SURVEILLANCE REPORT

Weekly influenza surveillance overview

14 March 2011 (erratum 14 March 2011)

Main surveillance developments in week 9/2011 (28 Feb – 06 Mar 2011)

This first page contains the main developments of this week and can be printed separately or together with the more detailed information following.

- Most European Union/European Economic Area countries are reporting regional or widespread influenza activity, with medium influenza-like illness (ILI)/acute respiratory infection (ARI) consultation rates. Decreasing ILI/ARI trends were reported by the majority of countries.
- An increasing proportion of B viruses has been reported. In week 09/2011, 55.3% of influenza virus detections were type A, and 44.7% were type B. The latter are reported to be dominant now in a number of countries. Of the 784 subtyped influenza A viruses, 97.2% were A(H1N1)2009.
- In week 09/2011, ten countries reported 119 cases of all-cause severe acute respiratory infection (SARI) and hospitalised confirmed influenza cases. The latter were mostly due to influenza A(H1N1)2009 virus infection.
- Numbers of influenza virus infections with severe outcome have decreased in western European Union countries that report these. However, the number of cases remains high in Greece. Apart from the Czech Republic, Romania and Slovakia, there is considerable uncertainty about cases with severe respiratory disease due to influenza in a number of central and eastern European Union countries because of limited hospital surveillance for influenza-associated cases.

Sentinel surveillance of influenza-like illness (ILI)/ acute respiratory infection (ARI): During week 09/2011, no countries reported high intensity levels of ILI/ARI. Eighteen countries reported decreasing trends. For more information, **click here**.

Virological surveillance Sentinel physicians collected 1 065 specimens, 426 (40.0%) of which tested positive for influenza virus. For more information, **click here**.

Hospital surveillance of severe acute respiratory infection (SARI): Belgium, Romania and Slovakia reported 84 all-cause SARI cases, while Austria, France, Portugal and Spain reported 35 hospitalised confirmed influenza cases. For more information, **click here**.

Erratum. The following correction was made on 14 March:

Page 12, second paragraph: 'Austria, France, Portugal and Spain reported 84 hospitalised confirmed cases of influenza virus infection' was changed to read 'Austria, France, Portugal and Spain reported 35 hospitalised confirmed cases of influenza virus infection'

Sentinel surveillance (ILI/ARI)

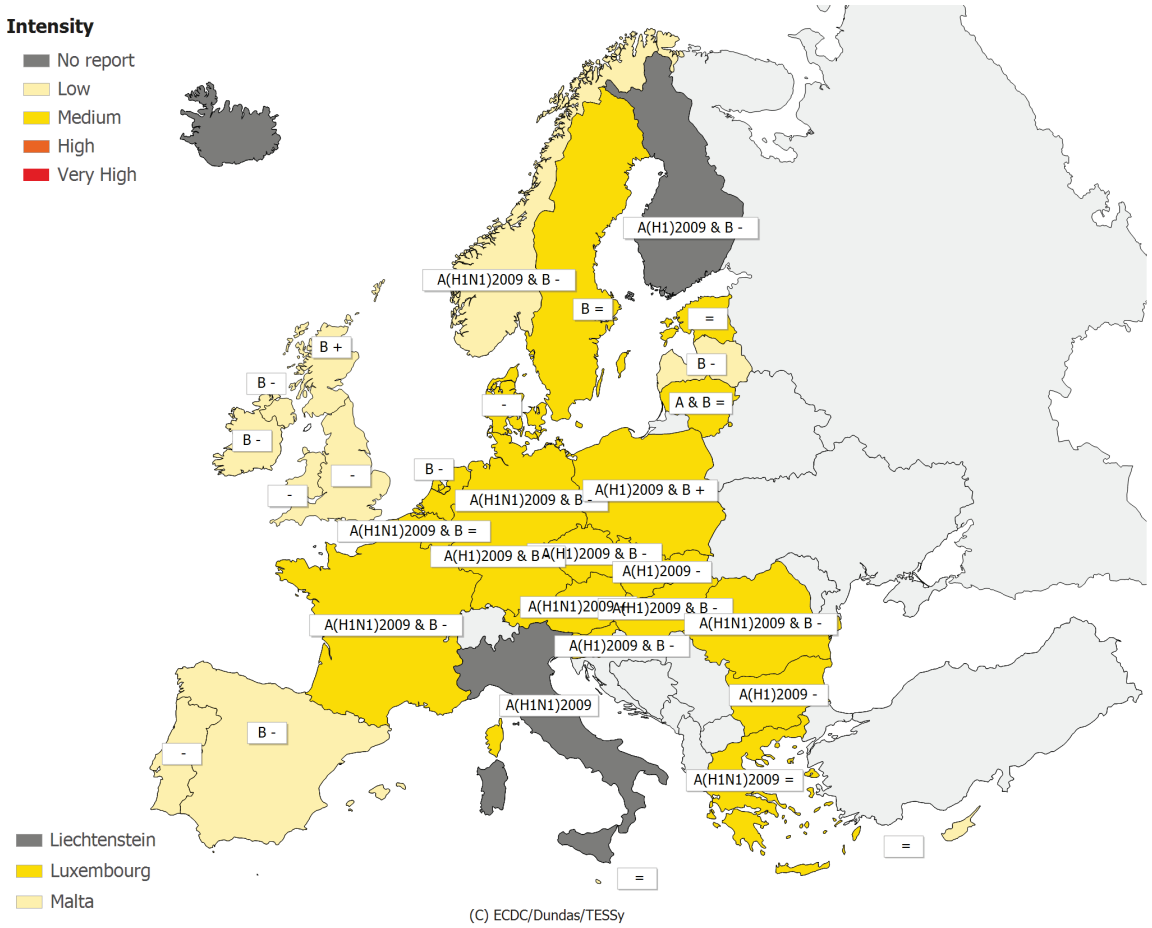
Weekly analysis – epidemiology

During week 09/2011, 27 countries reported clinical data. No country reported high intensity levels of ILI/ARI. Eighteen countries reported medium intensity, while low intensity was reported by Cyprus, Ireland, Latvia, Malta, Norway, Portugal, Spain, and the UK (Map 1, Table 1).

