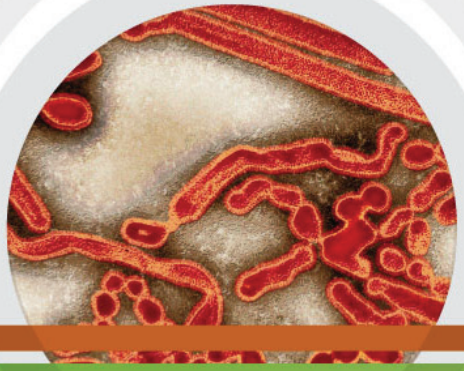


SURVEILLANCE REPORT

Fortnightly influenza surveillance overview

14 September 2012

Main surveillance developments in weeks 35–36/2012 (27 Aug – 9 Sep 2012)

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

The 2011/12 influenza season has ended, but the surveillance of influenza continues during the off-season period and the bulletin will appear on a fortnightly basis until week 40/2012 (first weekly publication will be on 12 October 2012).

- During weeks 35–36/2012, all reporting countries experienced low-intensity influenza-like illness.
- Of 47 sentinel specimens tested, none were positive for influenza viruses. Since week 40/2011, 89% of sentinel influenza viruses detected have been type A and 11% type B. The A(H3) subtype constituted 98% of sentinel influenza type A viruses during the 2011/12 season.
- The Netherlands reported two oseltamivir resistant A(H1N1)pdm09 viruses in specimens collected in early August and unrelated to the use of antivirals.
- Many of the A(H3) viruses reacted poorly with post-infection ferret antisera raised against the A/Perth/16/2009 H3N2 vaccine component, prompting the WHO's decision to recommend a change to the A(H3N2) component for the northern hemisphere 2012/13 influenza season. This is consistent with the low vaccine effectiveness of the A(H3N2) component, detected in observational studies during the 2011–2012 season which was dominated by A(H3N2) in Europe.

There is little evidence of influenza transmission in EU/EEA countries at present.

Sentinel surveillance of influenza-like illness (ILI)/ acute respiratory infection (ARI): Influenza activity of low-intensity was notified by all 18 reporting countries. For more information, **click here**.

Virological surveillance: Of 47 sentinel specimens tested, none were positive for influenza viruses. For more information, **click here**.

Hospital surveillance of severe acute respiratory infection (SARI): During weeks 35–36/2012, one SARI case was reported, but the causative pathogen was unknown. For more information, **click here**.

Sentinel surveillance (ILI/ARI)

Weekly analysis – epidemiology

In weeks 35 and 36/2012, 18 countries reported clinical data. All reporting countries experienced low-intensity influenza activity during both weeks (Table 1, Map 1). This is the lowest category of reporting.

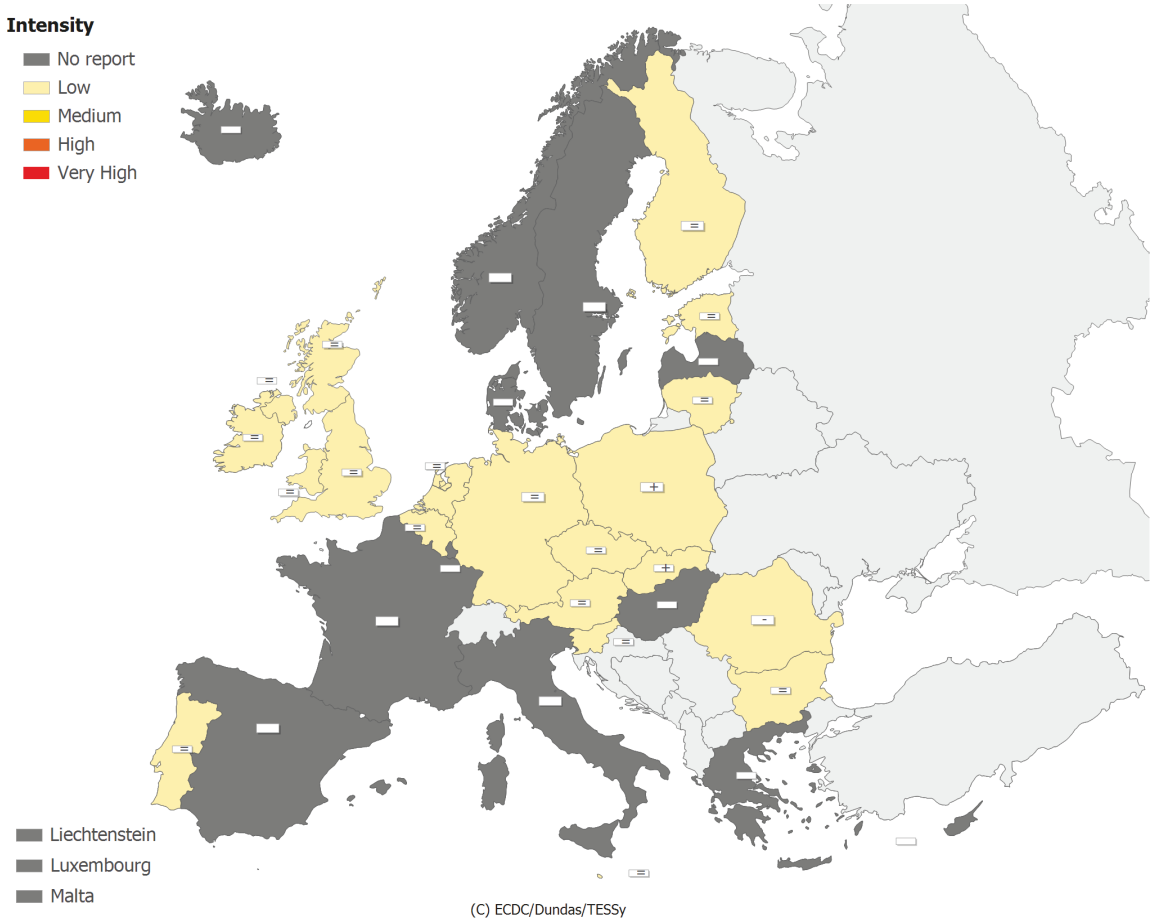
For week 35, most countries reporting on geographic spread indicated no activity. However, Malta reported local activity and Estonia and the UK (England and Scotland) reported sporadic activities.

