SURVEILLANCE REPORT

Weekly influenza surveillance overview

18 March 2011

Main surveillance developments in week 10/2011 (07 Mar 2011 – 13 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.

- The majority of European countries reported decreasing ILI/ARI trends. Most countries reported some regional or sporadic influenza activity.
- In week 10/2011, the proportion of influenza B viruses (58.9%) in sentinel specimens was higher than the percentage of influenza A viruses (41.1%).
- Thirty-two (3.0%) of influenza A(H1) 2009 viruses tested for susceptibility were resistant to oseltamivir but remained sensitive for zanamivir. All the resistant viruses carried the H275Y mutation.
- In week 10/2011, five countries reported 39 cases of all-cause severe acute respiratory infection (SARI) and 43 hospitalised confirmed influenza cases. The latter were mostly (68.4%) due to influenza A(H1N1)2009 virus infection.

Sentinel surveillance of influenza-like illness (ILI)/ acute respiratory infection (ARI): For week 10/2011, fourteen countries reported medium intensity, while low intensity was reported by the other fourteen countries. Stable or decreasing trends were reported by 28 countries and only Bulgaria notified increasing trends of influenza activity. For more information, click here**.**

Virological surveillance: Sentinel physicians collected and submitted 830 specimens, 279 (33.6%) of which tested positive for influenza virus. For more information, click here.

Hospital surveillance of severe acute respiratory infection (SARI) and severe influenza cases: Belgium, Romania and Slovakia reported 39 all-cause SARI cases while 43 severe confirmed influenza cases were notified by Austria, France, Romania and Slovakia. For more information, click here.

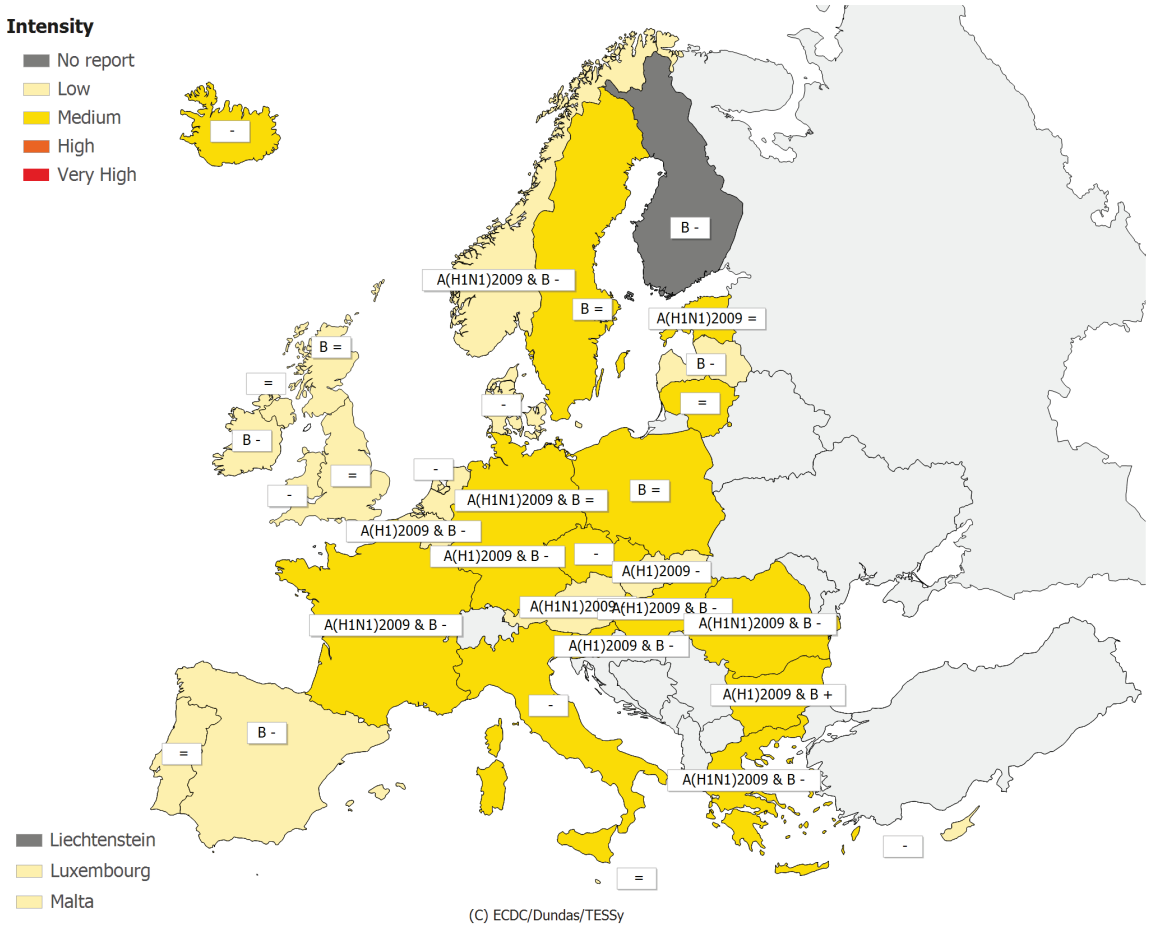
Weekly analysis – epidemiology

During week 10/2011, 29 countries reported clinical data. Fourteen countries reported medium intensity, while low intensity was reported by fourteen countries, i.e. five more countries than in the previous week. No country reported high intensity levels of ILI/ARI. (Map 1, Table 1).

