with highly reduced inhibition against oseltamivir. None of the other 99 A(H1N1)pdm09 viruses and the 95 A(H3N2) and 67 B viruses tested for NAI susceptibility showed genetic (markers) or phenotypic (IC50) 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 4/2013, 16 countries reported 966 respiratory syncytial virus detections, suggesting that this virus' season is coming to an end (Figure 4).

Table 2. Weekly and cumulative influenza virus detections by type, subtype and surveillance system, weeks 40/2012–4/2013

Virus type/sub-type	Current period Sentinel	Current period Non-sentinel	Season Sentinel	Season Non-sentinel
Influenza A	592	2047	2160	11249
A(H1)pdm09	348	907	1182	4277
A(H3)	150	96	722	1566
A(sub-type unknown)	94	1044	256	5406
Influenza B	516	593	2161	4106
B(Vic) lineage	12	4	53	49
B(Yam) lineage	85	25	337	489
Unknown lineage	419	564	1771	3568
Total influenza	**1108**	**2640**	**4321**	**15355**

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 40/2012–4/2013

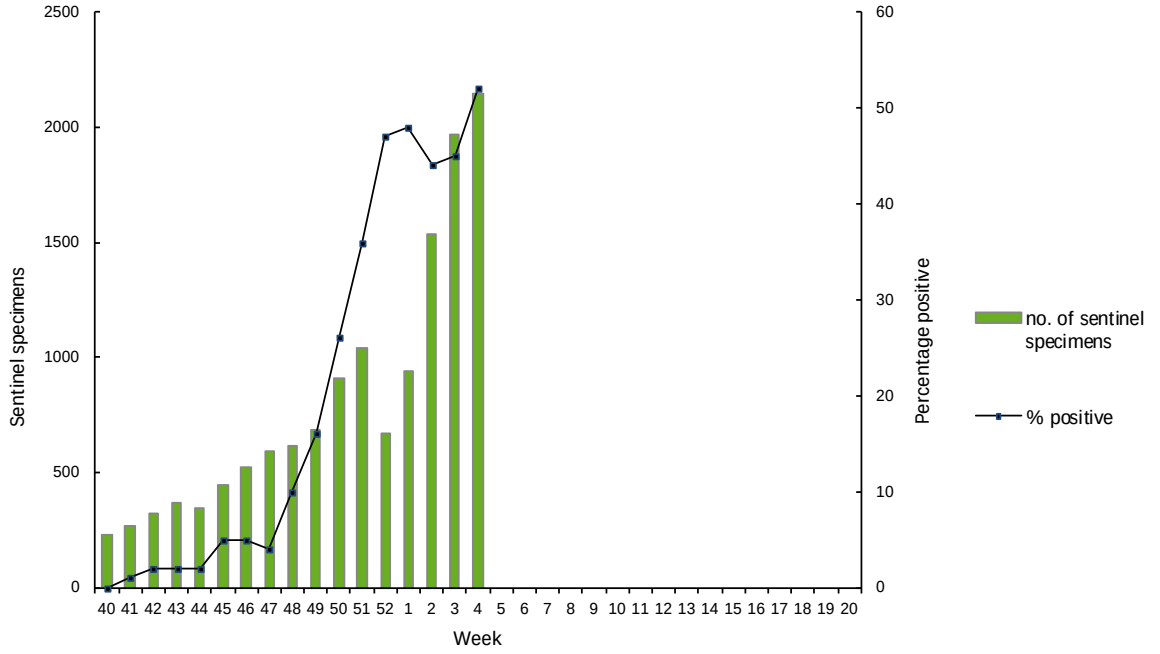


Figure 2. Number of sentinel specimens positive for influenza virus, by type, subtype and week of report, weeks 40/2012–4/2013

