SURVEILLANCE REPORT

Weekly influenza surveillance overview

30 April 2010

Main surveillance developments in week 16/2010 (19 Apr 2010 – 25 Apr 2010)

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

- All reporting countries experienced low intensity influenza activity for the eighth consecutive week and reported sporadic activity at most.
- Only a few (38) influenza viruses were detected by sentinel and non-sentinel sources and most of these (63%) were Influenza B viruses.
- To date, only 2.5% of tested 2009 pandemic influenza A(H1N1) viruses have shown resistance to oseltamivir and none were resistant to zanamivir. All 2009 pandemic viruses tested were resistant to M2 inhibitors.
- None of the weekly reported number of severe acute respiratory infections (SARI) were due to pandemic influenza.
- Influenza activity caused by the 2009 pandemic influenza A(H1N1) virus is well past its winter peak in EU/EEA countries. However, sporadic cases of confirmed infections continue to occur though most cases of influenza-like illness are not due to influenza virus infection. Globally, the world remains in pandemic Phase 6.

Sentinel surveillance of influenza-like illness (ILI)/ acute respiratory infection (ARI): All 25 reporting countries experienced low intensity and sporadic or no geographical spread. For more information, **click here.**

Virological surveillance: Sentinel physicians collected 146 respiratory specimens, of which six (4.1%) were positive for influenza virus. Out of the 38 virus detections (sentinel and non-sentinel), 24 (63.1%) were influenza type B viruses. Since week 40/2009, more than 99% of the viruses detected in sentinel specimens were 2009 pandemic influenza A(H1N1) virus. For more information, **click here.**

Aggregate numbers of 2009 pandemic influenza (H1N1) deaths: During week 16/2010, two countries (Germany and the Netherlands) each reported one death associated with the 2009 pandemic influenza virus. For more information, **click here.**

Hospital surveillance of severe acute respiratory infection (SARI): During week 16/2010, nine SARI cases were reported, none of which were associated with 2009 pandemic influenza. For more information, **click here.**

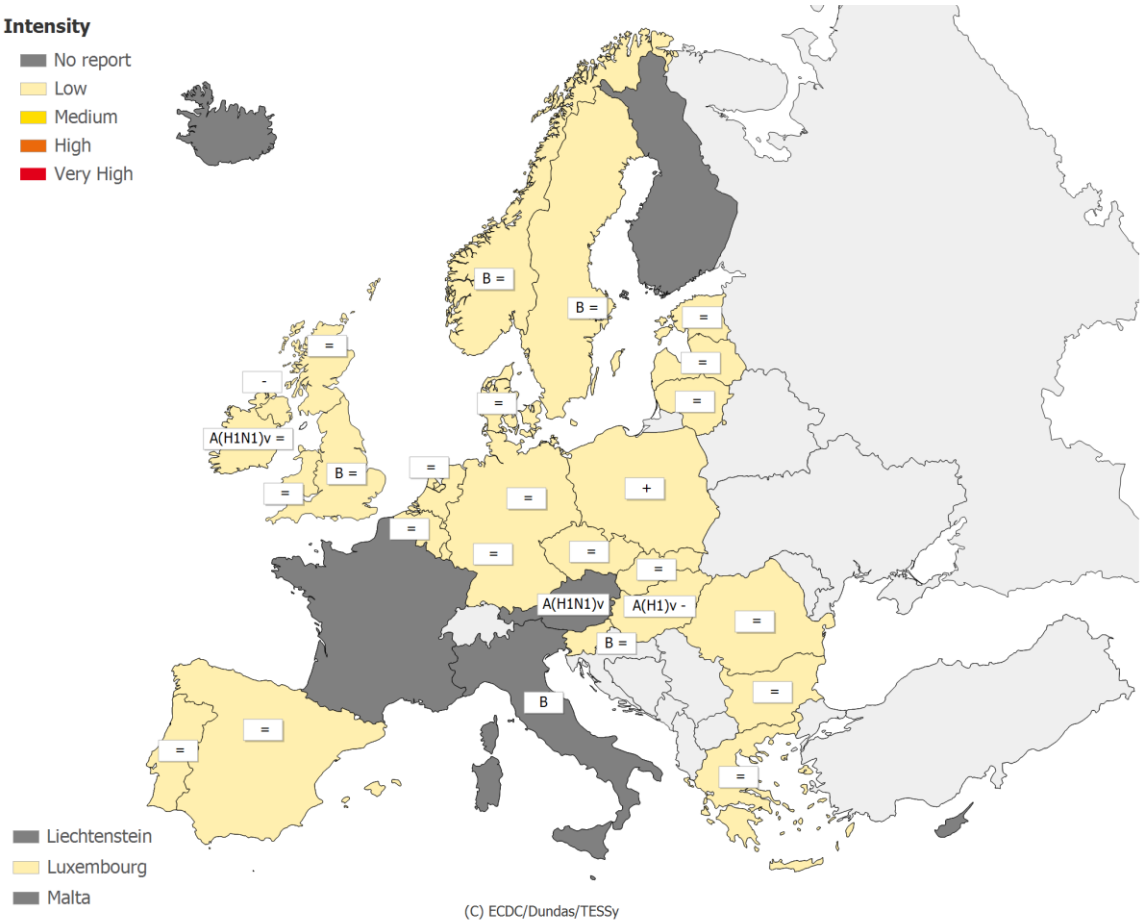
Qualitative reporting: For more information, **click here.**