Ten countries across Europe reported widespread activity during week 09/2011, seven less than in the previous week. Seven countries reported regional activity, while ten reported sporadic or local activity (Map 2, Table 1).

Austria, Poland and the UK (Scotland) reported increasing trends during week 09/2011. Unchanging trends were seen in seven countries. Seventeen countries and the UK (England, Northern Ireland and Wales), reported decreasing trends (Map 1 and 2, Table 1).

Map 1: Intensity for week 9/2011

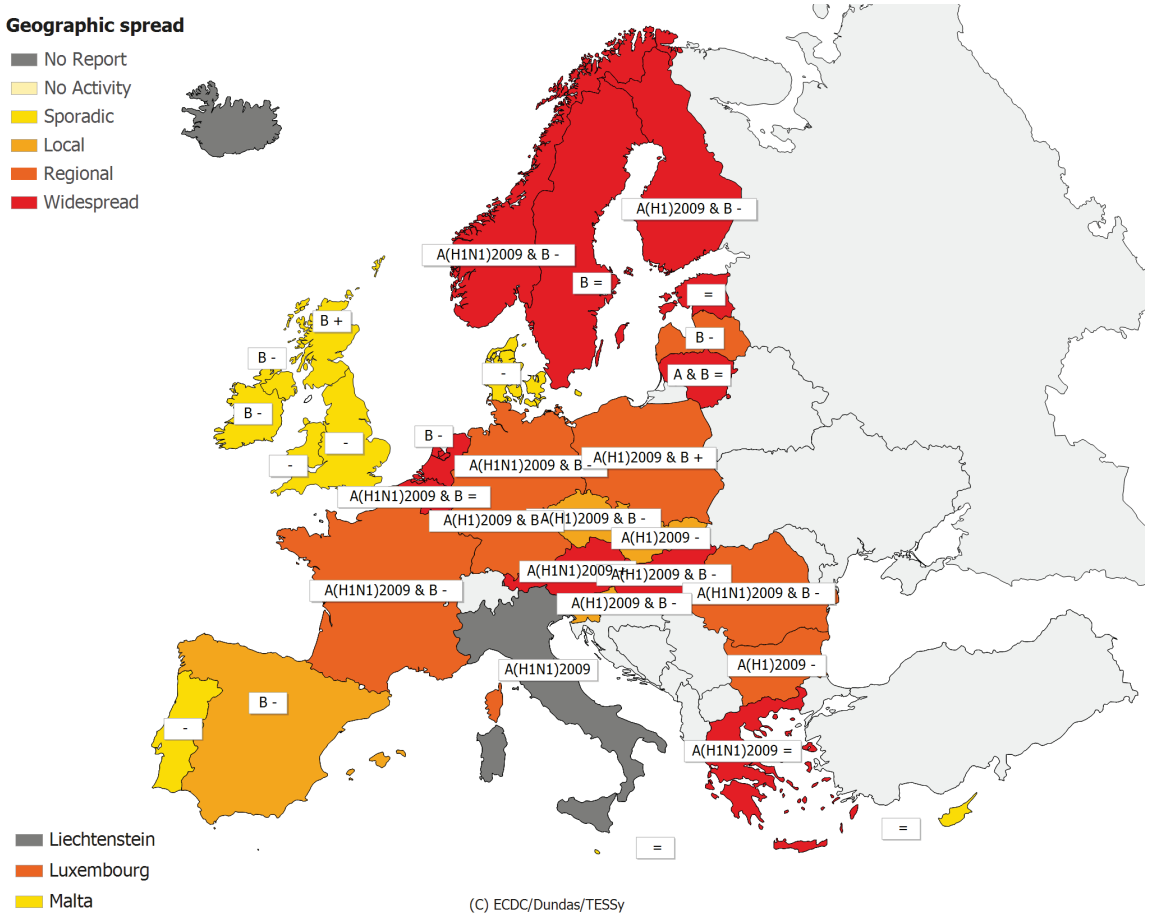


* A type/subtype is reported as dominant when > 40 % of all samples are positive for the type/subtype.

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	**A & B**	Type A and B
Very high	Particularly severe levels of influenza activity	**A(H1)2009**	Type A, Subtype (H1)2009
		A(H1)2009 & B	Type B and Type A, Subtype (H1)2009
		A(H1N1) 2009	Type A, Subtype (H1N1)2009
		A(H1N1) 2009 & B	Type B and Type A, Subtype (H1N1)2009
		B	Type B

Map 2: Geographic spread for week 9/2011



* 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)

-	Decreasing clinical activity
+	Increasing clinical activity
=	Stable clinical activity
A & B	Type A and B
A(H1)2009	Type A, Subtype (H1)2009
A(H1)2009 & B	Type B and Type A, Subtype (H1)2009
A(H1N1) 2009	Type A, Subtype (H1N1)2009
A(H1N1) 2009 & B	Type B and Type A, Subtype (H1N1)2009
B	Type B