For week 36, almost all countries reporting on geographic spread indicated no activity, apart from UK (England) which reported sporadic activity.

Stable trends were reported by most countries for weeks 35 and 36. However, for week 35, a decreasing trend was reported by Slovakia. Increasing trends were reported by Poland and Romania.

For week 36, Romania reported a decreasing trend while Poland and Slovakia reported increasing trends.

Map 1: Intensity for weeks 35–36, 2012



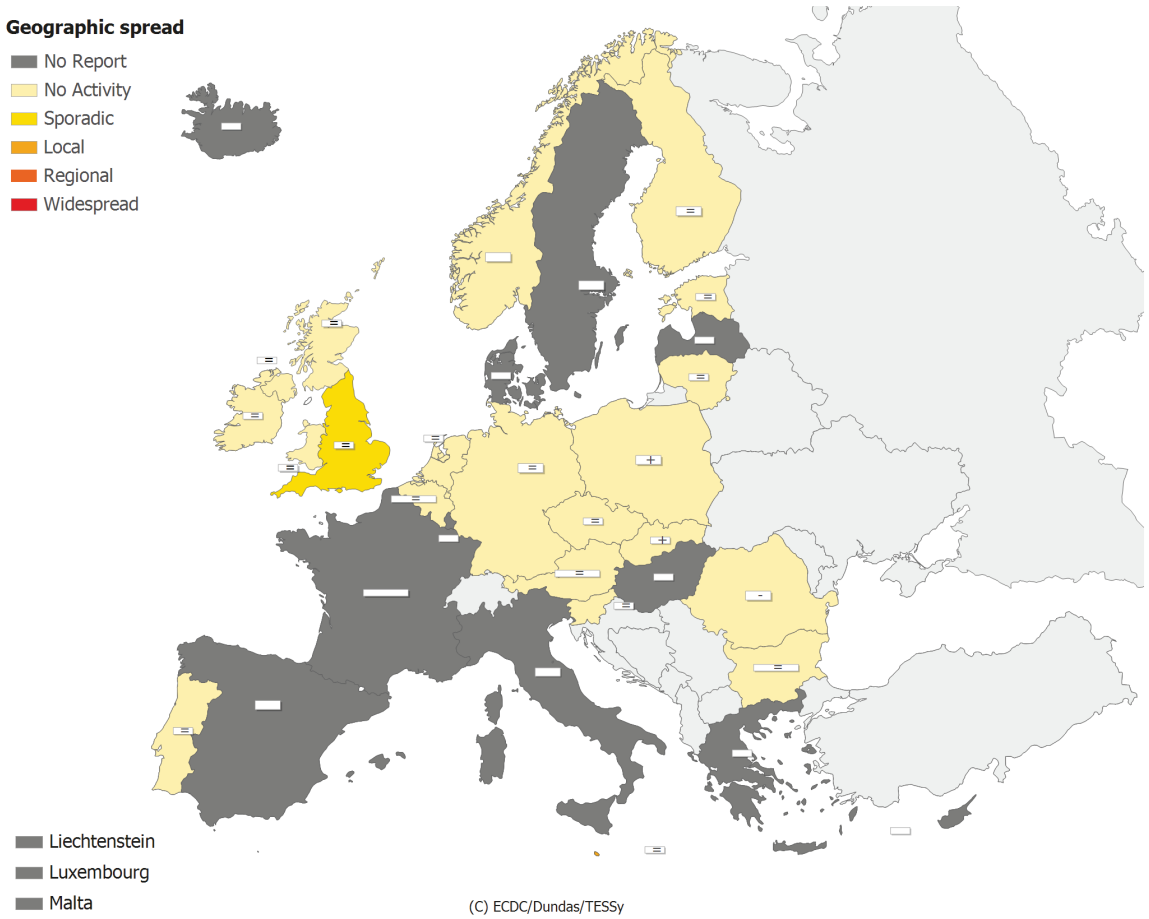
* A type/subtype is reported as dominant when at least ten samples have been detected as influenza positive in the country and of those > 40 % are positive for the type/subtype.