Three countries across Europe reported widespread activity during week 10/2011, seven less than in the previous week. Nine countries reported regional activity, while 16 countries and the UK (England, Scotland and Wales) reported sporadic or local activity. Only the UK (Northern Ireland) reported no activity (Map 2, Table 1).

Stable or decreasing trends were reported by 28 countries and only Bulgaria notified increasing trends of influenza activity. (Map 1 and 2, Table 1).

Map 1: Intensity for week 10/2011

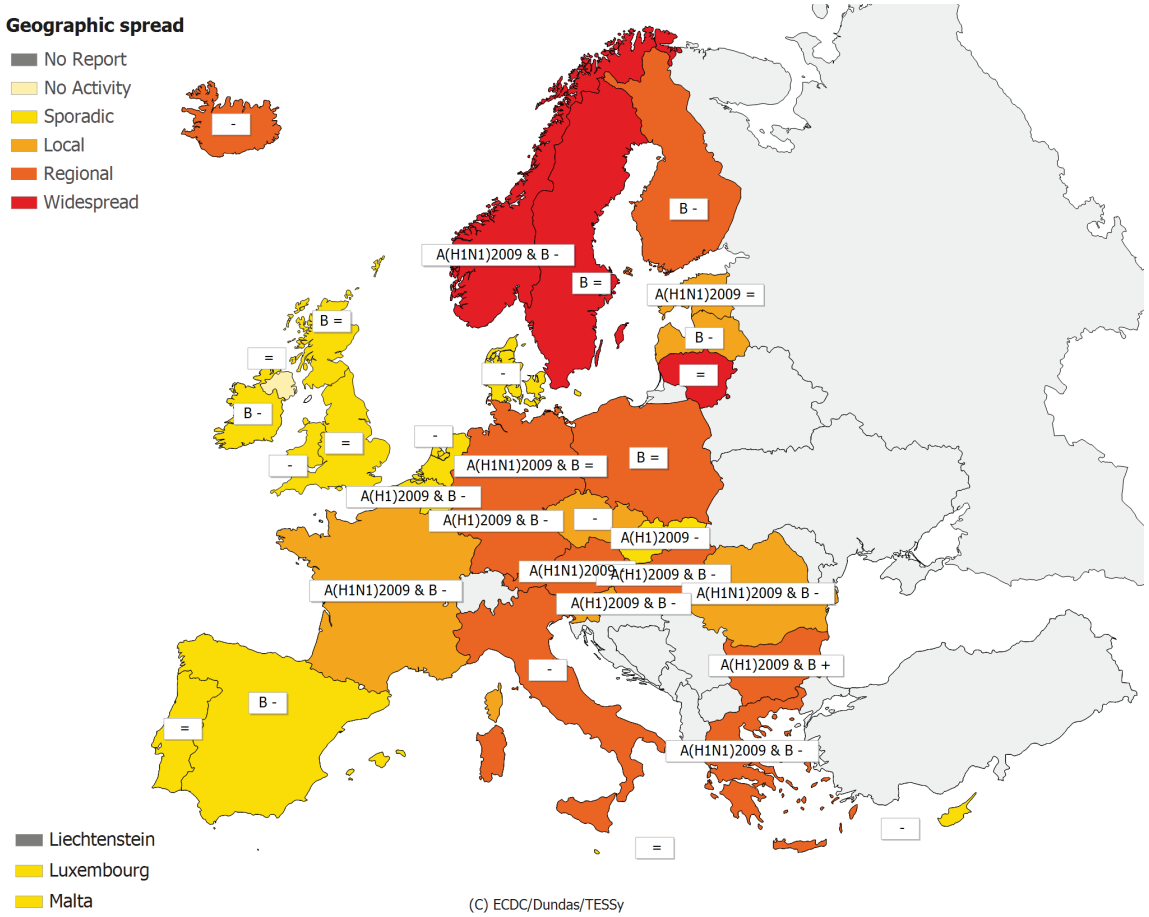


* A type/subtype is reported as dominant when > 40 % of all samples are positive for the type/subtype.

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(H1)2009**	Type A, Subtype (H1)2009
Very high	Particularly severe levels of influenza activity	**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 10/2011



* 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(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 10/2011