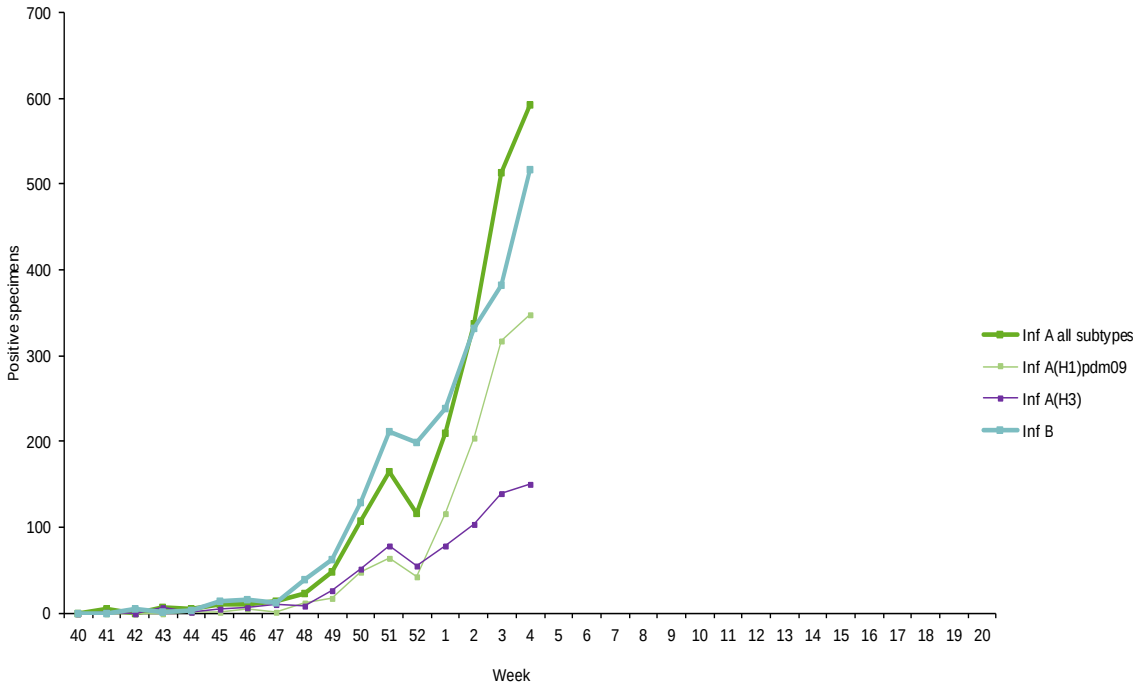


Figure 3. Number of non-sentinel specimens positive for influenza virus by type, subtype and week of report, weeks 40/2012–4/2013