Table 1: Epidemiological and virological overview by country, week 9/2011

Country	Intensity	Geographic spread	Trend	No. of sentinel swabs	Dominant type	Percentage positive*	ILI per 100.000	ARI per 100.000	Epidemiological overview	Virological overview
Austria	Medium	Widespread	Increasing	41	A(H1N1)2009	58.5	4.2	27.8	Graphs	Graphs
Belgium	Medium	Widespread	Stable	38	BA(H1N1)2009	55.3	129.0	1498.6	Graphs	Graphs
Bulgaria	Medium	Regional	Decreasing	4	A(H1N1)2009	50.0	-	931.5	Graphs	Graphs
Cyprus	Low	Sporadic	Stable	-	-	0.0	-*	-*	Graphs	Graphs
Czech Republic	Medium	Local	Decreasing	20	BA(H1N1)2009	50.0	148.6	1223.7	Graphs	Graphs
Denmark	Medium	Sporadic	Decreasing	11	None	9.1	-	-	Graphs	Graphs
Estonia	Medium	Widespread	Stable	34	None	44.1	13.6	390.7	Graphs	Graphs
Finland	No information available	Widespread	Decreasing	54	BA(H1N1)2009	50.0	-	-	Graphs	Graphs
France	Medium	Regional	Decreasing	75	BA(H1N1)2009	25.3	-	1575.3	Graphs	Graphs
Germany	Medium	Regional	Decreasing	160	BA(H1N1)2009	53.8	-	1147.4	Graphs	Graphs
Greece	Medium	Widespread	Stable	21	A(H1N1)2009	19.0	225.3	-	Graphs	Graphs
Hungary	Medium	Widespread	Decreasing	104	BA(H1N1)2009	26.9	251.8	-	Graphs	Graphs
Iceland				0	-	0.0	-	-	Graphs	Graphs
Ireland	Low	Sporadic	Decreasing	10	B	20.0	18.9	-	Graphs	Graphs
Italy				43	A(H1N1)2009	34.9	-	-	Graphs	Graphs
Latvia	Low	Regional	Decreasing	2	B	50.0	-*	-*	Graphs	Graphs
Lithuania	Medium	Widespread	Stable	22	AB	31.8	65.2	669.3	Graphs	Graphs
Luxembourg	Medium	Regional	Decreasing	19	BA(H1N1)2009	63.2	-*	-*	Graphs	Graphs
Malta	Low	Sporadic	Stable	-	-	0.0	-*	-*	Graphs	Graphs
Netherlands	Medium	Widespread	Decreasing	18	B	33.3	45.6	-	Graphs	Graphs
Norway	Low	Widespread	Decreasing	4	BA(H1N1)2009	25.0	82.8	-	Graphs	Graphs
Poland	Medium	Regional	Increasing	58	BA(H1N1)2009	46.6	154.8	-	Graphs	Graphs
Portugal	Low	Sporadic	Decreasing	2	None	50.0	14.4	-	Graphs	Graphs
Romania	Medium	Regional	Decreasing	41	BA(H1N1)2009	61.0	47.1	1344.1	Graphs	Graphs
Slovakia	Medium	Local	Decreasing	14	A(H1N1)2009	78.6	318.2	1906.7	Graphs	Graphs
Slovenia	Medium	Local	Decreasing	11	BA(H1N1)2009	63.6	13.0	1221.1	Graphs	Graphs
Spain	Low	Local	Decreasing	149	B	34.9	53.3	-	Graphs	Graphs
Sweden	Medium	Widespread	Stable	31	B	45.2	19.0	-	Graphs	Graphs
UK - England	Low	Sporadic	Decreasing	51	None	0.0	7.6	405.0	Graphs	Graphs
UK - Northern Ireland	Low	Sporadic	Decreasing	3	B	33.3	14.0	335.8	Graphs	Graphs
UK - Scotland	Low	Sporadic	Increasing	25	B	28.0	3.5	213.8	Graphs	Graphs
UK - Wales	Low	Sporadic	Decreasing	-	-	0.0	4.1	-	Graphs	Graphs
Europe				1065		40.0				Graphs

**Incidence per 100 000 is not calculated for these countries as no population denominator is provided.*
Note: Liechtenstein is not reporting 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) are participating. 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

In week 09/2011, 27 countries reported virological data. Sentinel physicians collected 1065 specimens, 426 (40.0%) of which tested positive for influenza virus, a small increase compared with the previous week (Table 1, Figure 3). National detection rates increased in fifteen countries (Table 1). In addition, 1326 non-sentinel source specimens (i.e. specimens collected for diagnostic purposes in hospitals) were reported positive for influenza virus (Table 2).

Of the 1 752 influenza viruses detected during week 09/2011, 969 (55.3%) were type A and 783 (44.7%) were type B. Ireland, Latvia, the Netherlands, Spain, Sweden and the UK (Northern Ireland and Scotland) reported influenza B as the dominant type (Table 1). Of the 784 influenza A viruses that were subtyped, 762 (97.2%) were A(H1)2009 and 22 (2.8%) were A(H3) (Table 2).

Since week 40/2010, 36 026 (68.4%) of the 52 641 influenza virus detections in sentinel and non-sentinel specimens were influenza A and 16 615 (31.6%) were influenza B viruses. Of 25 903 influenza A viruses subtyped, 25 319 (97.7%) were A(H1)2009 and 584 (2.3%) were A(H3) (Table 2). Trends of virological detections since week 40/2010 are shown in Figures 1–3.

Since week 40/2010, 2 809 influenza viruses from sentinel and non-sentinel specimens have been characterised antigenically (Figure 4): 1 337 (47.6%) as A/California/7/2009 (H1N1)-like; 97 (3.5%) as A/Perth/16/2009 (H3N2)-like; 1 275 (45.4%) as B/Brisbane/60/2008-like (Victoria lineage); and 97 (3.5%) as B/Florida/4/2006-like (Yamagata lineage).