Sentinel surveillance (ILI/ARI)

Weekly analysis—epidemiology

In week 16/2010, 25 of 29 countries reported epidemiological data, all of which experienced low intensity for the eighth consecutive week (Map 1, Table 1). All countries reported sporadic influenza activity at most, and all but one reported stable or decreasing trends (Map 2, Table 1). Poland reported an increasing trend but this reflects small variations of incidence that can be observed from week to week.

Map 1: Intensity for week 16/2010

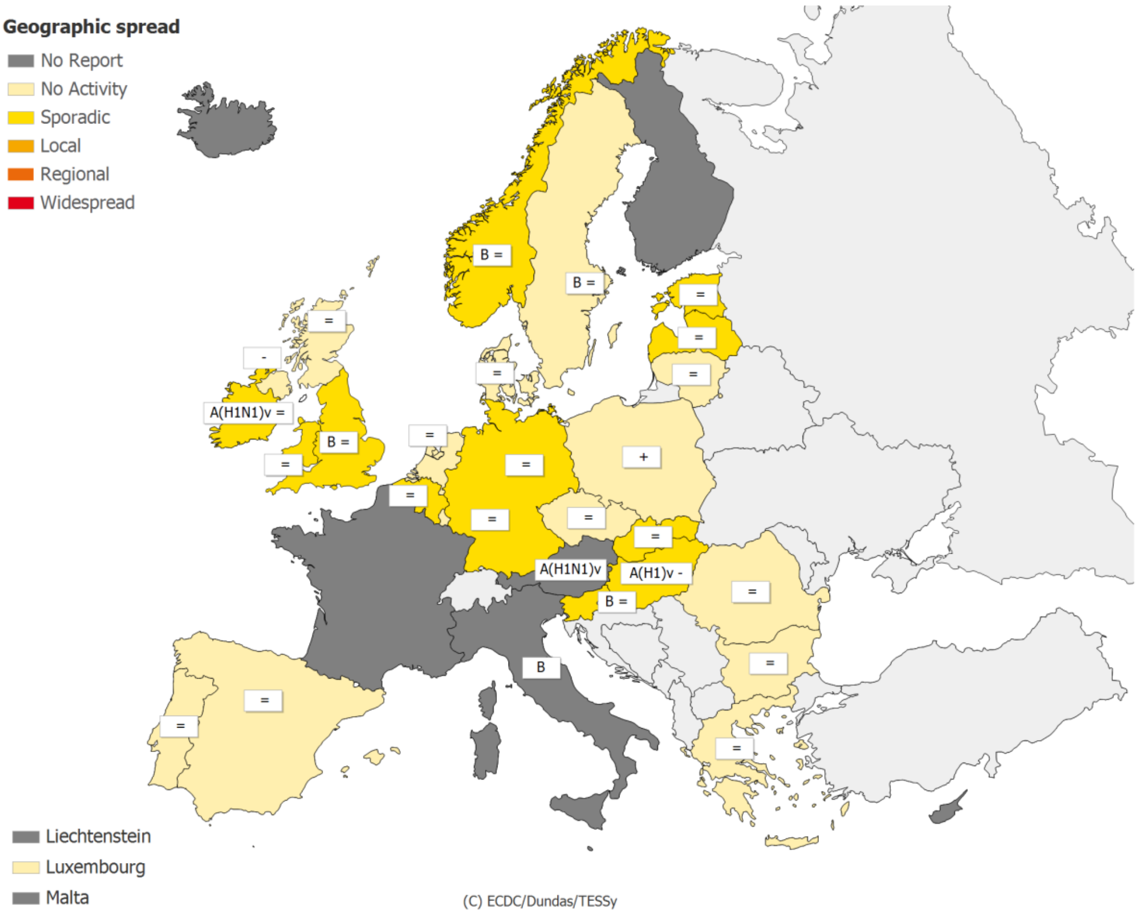


* A type/subtype is reported as dominant when > 40 % of all samples are positive for the type/subtype.