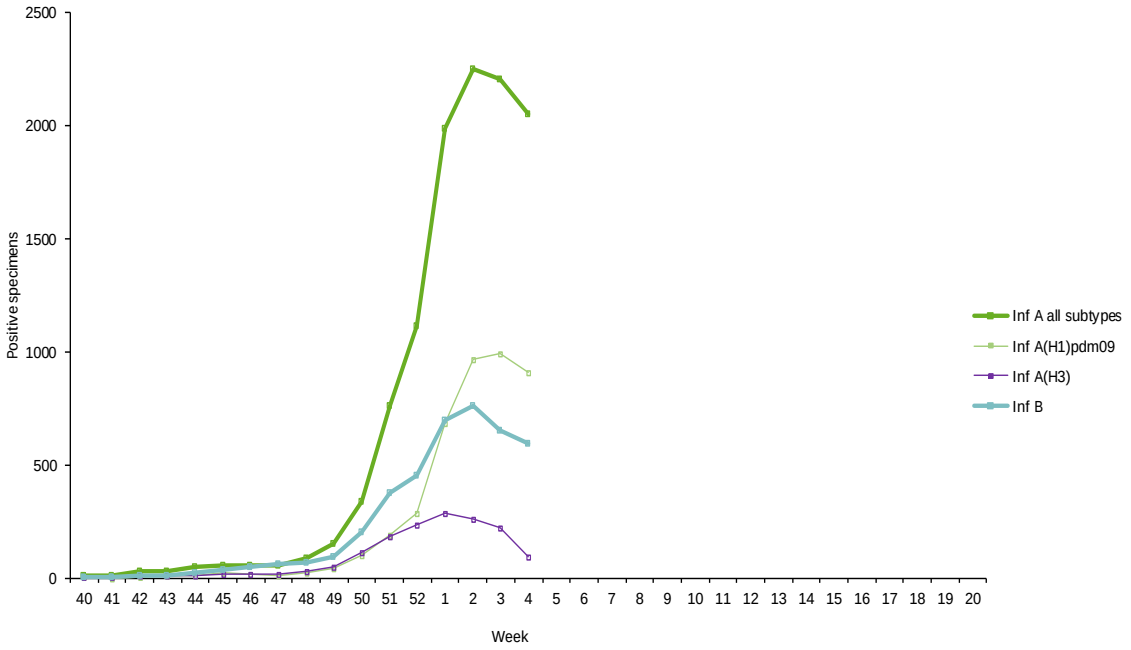


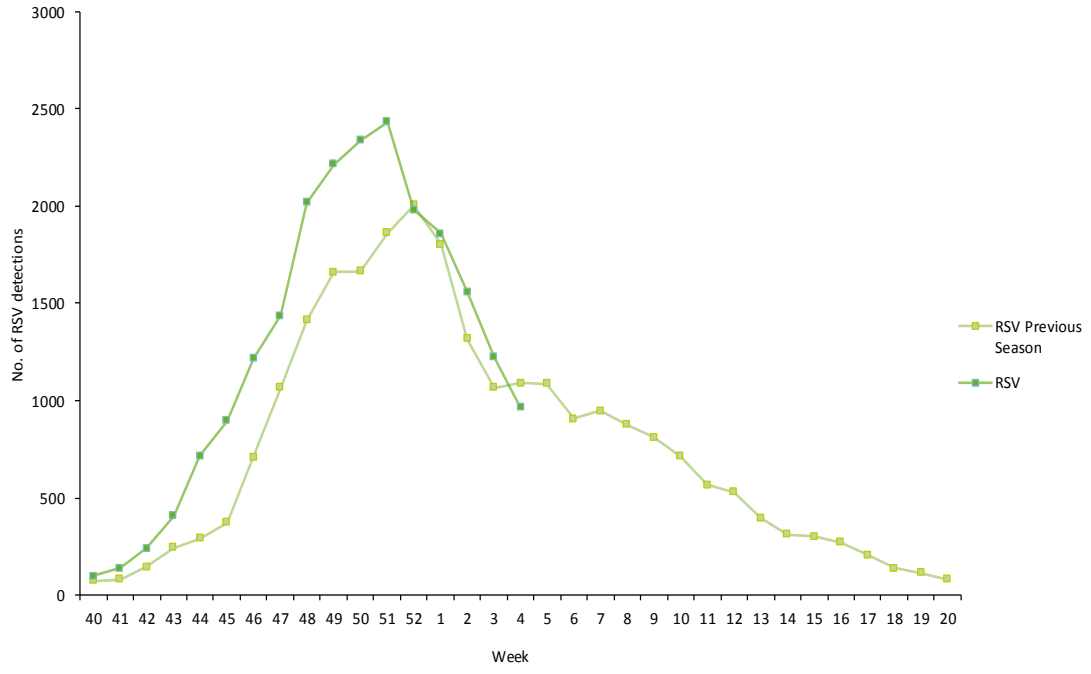
Table 3. Results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates, weeks 40/2012–4/2013

Antigenic group	Number of viruses
A(H1)pdm09 A/California/7/2009 (H1N1)-like	103
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	649
A(H3) not attributed to category	1
B/Brisbane/60/2008-like (B/Victoria/2/87 lineage)	54
B/Estonia/55669/2011-like (B/Yamagata/16/88-lineage)	160
B/Florida/4/2006-like (B/Yamagata/16/88 lineage)	1
B/Wisconsin/1/2010-like (B/Yamagata/16/88-lineage)	111
B/Bangladesh/3333/2007-like (B/Yamagata/16/88 lineage)	60