Country	Intensity	Geographic spread	Trend	No. of sentinel swabs	Dominant type	Percentage positive*	ILI per 100.000	ARI per 100.000	Epidemiol. overview	Virological overview
Austria	Low	Regional	Decreasing	26	A(H1N1)2009	57.7	2.3	20.4	Graphs	Graphs
Belgium	Low	Sporadic	Decreasing	24	A(H1)2009 & B	54.2	69.0	1380.3	Graphs	Graphs
Bulgaria	Medium	Regional	Increasing	8	A(H1)2009 & B	50.0	-	1026.3	Graphs	Graphs
Cyprus	Low	Sporadic	Decreasing	-	-	0.0	-*	-*	Graphs	Graphs
Czech Republic	Medium	Local	Decreasing	-	-	0.0	133.7	1198.8	Graphs	Graphs
Denmark	Low	Sporadic	Decreasing	10	None	10.0	62.1	-	Graphs	Graphs
Estonia	Medium	Local	Stable	25	A(H1N1)2009	24.0	14.4	319.5	Graphs	Graphs
Finland	no information available	Regional	Decreasing	41	B	24.4	-	-	Graphs	Graphs
France	Medium	Local	Decreasing	70	A(H1N1)2009 & B	17.1	-	1337.3	Graphs	Graphs
Germany	Medium	Regional	Stable	131	A(H1N1)2009 & B	50.4	-	1127.6	Graphs	Graphs
Greece	Medium	Regional	Decreasing	9	A(H1N1)2009 & B	22.2	139.3	-	Graphs	Graphs
Hungary	Medium	Regional	Decreasing	66	A(H1)2009 & B	30.3	182.8	-	Graphs	Graphs
Iceland	Medium	Regional	Decreasing	0	-	0.0	43.7	-	Graphs	Graphs
Ireland	Low	Sporadic	Decreasing	12	B	41.7	13.2	-	Graphs	Graphs
Italy	Medium	Regional	Decreasing	44	-	18.2	304.3	-	Graphs	Graphs
Latvia	Low	Local	Decreasing	1	B	100.0	-*	-*	Graphs	Graphs
Lithuania	Medium	Widespread	Stable	-	-	0.0	72.7	658.7	Graphs	Graphs
Luxembourg	Low	Sporadic	Decreasing	17	A(H1)2009 & B	29.4	-*	-*	Graphs	Graphs
Malta	Low	Sporadic	Stable	-	-	0.0	-*	-*	Graphs	Graphs
Netherlands	Low	Sporadic	Decreasing	8	None	12.5	26.3	-	Graphs	Graphs
Norway	Low	Widespread	Decreasing	8	A(H1N1)2009 & B	50.0	65.9	-	Graphs	Graphs
Poland	Medium	Regional	Stable	72	B	48.6	147.8	-	Graphs	Graphs
Portugal	Low	Sporadic	Stable	1	None	0.0	19.9	-	Graphs	Graphs
Romania	Medium	Local	Decreasing	35	A(H1N1)2009 & B	65.7	32.6	1207.9	Graphs	Graphs
Slovakia	Low	Sporadic	Decreasing	18	A(H1)2009	50.0	277.6	1846.4	Graphs	Graphs
Slovenia	Medium	Local	Decreasing	4	A(H1)2009 & B	50.0	7.6	1033.3	Graphs	Graphs
Spain	Low	Sporadic	Decreasing	123	B	23.6	38.2	-	Graphs	Graphs
Sweden	Medium	Widespread	Stable	27	B	22.2	15.2	-	Graphs	Graphs
UK - England	Low	Sporadic	Stable	27	None	0.0	7.8	385.4	Graphs	Graphs
UK - Northern Ireland	Low	No activity	Stable	3	None	0.0	19.2	314.5	Graphs	Graphs
UK - Scotland	Low	Sporadic	Stable	20	B	10.0	4.6	224.2	Graphs	Graphs
UK - Wales	Low	Sporadic	Decreasing	-	-	0.0	2.8	-	Graphs	Graphs
Europe				830		33.6				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 10/2011, 25 countries reported virological data. Sentinel physicians collected 830 specimens, 279 (33.6%) of which tested positive for influenza virus. This percentage continues to decrease since the peak in week 52/2010. In addition, 1066 non-sentinel source specimens (i.e. specimens collected for diagnostic purposes in hospitals) were reported positive for influenza virus (Table 2).

Of the 1345 influenza viruses detected during week 10/2011, 553 (41.1%) were type A and 792 (58.9%) were type B. Influenza B virus was reported as dominant by seven countries: Finland, Ireland, Latvia, Poland, Spain, Sweden and the UK (Scotland) and co-dominant by 10 countries (Table 1). Of the 408 influenza A viruses that were subtyped, 401 (98.3%) were A(H1)2009 and seven (1.7%) were A(H3) (Table 2).

Since week 40/2010, 36 571 (67.6%) of the 54 096 influenza virus detections in sentinel and non-sentinel specimens were influenza A viruses and 17 525 (32.4%) were influenza B viruses. Of 26 293 influenza A viruses subtyped, 25 767 (98.0%) were A(H1)2009 and 526 (2.0%) were A(H3) (Table 2). Trends of virological detections since week 40/2010 are shown in Figures 1–3.

Since week 40/2010, 3 033 influenza viruses from sentinel and non-sentinel specimens have been characterised antigenically (Figure 4): 1 452 (47.9%) as A/California/7/2009 (H1N1)-like; 102 (3.4%) as A/Perth/16/2009 (H3N2)-like; 1369 (45.1%) as B/Brisbane/60/2008-like (Victoria lineage); and 110 (3.6%) 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. Thirty-two (3.0%) of influenza A(H1) 2009 viruses were resistant to oseltamivir but remained sensitive for zanamivir. All the resistant viruses carried the H275Y mutation. Eight of 32 resistant viruses, from patients for whom exposure to antivirals was known, were from patients who had not been treated with oseltamivir (Table 3).