Legend:

No report	Intensity level was not reported	-	Decreasing clinical activity
Low	No influenza activity or influenza at baseline levels	+	Increasing clinical activity
Medium	Usual levels of influenza activity	=	Stable clinical activity
High	Higher than usual levels of influenza activity		
Very high	Particularly severe levels of influenza activity		

**The map only displays data for the most recently reported week of the two-week surveillance period. For information on the other week, please consult the weekly 'Influenza activity maps' here.*

Map 2: Geographic spread for weeks 35–36, 2012



* 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	+	Increasing clinical activity
No activity	No evidence of influenza virus activity (clinical activity remains at baseline levels)	-	Decreasing clinical activity
		=	Stable clinical activity
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)		

**The map only displays data for the most recently reported week of the two-week surveillance period. For information on the other week please consult the weekly 'Influenza activity maps' here.*

Table 1: Epidemiological and virological overview by country, weeks 35–36, 2012

Country	Intensity	Geographic spread	Trend	No. of sentinel swabs	Dominant type	Percentage positive	ILI per 100 000	ARI per 100 000	Epidemiolog-ical overview	Virological overview
Austria	Low	No activity	Stable	0	None	0.0	-	-	Graphs	Graphs
Belgium	Low	No activity	Stable	-	-	0.0	25.2	748.9	Graphs	Graphs
Bulgaria	Low	No activity	Stable	0	None	0.0	-	188.4	Graphs	Graphs
Cyprus				-	-	0.0	-	-		
Czech Republic	Low	No activity	Stable	-	-	0.0	4.9	337.7	Graphs	Graphs
Denmark				-	-	0.0	-	-		
Estonia	Low	No activity	Stable	0	None	0.0	1.7	112.6	Graphs	Graphs
Finland	Low	No activity	Stable	33	None	0.0	-	-	Graphs	Graphs
France				0	-	0.0	-	-	Graphs	Graphs
Germany	Low	No activity	Stable	7	None	0.0	-	461.7	Graphs	Graphs
Greece				0	-	0.0	-	-	Graphs	Graphs
Hungary				-	-	0.0	-	-		
Iceland				0	-	0.0	-	-	Graphs	Graphs
Ireland	Low	No activity	Stable	2	None	0.0	2.9	-	Graphs	Graphs
Italy				-	-	0.0	-	-		
Latvia				-	-	0.0	-	-		
Lithuania	Low	No activity	Stable	-	-	0.0	0.0	151.4	Graphs	Graphs
Luxembourg				-	-	0.0	-	-		
Malta	Low	Local	Stable	-	-	0.0	-*	-*	Graphs	Graphs
Netherlands	Low	No activity	Stable	2	None	0.0	6.2	-	Graphs	Graphs
Norway	Unknown (no information available)	No activity	Unknown (no information available)	2	None	0.0	-	-	Graphs	Graphs
Poland	Low	No activity	Increasing	0	None	0.0	18.7	-	Graphs	Graphs
Portugal	Low	No activity	Stable	0	None	0.0	0.0	-	Graphs	Graphs
Romania	Low	No activity	Decreasing	0	None	0.0	0.1	321.3	Graphs	Graphs
Slovakia	Low	No activity	Increasing	0	-	0.0	36.2	535.7	Graphs	Graphs
Slovenia	Low	No activity	Stable	0	None	0.0	0.0	364.5	Graphs	Graphs
Spain				-	-	0.0	-	-		
Sweden				0	-	0.0	-	-	Graphs	Graphs
UK - England	Low	Sporadic	Stable	1	None	0.0	1.3	155.9	Graphs	Graphs
UK - Northern Ireland	Low	No activity	Stable	0	-	0.0	3.9	189.5	Graphs	Graphs
UK - Scotland	Low	No activity	Stable	-	None	0.0	3.8	334.5	Graphs	Graphs
UK - Wales	Low	No activity	Stable	-	-	0.0	2.5	-	Graphs	Graphs
Europe				**47**		**0.0**				

**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.
For intensity, geographic spread and trend, the table only displays data for the most recently reported week of the two-week surveillance period.