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

Phylogenetic group	Number of viruses
A(H1)pdm09 group 6 representative A/St Petersburg/27/2011	67
A(H1)pdm09 group 7 representative A/St Petersburg/100/2011	23
A(H1)pdm09 not attributed to clade/group	3
A(H3) clade repr. A/Victoria/208/2009	18
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	98
B(Vic) lineage - clade representative B/Brisbane/60/2008	30
B(Yam) lineage - clade repr. B/Bangladesh/3333/2007	25
B(Yam)-lineage clade repr. B/Wisconsin/1/2010	27
B(Yam)-lineage clade repr. B/Estonia/55669/2011	25
B(Yam)-lineage clade representative B/Brisbane/3/2007	2

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



Country comments and information

The Netherlands: In the Netherlands, a hospitalised immunocompromised patient was identified as carrying an oseltamivir-resistant A(H1N1)pdm09 virus with the H275Y amino acid substitution. This resistant variant emerged during oseltamivir therapy and was detected shortly after oseltamivir was stopped and before zanamivir therapy was started. The patient was also treated with antibiotics for pneumonia (*Haemophilus influenzae*) and then improved rapidly and was discharged 20 days after onset of respiratory symptoms.

Slovenia: In addition to influenza-positive specimens, this season we are observing a persistently high proportion of RSV-positive specimens.

United Kingdom: The early experience of the United Kingdom (UK) is that influenza B has dominated the influenza 2012/13 season. Overall, trivalent influenza vaccine (TIV) adjusted vaccine effectiveness (VE) against all laboratory-confirmed influenza in primary care was 51% (95% confidence interval (CI): 27% to 68%); TIV-adjusted VE against influenza A alone or influenza B alone was 49% (95% CI: -2% to 75%) and 52% (95% CI: 23% to 70%) respectively. Vaccination remains the best protection against influenza.
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=20393

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

In the course of week 4/2013, of the 71 hospitalised laboratory-confirmed influenza cases reported by five countries (Belgium, Ireland, Romania, Spain and the UK), 36 (51%) tested positive for influenza A viruses and 35 (49%) for type B (Table 5).

Since week 40/2012, 714 hospitalised laboratory-confirmed influenza cases have been reported by eight countries (Table 6). In total, 384 (54%) cases were related to influenza type A and 330 (46%) to type B. Of 205 subtyped influenza A viruses, 122 (60%) were A(H1)pdm09 and 83 (40%) were A(H3) viruses (Table 5).

Since week 40/2012, 19 fatalities have been reported, of which 15 occurred in France where only cases admitted to intensive care units are included in reports. Of the 13 fatal cases with known vaccination status, only one had received the seasonal vaccine.

Table 5. Number of hospitalised laboratory-confirmed influenza cases by influenza type and subtype, week 4/2013 and cumulative for the season

Pathogen	Number of cases during current week	Cumulative number of cases since the start of the season
Influenza A	36	384
A(H1)pdm09	14	122
A(H3)	6	83
A(sub-typing not performed)	16	179
Influenza B	35	330
Total	**71**	**714**

Table 6. Cumulative number of hospitalised laboratory-confirmed influenza cases, weeks 40/2012–4/2013

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	62		1		
France	128		15		
Ireland	91				
Romania	10	0.17	1	0.02	5813728
Slovakia	3	0.06			5435273
Spain	41		1		
Sweden	18		1		
United Kingdom	361	0.61			59255492
Total	**714**		**19**		

Country comments and specific information concerning hospitalised cases and mortality

This section is compiled from specific comments provided by the reporting countries and from 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.

Czech Republic: Link here. Up to end of week 4/2013, a cumulative total of 196 patients with laboratory-confirmed severe influenza were reported by intensive and resuscitation care units, including 40 deaths.

The EUROMOMO mortality monitoring system: Pooled analysis of week 4/2013, based on 13 countries or regions, shows no substantial excess of all-cause mortality as yet this season.

However, four of the 16 reporting countries or regions (Denmark and the UK (England, Northern Ireland and Scotland)) saw an increase in mortality in people aged 65 years and above starting around weeks 51 and 52/2012. The increase was particularly clear in Denmark, where H3N2 transmission is predominant and peaked around Christmas.

Pooled analysis was adjusted for variation among the countries included and for differences in local delay of reporting. Further details are available on http://www.euromomo.eu/results/pooled.html

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.