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 10/2011 thirteen countries reported 659 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 40/2010–10/2011

	Current Period		Season	
Virus type/subtype	Sentinel	Non-sentinel	Sentinel	Non-sentinel
Influenza A	91	462	8209	28362
A(H1)2009	74	327	7307	18460
A (subtyping not performed)	17	128	704	9574
A (not subtypable)	0	0	0	0
A (H3)	0	7	198	328
A (H1)	0	0	0	0
Influenza B	188	604	5028	12497
Total Influenza	**279**	**1066**	**13237**	**40859**

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 40/2010–10/2011

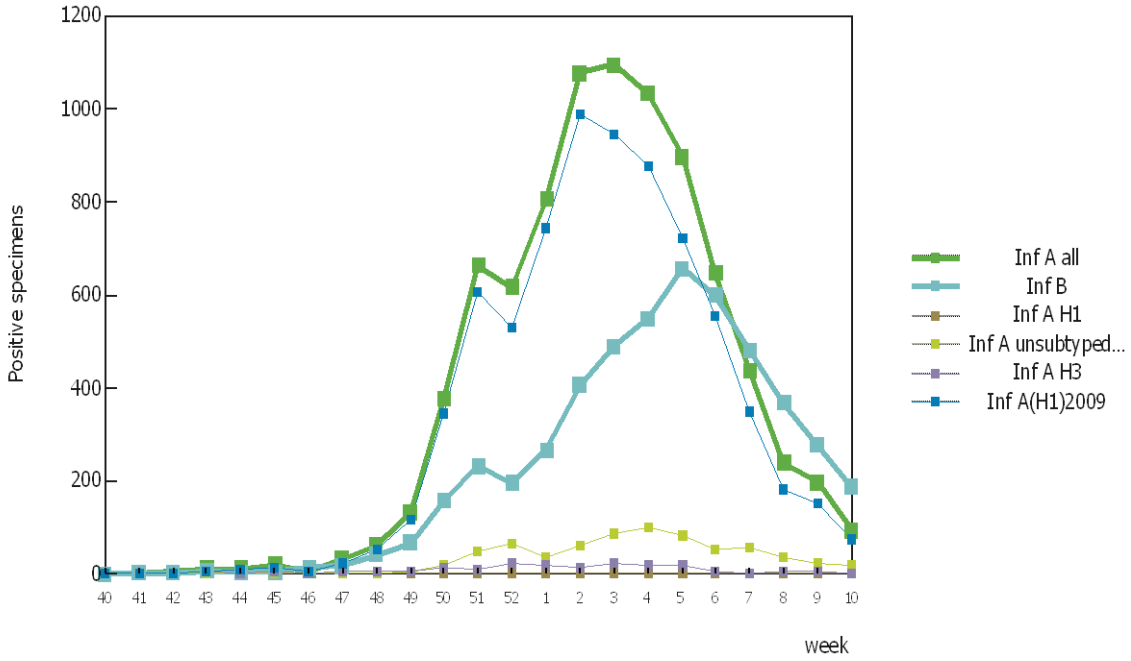


Figure 2: Number of non-sentinel specimens positive for influenza by type, subtype and week of report, weeks 40/2010–10/2011

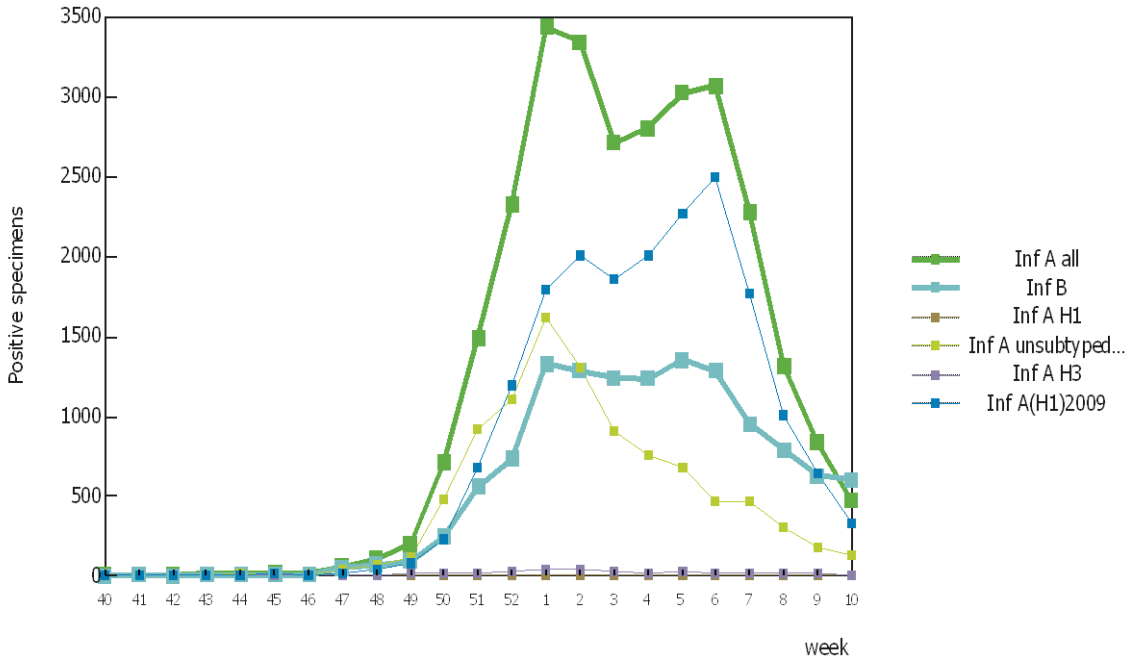


Figure 3: Proportion of sentinel samples positive for influenza, weeks 40/2010–10/2011