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 influenza-like illness (ILI), acute respiratory infection (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

During weeks 35 and 36/2012, 18 countries reported virological data. Of 47 sentinel specimens tested, none were positive for influenza viruses (Tables 1 and 2, Figure 1).

All three influenza viruses detected in non-sentinel specimens during weeks 35–36/2012 were type B (Table 2).

Of the 9 493 influenza virus detections in sentinel specimens since week 40/2011, 8 466 (89.2%) were type A and 1 027 (10.8%) were type B. Of the 7 803 sentinel influenza A viruses subtyped, 7 685 (98.5%) were A(H3) viruses and 118 (1.5%) were A(H1)pdm09 (Table 2, Figure 2). Of 191 sentinel influenza B viruses analysed to determine genetic lineage, 115 (60.2%) were of the B/Victoria/2/87 lineage and 76 (39.8%) were of the B/Yamagata/16/88 lineage.

Since week 40/2011, 1 897 antigenic characterisations of viruses have been reported, of which 1 387 (73.1%) were A/Perth/16/2009 (H3N2)-like viruses (Figure 4). Seventy-eight viruses have been reported without being assigned to an antigenic group: 50 were A(H3), 19 B (Yamagata lineage) and nine B (Victoria lineage), possibly reflecting changes in antigenicity compared with the previous seasons' reference viruses.

Since week 40/2011, 1 532 genetic characterisations of influenza viruses have been reported, 1 278 (83.4%) of which were A(H3) viruses (Figure 5). Of the latter, 453 (35.4%) fell within the A/Victoria/208/2009 clade, genetic group 3 represented by A/Stockholm/18/2011. Viruses falling in this genetic clade are antigenically diverse and many display a reduced reactivity with ferret serum raised against the vaccine virus A/Perth/16/2009 used for the 2011/12 influenza season. This is consistent with the low vaccine effectiveness detected in observational studies this season (2011–2012) (Kissling et al.) which was dominated by A(H3N2) in Europe. More details on the antigenic and genetic characteristics of circulating viruses can be found in the July report prepared by the Community Network of Reference Laboratories (CNRL) coordination team.

Since week 40/2011, none of the A(H3N2) and B viruses tested for susceptibility to neuraminidase inhibitors were resistant (Table 3). However, two oseltamivir resistant A(H1N1)pdm09 viruses carrying the NA H275Y substitution which retained zanamivir sensitivity were detected in the Netherlands (see Country comments below and ECDC comment here). All A(H1N1)pdm09 and A(H3N2) viruses assessed for M2 blocker susceptibility were resistant.

Table 2: Weekly and cumulative influenza virus detections by type, subtype and surveillance system, weeks 40/2011–36/2012

Virus type/subtype	Current period Sentinel	Current period Non-sentinel	Season Sentinel	Season Non-sentinel
Influenza A	0	0	8466	24534
A(H1)pdm09	0	0	118	326
A(H3)	0	0	7685	7874
A(sub-type unknown)	0	0	663	16334
Influenza B	0	3	1027	1554
B(Vic) lineage	0	0	115	81
B(Yam) lineage	0	0	76	88
Unknown lineage	0	3	836	1385
Total influenza	**0**	**3**	**9493**	**26088**