Since week 40/2010, Germany, Ireland, Italy, the Netherlands, Norway, Spain and the UK have reported antiviral resistance data to TESSy. Of 903 influenza A(H1)2009 viruses tested, thirty-two (3.5%) were resistant to oseltamivir but remained sensitive for zanamivir. All the resistant viruses carried the H275Y mutation on the neuraminidase active site. Eight of 32 resistant viruses from patients for whom exposure to antivirals was known were from patients who had not been treated with oseltamivir.

More details on circulating viruses can be found in the February report prepared by the Community Network of Reference Laboratories (CNRL) coordination team. The viruses circulating this season remain well-matched with the 2010/11 seasonal vaccine viruses.

In week 09/2011 ten countries reported 602 respiratory syncytial virus detections, representing a decrease for the eighth consecutive week (Figure 5).

Table 2: Weekly and cumulative influenza virus detections by type, subtype and surveillance system, weeks 40/2010–9/2011

	Current Period		Season	
Virus type/subtype	Sentinel	Non-sentinel	Sentinel	Non-sentinel
Influenza A	176	793	8119	27907
A(H1)2009	143	619	7218	18101
A (subtyping not performed)	29	156	693	9430
A (not subtypable)	0	0	0	0
A (H3)	4	18	208	376
A (H1)	0	0	0	0
Influenza B	250	533	4819	11796
Total Influenza	**426**	**1326**	**12938**	**39703**

Note: A(H1)2009, A(H3) and A(H1) includes both N-subtyped and non-N-subtyped viruses

Figure 1: Number of sentinel specimens positive for influenza, by type, subtype and by week of report, weeks 40/2010–9/2011

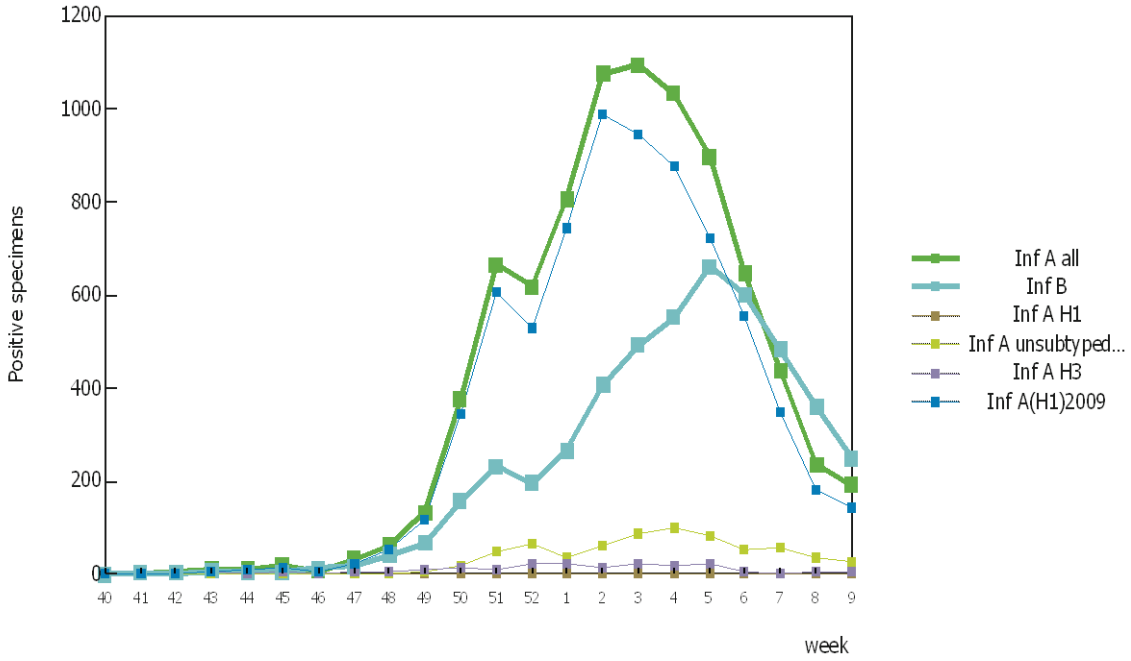


Figure 2: Number of non-sentinel specimens positive for influenza by type, subtype and week of report, weeks 40/2010–9/2011