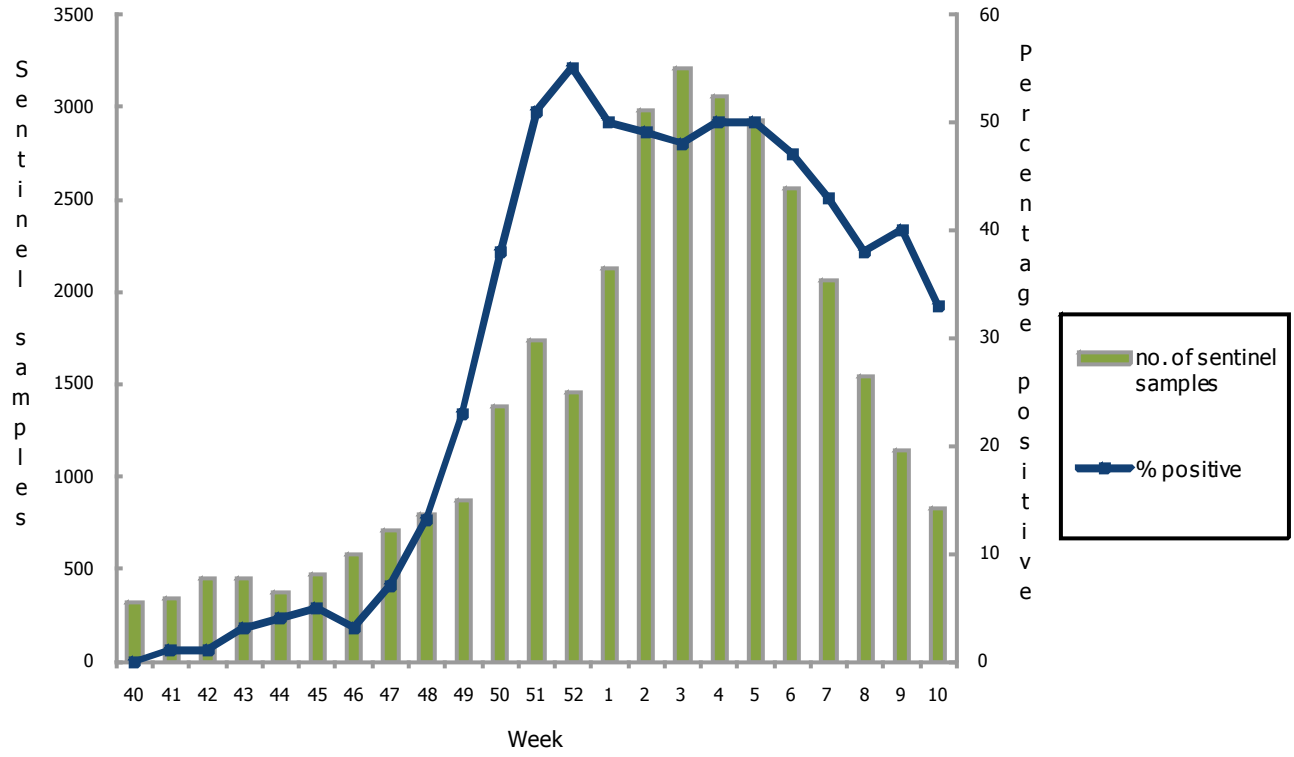


Figure 4: Results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates, weeks 40/2010–10/2011