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 40/2011–36/2012

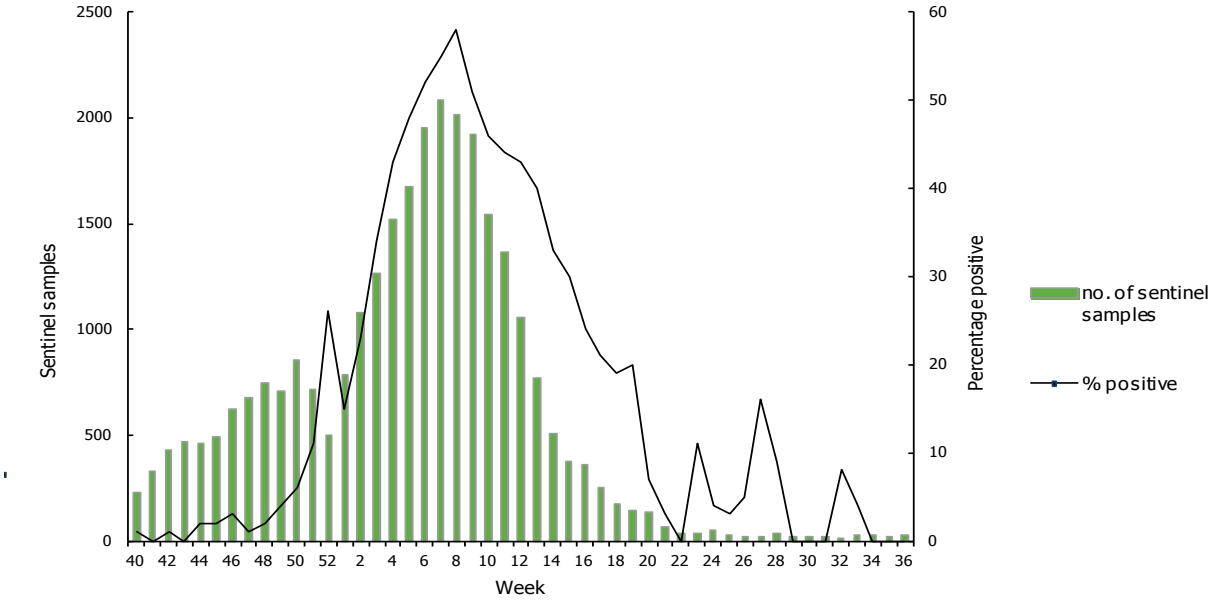


Figure 2: Number of sentinel specimens positive for influenza virus, by type, subtype and by week of report, weeks 40/2011–36/2012

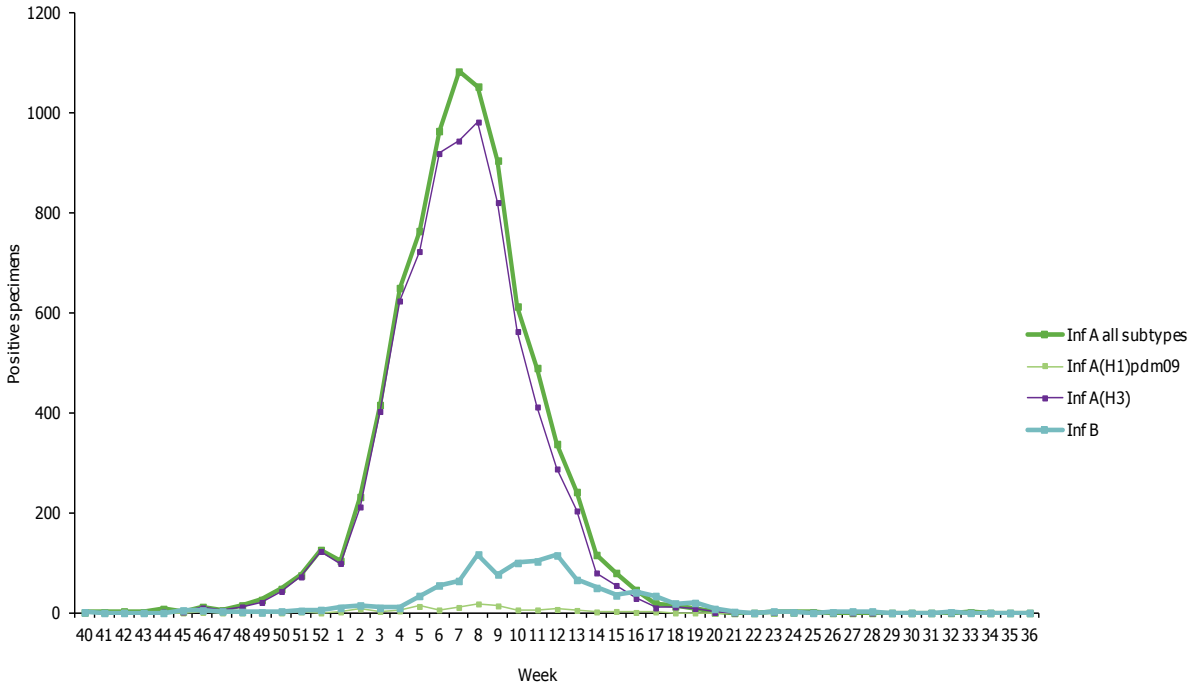


Figure 3: Number of non-sentinel specimens positive for influenza virus by type, subtype and week of report, weeks 40/2011–36/2012