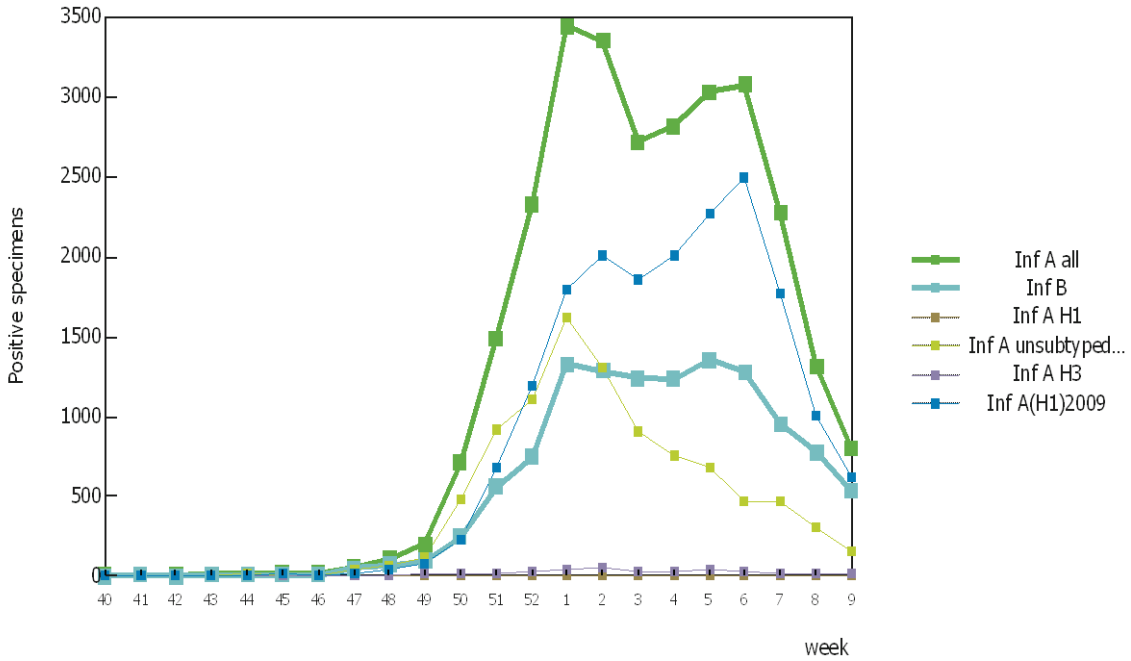


Figure 3: Proportion of sentinel samples positive for influenza, weeks 40/2010–9/2011

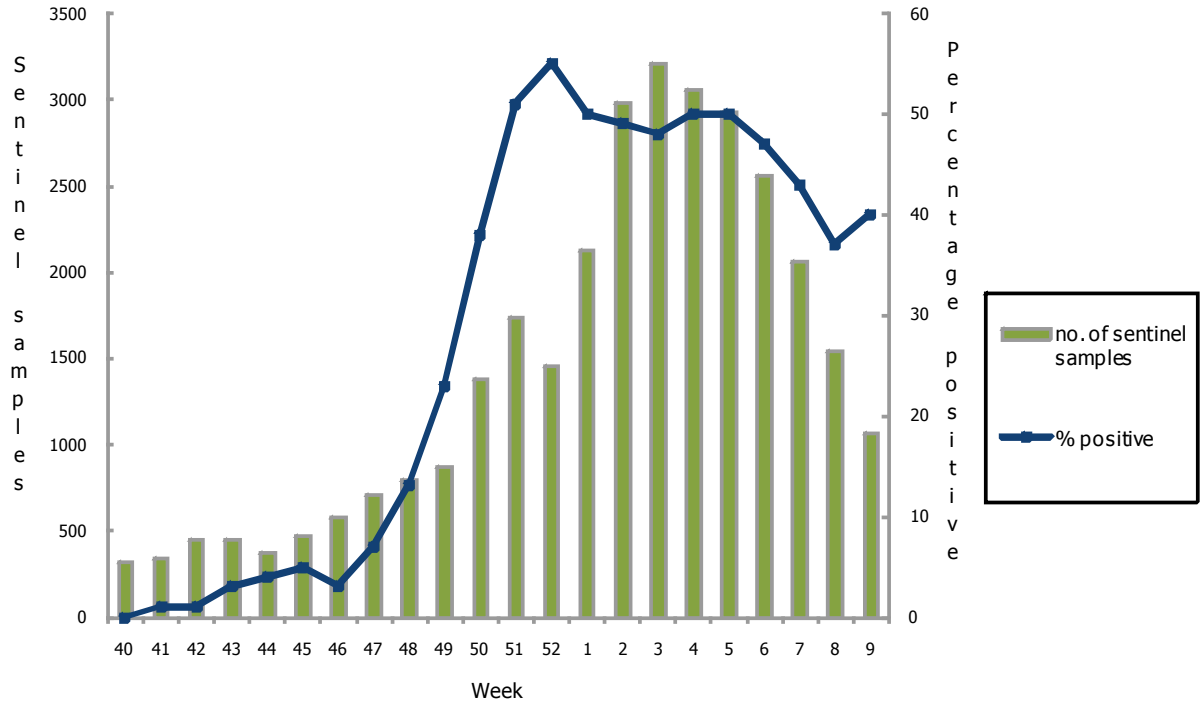


Figure 4: Results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates, weeks 40/2010–9/2011