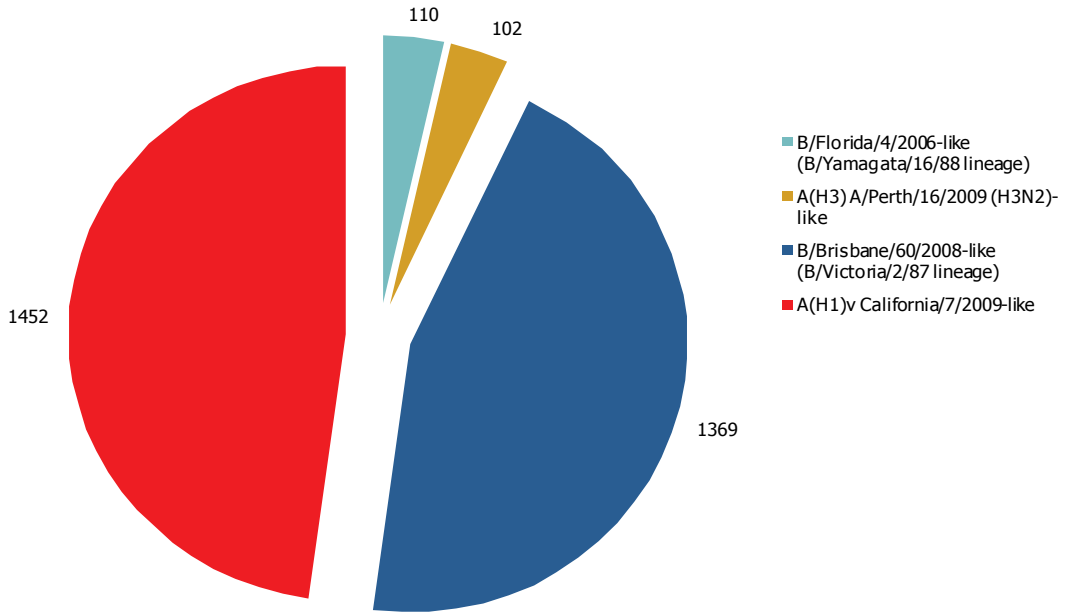
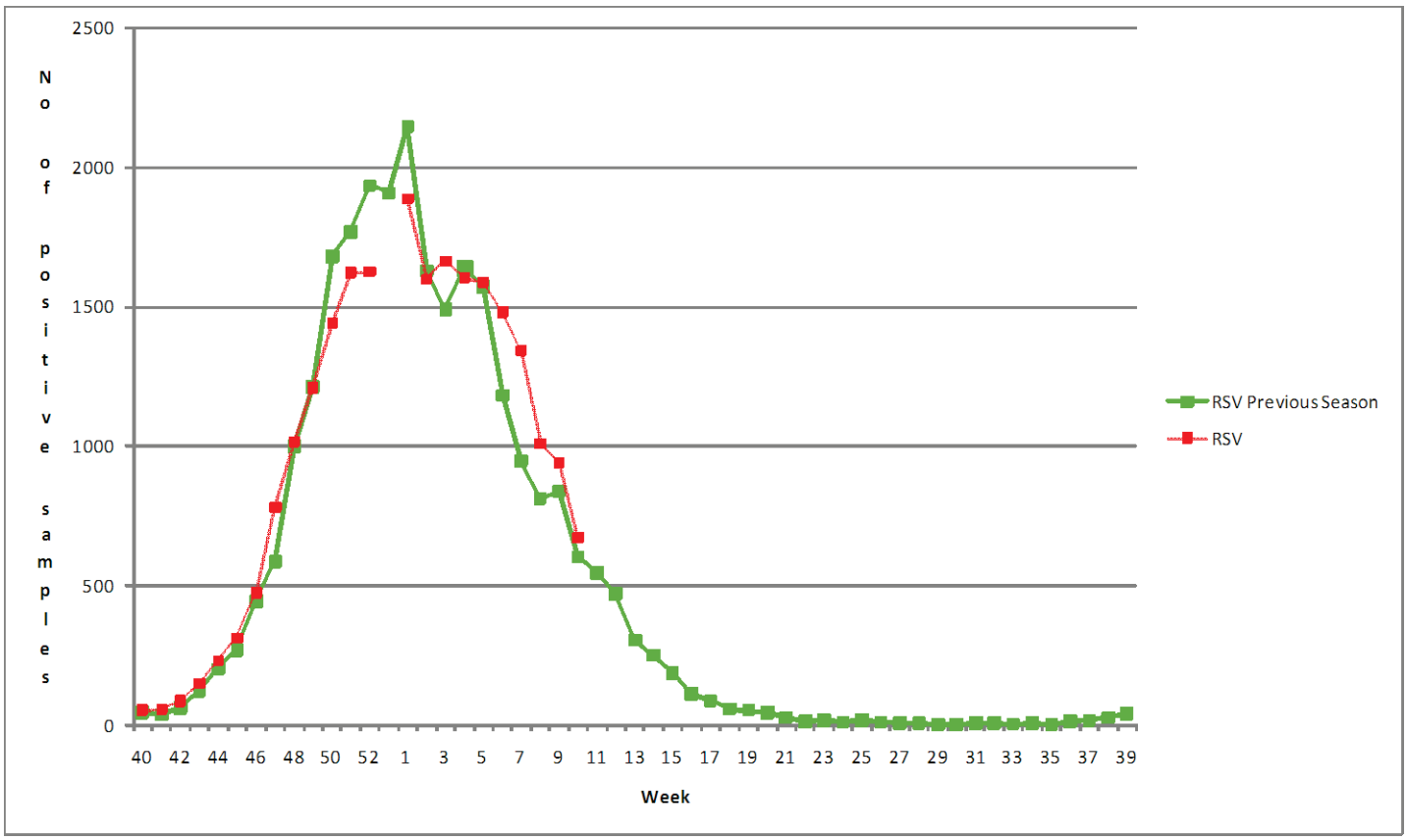


Table 3: Antiviral resistance by influenza virus type and subtype, weeks 40/2010–10/2011

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	2	2 (100)
A(H1)	0	0	0	0	0	0
A(H1)2009	1059	32 (3.0)	1059	0	174	174 (100)
B	80	0	80	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 40/2010–10/2011



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 seven countries have notified severe influenza cases admitted to hospital, with France and Ireland reporting only those cases admitted to intensive care (ICU).

In week 10/2011, Belgium, Romania, and Slovakia reported 39 all-cause SARI cases, including two deaths, and 43 severe hospitalised confirmed cases of influenza virus infection were reported by Austria, France, Romania and Slovakia with two related fatalities.

Since week 40/2010, ten countries have reported 4 424 all-cause SARI and severe influenza cases admitted to hospital, including 396 deaths (Table 4). The epidemic curve peaked in week 52/2010 (Figure 6).