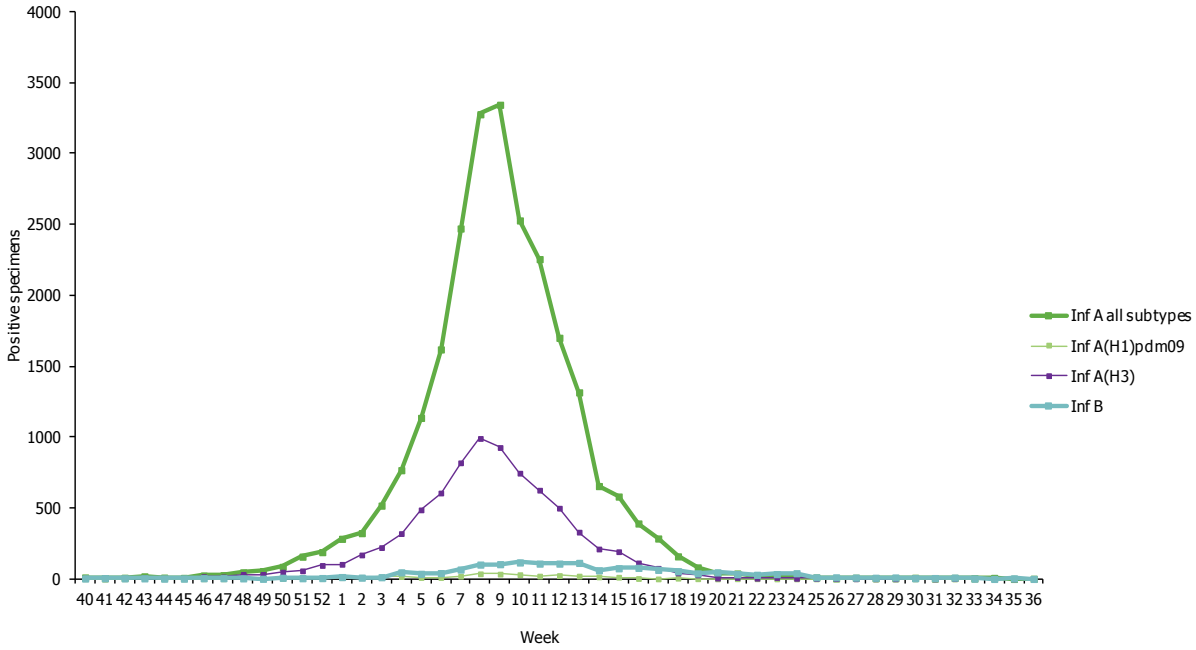


Figure 4: Results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates, weeks 40/2011–36/2012

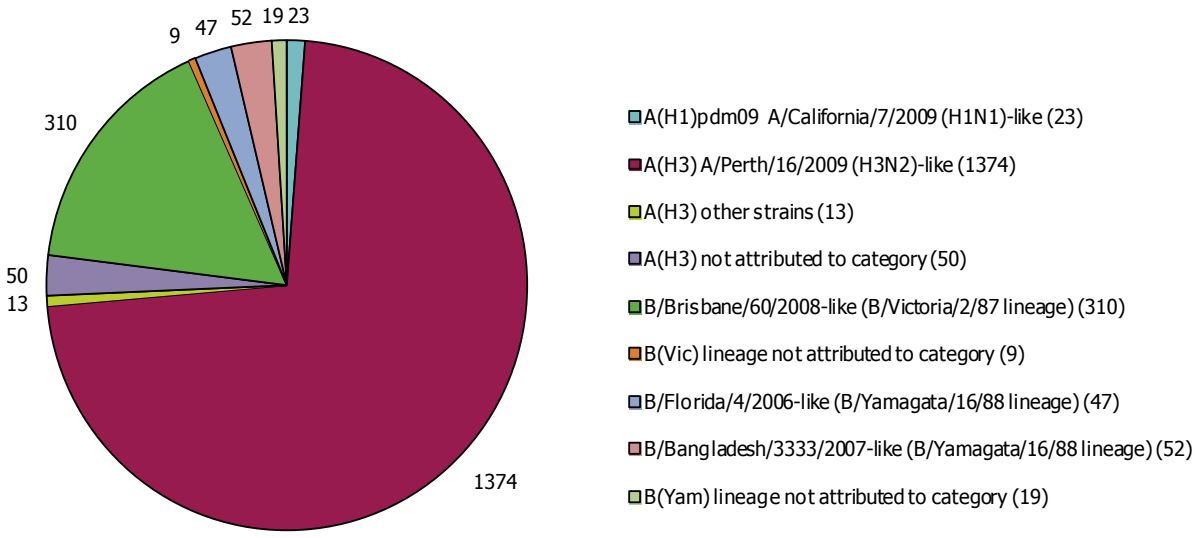


Figure 5: Results of genetic characterisations of sentinel and non-sentinel influenza virus isolates, weeks 40/2011–36/2012