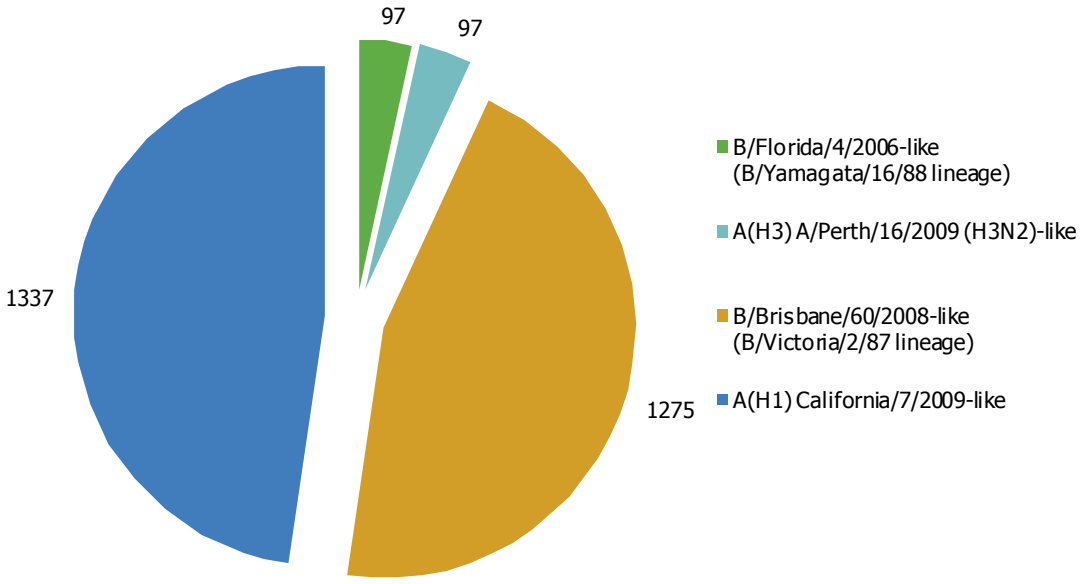
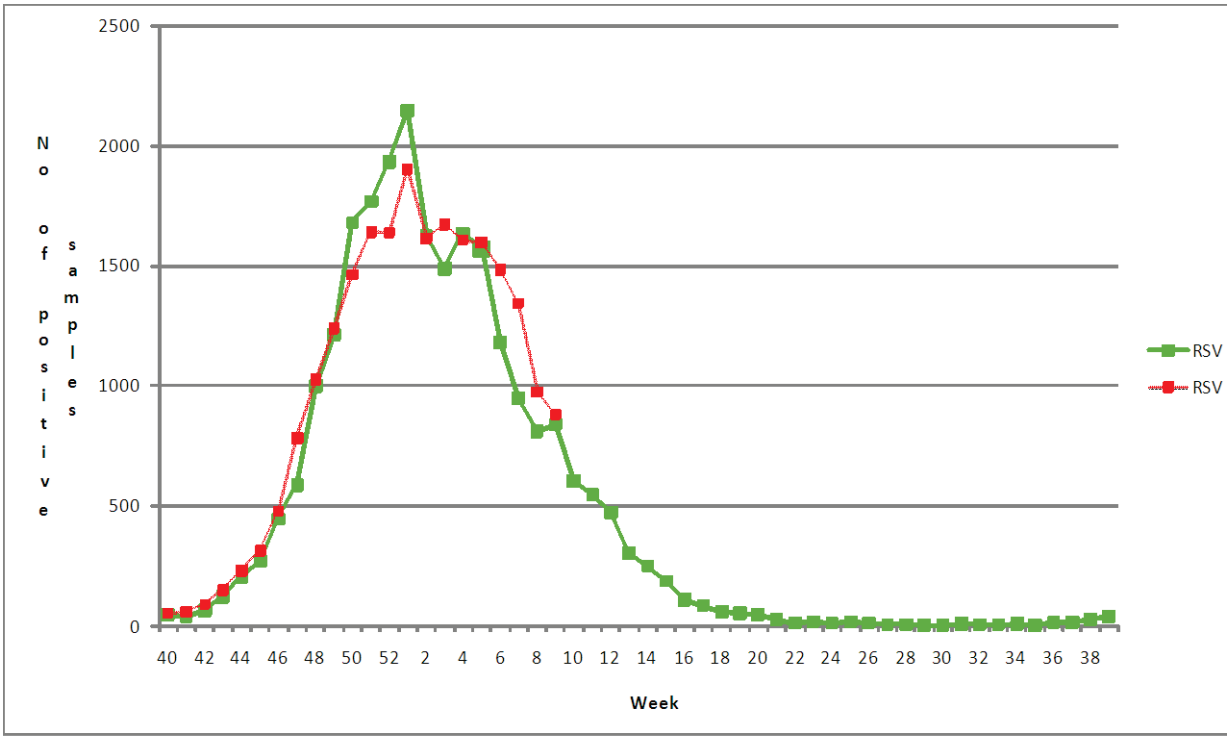


Table 3: Antiviral resistance by influenza virus type and subtype, weeks 40/2010–9/2011

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(H3)	3	0	3	0	0	0
A(H1)	0	0	0	0	0	0
A(H1)2009	903	32 (3.5)	902	0	139	139 (100)
B	70	0	71	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), and therefore data should be interpreted in this context.

Figure 5: Respiratory syncytial virus (RSV) detections, sentinel and non-sentinel, weeks 40/2010–9/2011



Country comments

Finland: Of the 54 samples tested during week 9, 5 were positive for parainfluenza virus type 3, and 9 for adenovirus. Since week 40, 1706 laboratory-confirmed diagnoses of influenza A and 1770 cases of influenza B have been reported to the national infectious disease registry. Age group 0–4 years: 115 type A and 143 type B; age group 5–14 years: 104 type A, 446 type B; age group 15–64: 1411 type A, 1124 type B; age group 65+: 76 type A, 57 type B.

Greece: Two swabs were collected from an immunocompromised patient, the first on 10 February 2011 and the second on 17 February 2011 following tamiflu administration. Both clinical samples were positive for A(H1N1)2009, but only the second was confirmed by real-time PCR to carry the H275Y mutation for tamiflu resistance. NA sequence analysis is pending.

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 acute respiratory infection (SARI)

Weekly analysis – SARI

Since week 40/2010, three countries have reported all-cause SARI cases (irrespective of the causative pathogen) (Table 4), and eight countries have notified for severe influenza cases admitted to hospital (Table 5), with France and Ireland reporting only cases admitted to intensive care (ICU).

In week 09/2011, Belgium, Romania, and Slovakia reported 84 all-cause SARI cases, including eight deaths, while Austria, France, Portugal and Spain reported 35 hospitalised confirmed cases of influenza virus infection.