Of 2 982 influenza virus detections in severe influenza cases since week 40/2010 (Table 5), 2 819 (94.5%) were type A, and 163 (5.5%) were type B. Of 2 660 influenza A viruses subtyped, 2 640 (99.2%) were A(H1)2009, and 20 (0.8%) were A(H3). The percentage of influenza B virus detections (32.4%) is much higher in weeks 40/2010–10/2011 in the outpatient sentinel samples (Table 2) than it is for the SARI or for the severe influenza cases admitted to hospital, suggesting that the influenza B virus is causing less severe disease in comparison with the A(H1N1) 2009 virus.

Since week 40/2010, ICU admission was reported for 1 819 patients, 964 (53.0%) of whom were known to have required ventilation (Table 6). 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–week 10/2011

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
Austria	361		11		
Belgium	827				
Spain	1330		146		
Finland	58		7		
France	767		128		
Ireland	120		20		
Malta	49		1		
Portugal	403		43		
Romania	355	5.53	22	0.34	6413821
Slovakia	154	2.83	18	0.33	5433385
Total	4424		396		

Figure 6: Number of SARI and hospitalised influenza cases by week of onset, weeks 40/2010–10/2011

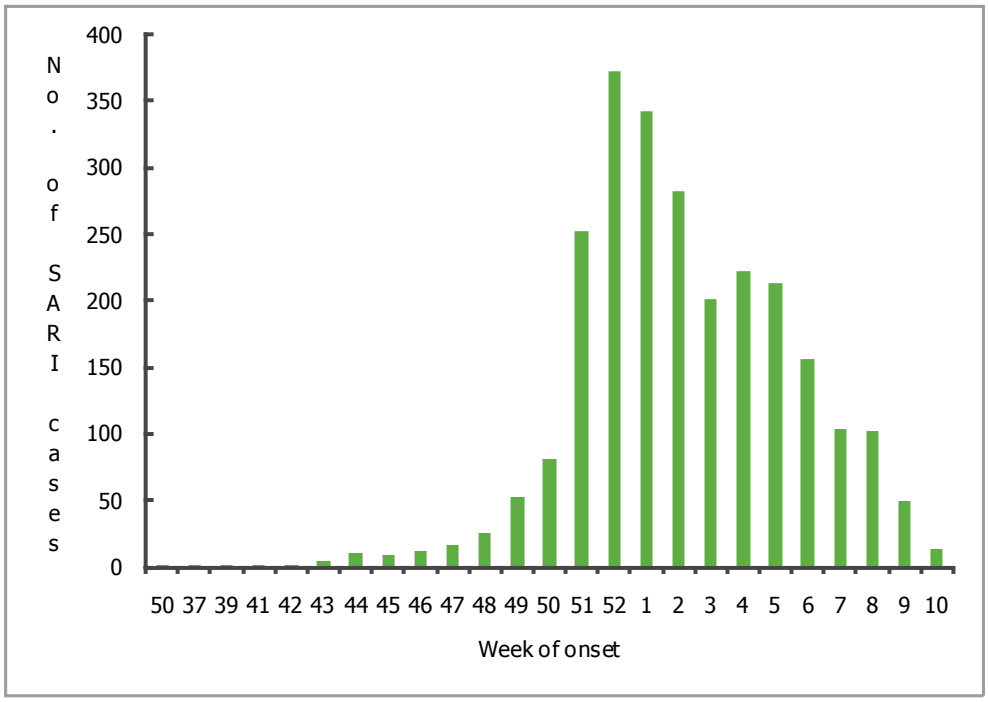


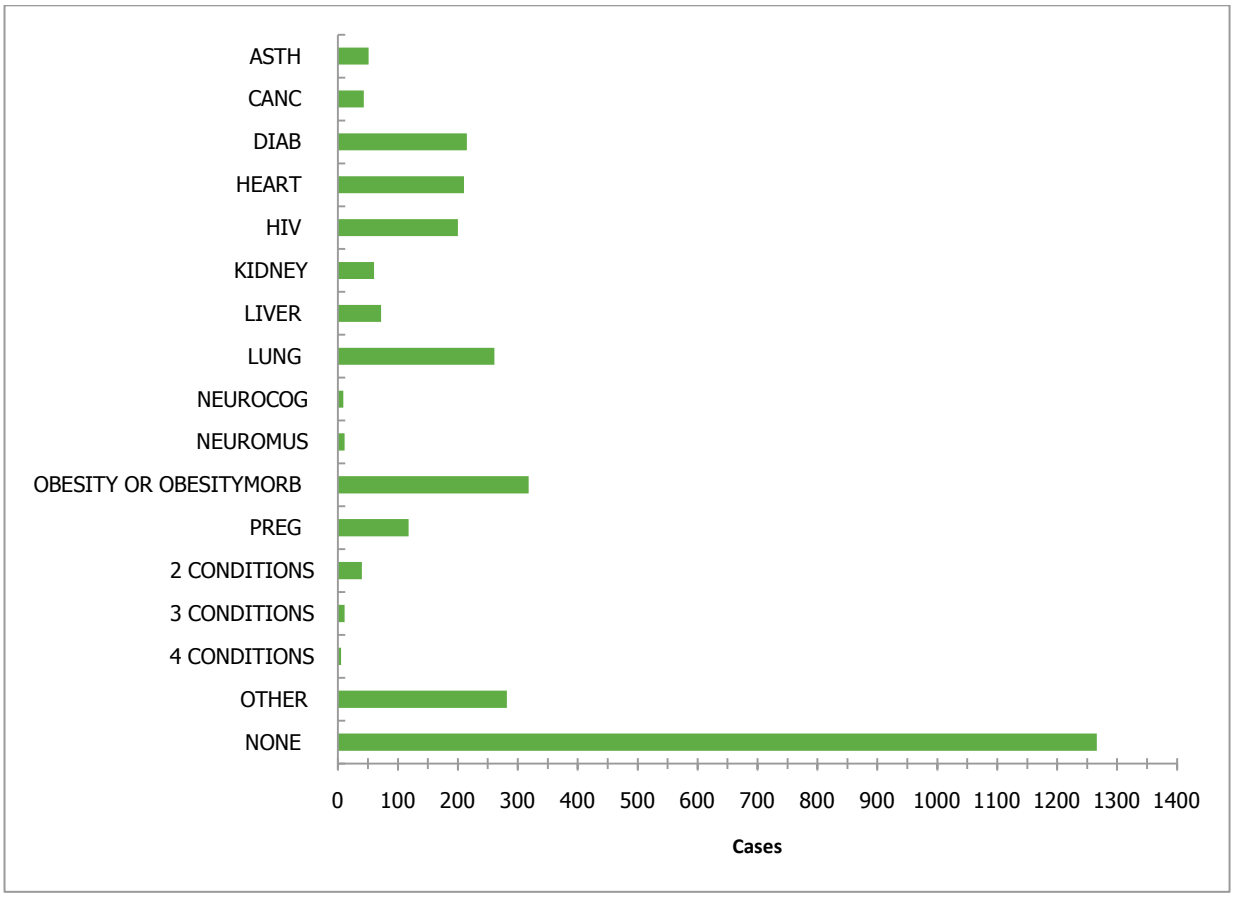
Table 5: Number of SARI and hospitalised influenza cases by influenza type and subtype, week 10/2011

Virus type/subtype	Number of cases during current week	Cumulative number of cases since the start of the season
Influenza A	29	2819
A(H1)2009	26	2640
A(subtyping not performed)	3	159
A(H3)		20
Influenza B	12	163
Other Pathogen		34
Unknown	41	1408
Total	82	4424

Table 6: Number of SARI and hospitalised influenza cases by level of care and respiratory support, weeks 40/2010–10/2011

Respiratory support	ICU	Inpatient ward	Other	Unknown
No respiratory support available		1		
No respiratory support necessary	172	436	402	
Oxygen therapy	110	164	334	
Respiratory support given unknown	573	288	712	207
Ventilator	964	17	6	38

Figure 7: Number of SARI and hospitalised influenza cases by underlying condition, weeks 40/2010–10/2011



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: Up to the end of week 10/2011 a cumulative total of 157 SARI patients with laboratory-confirmed influenza have been reported by intensive care units and there were 36 deaths. Distribution by virus type and subtype is as follows: A/H1N1: 150 SARI and 33 deaths; A/H3N2: three SARI and two deaths; B: four SARI and one death.