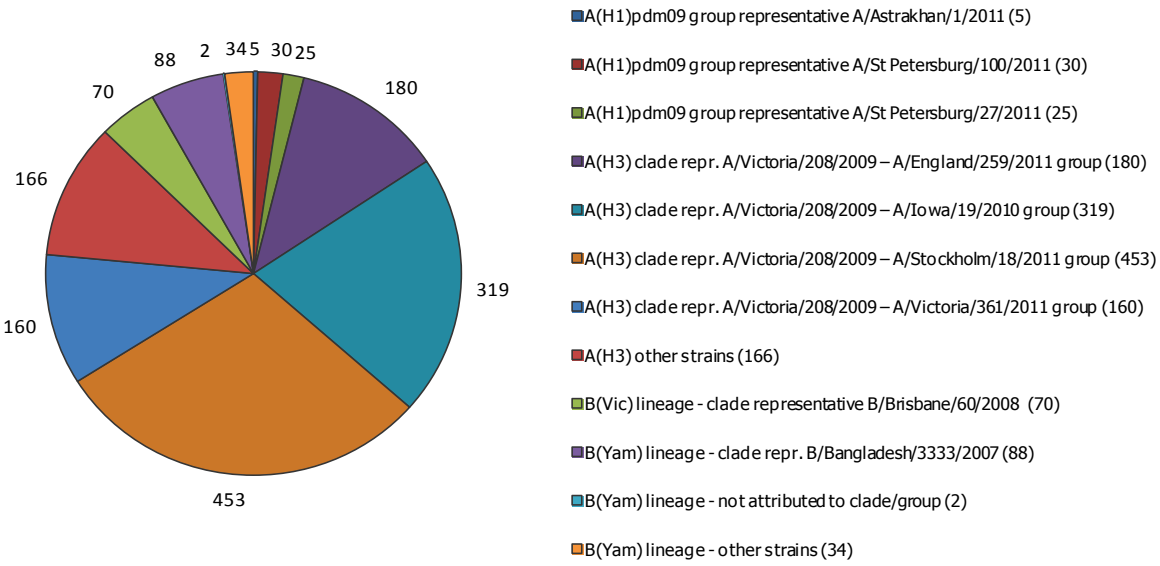


Table 3: Antiviral resistance by influenza virus type and subtype, weeks 40/2011–36/2012

Virus type and subtype	Resistance to neuraminidase inhibitors				Resistance to M2 inhibitors	
	Oseltamivir		Zanamivir		Isolates tested	Resistant n (%)
	Isolates tested	Resistant n (%)	Isolates tested	Resistant n (%)		
A(H3N2)	821	0	803	0	242	242 (100%)
A(H1N1)pdm09	71	2 (2.8%)	71	0	35	35 (100%)
B	73	0	68	0	NA*	NA*

** NA - not applicable, as M2 inhibitors do not act against influenza B viruses. Data are from single location (e.g. H275Y only) or multiple location mutation analysis (full sequencing) and/or phenotypic characterisation (IC50 determination). Therefore, data should be interpreted in this context.*

Country comments

The Netherlands: Two Dutch travellers were infected with oseltamivir-resistant influenza A(H1N1)pdm09 viruses with an H275Y neuraminidase substitution in early August 2012. Both cases were probably infected during separate holidays in Spain. No epidemiological connection between the two cases was found and neither of them was treated with oseltamivir before specimen collection. Genetic analysis of the neuraminidase gene revealed the presence of previously described permissive mutations that may increase the likelihood of such strains emerging and spreading widely. For a detailed report see the **article** in *Eurosurveillance*.

Spain: During weeks 21–39/2012, only virological influenza surveillance was active in Spain. Qualitative activity indicators (intensity level and geographic spread) are not provided by sentinel sites. Weekly virological influenza detections, mainly from non-sentinel sources, are being notified. During this period, 40 influenza detections have been notified to date in Spain. Of them, 95% were influenza type B and 5% were type A. Since May 2012, there have been no detections of influenza A(H1N1)pdm09 viruses in Catalonia, where the Dutch people were on holidays (see above). Fortnightly Spanish influenza surveillance reports are available at: *www.isciii.es/cne-gripe-infsemanal*

Description of the system

According to the nationally defined sampling strategy, sentinel physicians take nasal or pharyngeal swabs from patients with influenza-like illness (ILI), acute respiratory infection (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 on the current virus strains recommended by WHO for vaccine preparation click here.