Since week 40/2010, ten countries have reported 4 288 all-cause SARI and hospitalised confirmed cases of influenza virus infection, including 349 deaths (Tables 4 and 5). The epidemic curve peaked in week 52/2010 (Figure 6).

Of 2 901 influenza virus detections since week 40/2010, 2 758 (95.1%) were type A, and 143 (4.9%) were type B. Of 2 602 influenza A viruses subtyped, 2 582 (99.2%) were A(H1)2009, and 20 (0.8%) were A(H3) (Table 6). The percentage of influenza B virus detections is ten times higher (weeks 40/2010–9/2011, 31.6%) in the outpatient sentinel samples (Table 2) than it is for the SARI or for the severe influenza cases admitted to hospital.

Overall, ICU admission was reported for 1 765 patients, 941 (53.3%) of whom were known to have required ventilation (Table 7). In patients for whom information was available, obesity was the most frequent underlying condition, but 1 237 (40.2%) of 3 075 all-cause SARI and hospitalised confirmed influenza cases had no known prior underlying condition (Figure 7).

Table 4: Cumulative number of SARI cases, weeks 40/2010–9/2011

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	799				
Romania	328	5.11	19	0.3	6413821
Slovakia	122	2.25	15	0.28	5433385
Total	**1249**		**34**		

Table 5: Cumulative number of hospitalised influenza cases, weeks 40/2010–9/2011

Country	Number of cases	Number of fatal cases reported
Austria	353	11
Finland	58	7
France	752	126
Ireland	120	20
Malta	49	1
Portugal	402	41
Spain	1305	139
Total	**3039**	**345**

Figure 6: Number of SARI and hospitalised influenza cases by week of onset, weeks 40/2010–9/2011

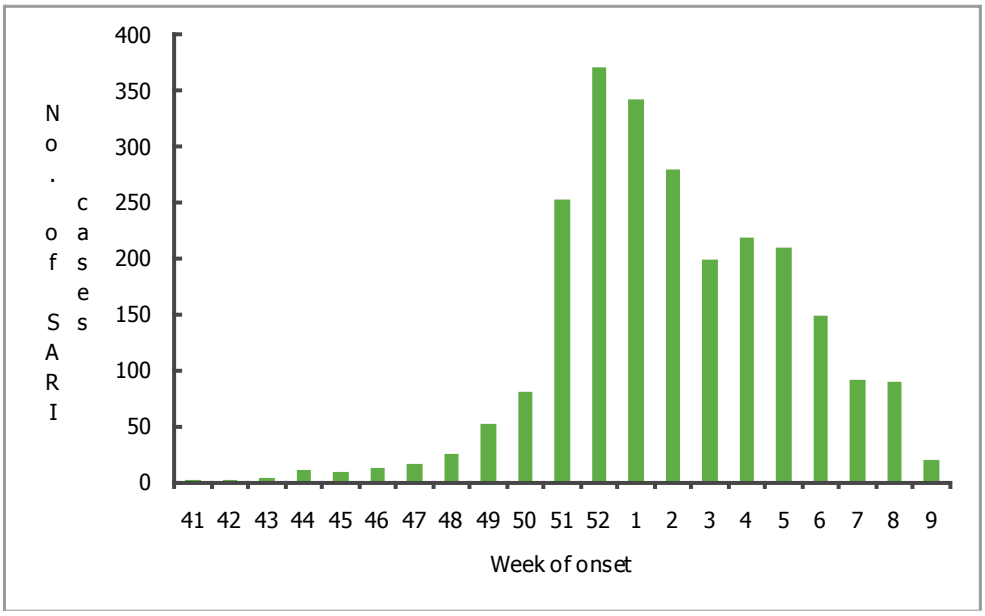


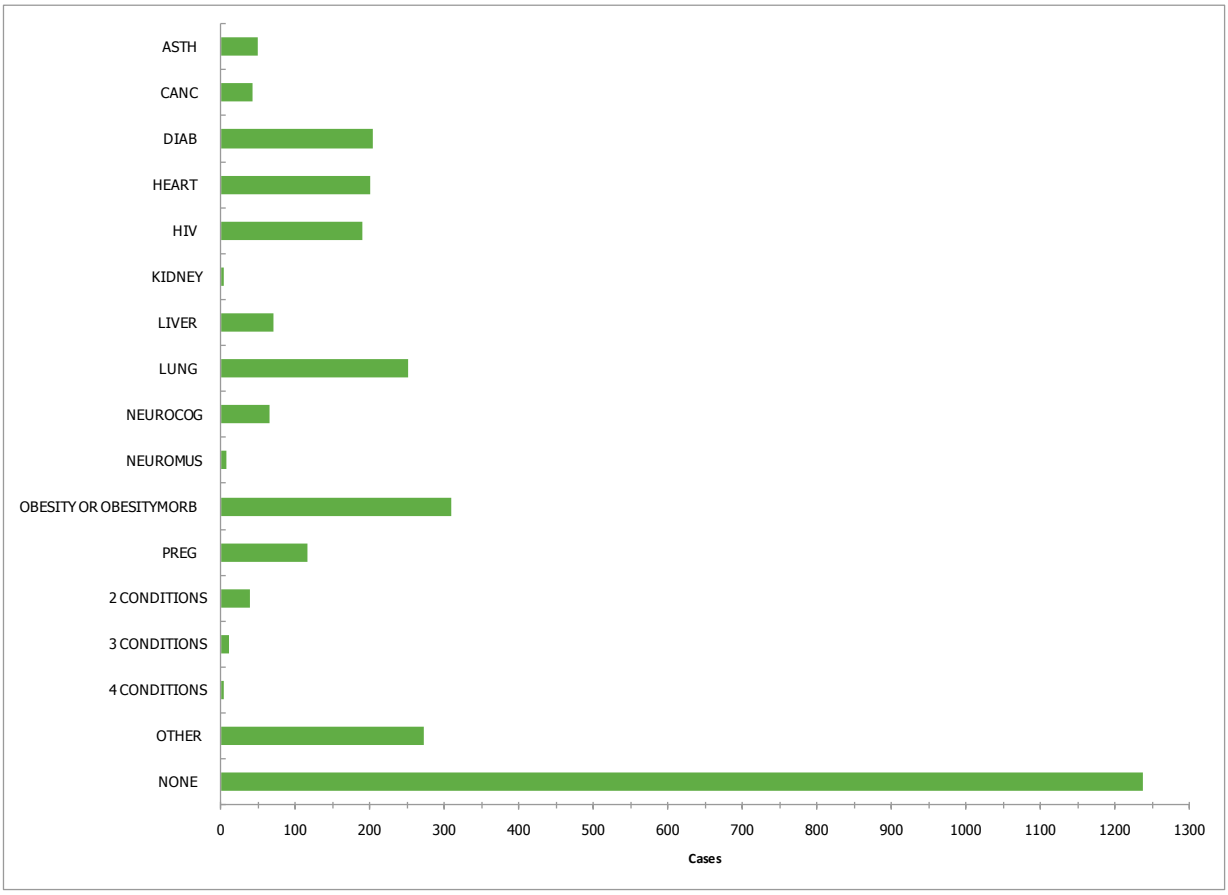
Table 6: Number of SARI and hospitalised influenza cases by influenza type and subtype, week 9/2011