Denmark: Up to 14 March (week 10/2011), a cumulative total of 143 influenza patients have been reported by ICUs in Denmark with a median age of 54 years (range 1 week to 83 years). Two patients were admitted to an ICU in week 10/2011 compared with three new admissions in week 9. The pressure on the wards, reflected by the proportion of ICU beds used for influenza patients, remained at the same level. On Monday 14 March 2011 at 8:00 am, eight influenza patients were in ICUs, corresponding with 2.7% of the total number of occupied ICU beds in the country, compared with 2.5% in the week before. Of the ICU patients, 109 were diagnosed with influenza A, 42 of whom were reported to be further subtyped as subtype H1N1. Thirty-four patients had an influenza B infection. Nine patients with influenza A and two patients with Influenza B received extracorporeal membrane oxygenation (ECMO). Eighteen patients with confirmed influenza A and seven with influenza B died. Twenty-three patients were reported to be previously healthy and for another 36 patients no underlying condition was reported. For 84 patients one or more underlying conditions were described. One influenza patient was reported to be pregnant. Initial alignment with the Danish Vaccination Registry showed that 27 of the 143 patients had received

the 2010/2011 seasonal influenza vaccine between week 39 and 50 of 2010. The other 116 patients were probably not vaccinated with the 2010/2011 seasonal influenza vaccine.

Malta: Situation stable.

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 10/2011 1 330 severe hospitalised confirmed influenza cases have been reported. Severely affected cases were mostly in the 15–64 year age groups (64%), 15% were less than five years old and 17% were more than 64 years old. 25% of them had no known risk factors. Of 1 323 cases with outcome information, 146 died (13% with no known risk factors). Of the severe cases, 865 had information available on the status of influenza vaccination for the 2010/2011 season and only 127 (15%) cases had been immunised. Monovalent pandemic vaccines 2009 were reported to have been received for 9% of hospitalised cases. Most of severe and fatal cases included in the groups which were recommended influenza vaccination had not been vaccinated this season

The Netherlands: Since 4 October 2010, a total of 654 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.

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.