Hospital surveillance – severe influenza disease

Weekly analysis of severe acute respiratory infection – SARI

Since week 40/2011, a total of 1 840 SARI cases, including 113 fatalities, have been reported to TESSy by seven countries (Table 4, Figure 6). Where patient information was available, the male/female ratio was 1.2 (Table 5).

During weeks 35–36/2012, one SARI case was reported but the causative pathogen was unknown.

Since week 40/2011, 1 325 severe cases have been confirmed as being associated with influenza virus infection. Of these, 1 276 (96.3%) were type A and 49 (3.7%) were type B. Of 851 subtyped influenza A viruses, 804 (94.5%) were A(H3) and 47 (5.5%) were A(H1)pdm09 (Table 6).

Table 4: Cumulative number of SARI cases, weeks 40/2011–36/2012

Country	Number of cases	Incidence of SARI cases per 100 000 population	Number of fatal cases reported	Incidence of fatal cases per 100 000 population	Estimated population covered
Belgium	272		8		
France	310		43		
Ireland	20		5		
Romania	346	5.95	6	0.1	5813728
Slovakia	30	0.55	1	0.02	5435273
Spain	610		50		
United Kingdom	252	0.43			59255492
Total	**1840**		**113**		

Figure 6: Number of SARI cases by week of onset, weeks 40/2011–36/2012

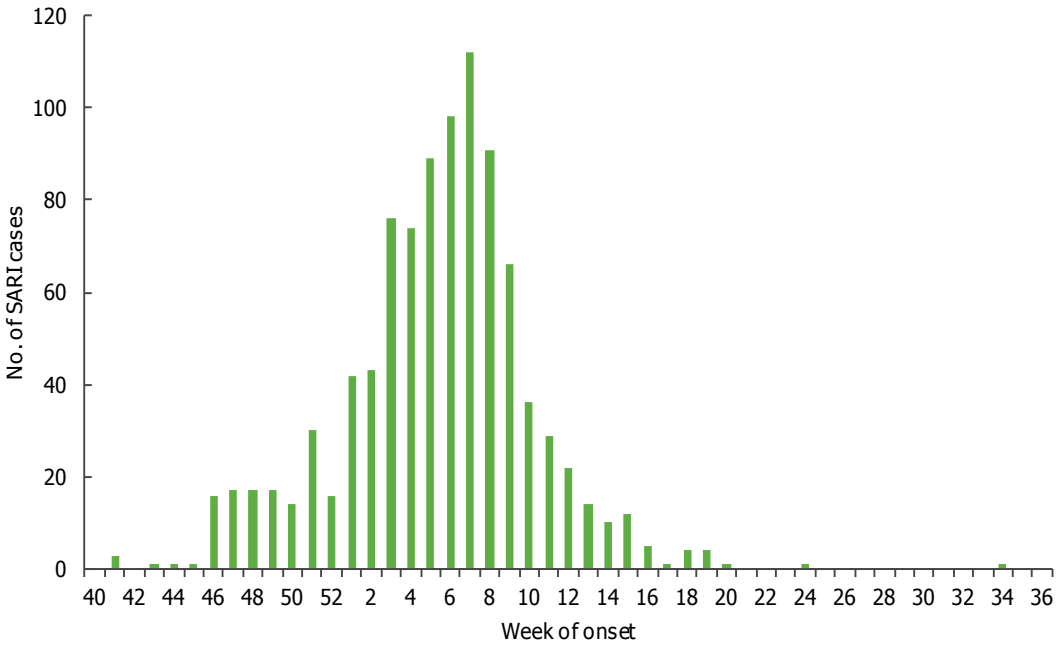


Table 5: Number of SARI cases by age and gender, weeks 40/2011–36/2012

Age groups	Male	Female	Unknown
Under 2	180	123	1
2-17	162	117	4
18-44	75	79	1
45-59	105	89	
>=60	333	305	2
Unknown	8	3	253
Total	**863**	**716**	**261**

Table 6: Number of SARI cases by influenza type and subtype and other pathogens, weeks 35–36 2012 and cumulative for the season

Pathogen	Number of cases during current week	Cumulative number of cases since the start of the season
Influenza A		1276
A(H1)pdm09		47
A(H1)		
A(H3)		804
A(sub-typing not performed)		425
Influenza B		49
Other pathogen		6
Unknown	1	509
Total	**1**	**1840**

This report was written by an editorial team at the European Centre for Disease Prevention and Control (ECDC): Eeva Broberg, Flaviu Plata, 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) and Suzie Coughlan (UCD National Virus Reference Laboratory, Ireland). In addition, the report is reviewed by experts of WHO Regional Office for Europe.