Virus type/subtype	Number of cases during current week	Cumulative number of cases since the start of the season
Influenza A	57	2758
A(H1)2009	50	2582
A(subtyping not performed)	7	156
A(H3)		20
Influenza B	17	143
Other Pathogen	1	34
Unknown	44	1353
Total	119	4288

Table 7: Number of SARI and hospitalised influenza cases by level of care and respiratory support, weeks 40/2010–9/2011

Respiratory support	ICU	Inpatient ward	Other	Unknown
No respiratory support available		1		
No respiratory support necessary	169	428	385	
Oxygen therapy	98	160	328	
Respiratory support given unknown	557	270	696	194
Ventilator	941	17	6	38

Figure 7: Number of SARI and hospitalised influenza cases by underlying condition, weeks 40/2010–9/2011



Note: Other represents any other underlying condition than: asthma (ASTH), cancer (CANC), diabetes (DIAB), chronic heart disease (HEART), HIV/other immune deficiency (HIV), kidney-related conditions (KIDNEY), liver-related conditions (LIVER), chronic lung disease (LUNG), neurocognitive disorder (including seizure; NEUROCOG), neuromuscular disorder (NEUROMUS), obesity (BMI between 30 and 40; OBESITY), morbid obesity (BMI above 40; OBESITYMORB) or pregnancy (PREG). NONE is reported if there were no underlying conditions.

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.

Czech Republic: Link here. Up to the end of week 9/2011 a cumulative total of 151 SARI patients with laboratory-confirmed influenza have been reported by intensive care units and there were 32 deaths. Distribution by virus type and subtype is as follows: A/H1N1: 144 SARI and 29 deaths; A/H3N2: 3 SARI and 2 deaths; B: 4 SARI and 1 death.

Malta: Link here. Situation unchanged.

Netherlands: RIVM influenza link here. Since 4 October 2010, a total of 645 hospital admissions due to laboratory-confirmed influenza A(H1N1)2009 infections were reported. There were also 38 influenza-related deaths. The largest group of patients is children between 0 and 5 years old. Almost half of the hospitalised patients had an underlying condition. There are still patients hospitalised because of influenza A(H1N1)2009, but numbers have been decreasing over the last weeks.

Romania: Link here. Since the start of the season, influenza A(H1N1)2009 virus was detected in 58 of the 328 reported cases (seven cases during week 09/2011). Influenza B virus was detected in 53 cases, 117 of which during week 09/2011. None of the influenza-positive SARI cases reported during the season were vaccinated for influenza.

Spain: ISCIII influenza link here. In Spain, information concerning severe illness due to influenza infection with associated admission to hospitals comes from a surveillance system developed during the 2009/2010 pandemic season specifically for this purpose. Since week 40/2010 and up to week 09/2011 1305 severe hospitalised confirmed influenza cases have been reported. Severely affected cases were mostly in the 15–64 year age groups (64%), 15% were under five years old and 17% were over 64 years old. Of these severely affected cases, 25% had no known risk factors. Of 1157 cases with outcome information, 139 died (13% with no known risk factors). Of the severe cases, 845 had information available on the status of influenza vaccination for the 2010/2011 season and only 121 (14%) cases had been immunised. Monovalent pandemic vaccines 2009 were reported to have been received for 9% of hospitalised cases. Most of the severe and fatal cases included in the groups for which influenza vaccination had been recommended had not been vaccinated this season

UK: HPA influenza link. Increase in influenza activity small (33.1 per 100 000 population). The number of severely ill influenza cases requiring ICU admission remains low (111 as at 3 March 2011). Total number of deaths related to influenza reported to HPS now stands at 60 (as at 3 March 2011).

This report was written by an editorial team at the European Centre for Disease Prevention and Control (ECDC): Eeva Broberg, Flaviu Plata, Phillip Zucs, 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 Bianca Snijders (RIVM Bilthoven, Netherlands) and Thedi Ziegler (National Institute for Health and Welfare, Finland). In addition, the report is reviewed by experts of WHO Regional Office for Europe.