Legend:

Low	No influenza activity or influenza at baseline levels	-	Decreasing clinical activity
Medium	Usual levels of influenza activity	+	Increasing clinical activity
High	Higher than usual levels of influenza activity	=	Stable clinical activity
Very high	Particularly severe levels of influenza activity	**A(H1)v**	Type A, Subtype H1v
		A(H1N1)v	Type A, Subtype H1N1v
		B	Type B

Map 2: Geographic spread for week 16/2010



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

Legend:

No activity	No evidence of influenza virus activity (clinical activity remains at baseline levels)	**-**	Decreasing clinical activity
Sporadic	Isolated cases of laboratory confirmed influenza infection	**+**	Increasing clinical activity
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)	**=**	Stable clinical activity
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)	**A(H1)v**	Type A, Subtype H1v
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)	**A(H1N1)v**	Type A, Subtype H1N1v
		B	Type B

Table 1: Epidemiological and virological overview by country

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				0	None	-	-	-	Graphs	Graphs
Belgium	Low	Sporadic	Stable	6	None	16.7	22.7	735.3	Graphs	Graphs
Bulgaria	Low	No activity	Stable	0	None	-	-	542.9	Graphs	Graphs
Cyprus				-	-	-	-	-	Graphs	Graphs
Czech Republic	Low	No activity	Stable	13	None	7.7	16.2	730.0	Graphs	Graphs
Denmark	Low	No activity	Stable	4	None	0.0	29.6	0.0	Graphs	Graphs
Estonia	Low	Sporadic	Stable	9	None	0.0	2.6	223.8	Graphs	Graphs
Finland				-	-	-	-	-	Graphs	Graphs
France				-	-	-	-	-	Graphs	Graphs
Germany	Low	Sporadic	Stable	-	-	-	-	651.5	Graphs	Graphs
Greece	Low	No activity	Stable	2	None	0.0	44.1	-	Graphs	Graphs
Hungary	Low	Sporadic	Decreasing	10	A(H1)v	0.0	33.0	-	Graphs	Graphs
Iceland				-	-	-	-	-	Graphs	Graphs
Ireland	Low	Sporadic	Stable	3	None	0.0	5.4	-	Graphs	Graphs
Italy				7	B	14.3	-	-	Graphs	Graphs
Latvia	Low	Sporadic	Stable	0	None	-	0.0	733.6	Graphs	Graphs
Lithuania	Low	No activity	Stable	-	-	-	0.4	413.5	Graphs	Graphs
Luxembourg	Low	No activity	Stable	5	None	0.0	-*	-*	Graphs	Graphs
Malta				-	-	-	-	-	Graphs	Graphs
Netherlands	Low	No activity	Stable	10	None	0.0	21.6	-	Graphs	Graphs
Norway	Low	Sporadic	Stable	0	B	-	17.7	-	Graphs	Graphs
Poland	Low	No activity	Increasing	1	None	0.0	76.3	-	Graphs	Graphs
Portugal	Low	No activity	Stable	0	None	-	0.0	-	Graphs	Graphs
Romania	Low	No activity	Stable	1	None	0.0	0.0	585.9	Graphs	Graphs
Slovakia	Low	Sporadic	Stable	2	None	0.0	128.9	1274.9	Graphs	Graphs
Slovenia	Low	Sporadic	Stable	6	B	16.7	0.0	903.0	Graphs	Graphs
Spain	Low	No activity	Stable	24	None	4.2	6.1	-	Graphs	Graphs
Sweden	Low	No activity	Stable	5	B	20.0	1.0	-	Graphs	Graphs
UK - England	Low	Sporadic	Stable	32	B	0.0	4.3	367.1	Graphs	Graphs
UK - Northern Ireland	Low	No activity	Decreasing	2	None	0.0	8.2	316.1	Graphs	Graphs
UK - Scotland	Low	No activity	Stable	4	None	0.0	2.7	166.2	Graphs	Graphs
UK - Wales	Low	Sporadic	Stable	-	-	-	1.0	-	Graphs	Graphs
Europe				146		4.1				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

This surveillance is based on nationally organized sentinel networks of physicians, mostly general practitioners (GPs), covering at least 1–5% 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 16/2010, 24 countries reported virological data. Sentinel physicians collected 146 specimens, six (4.1%) of which were positive for influenza virus (Tables 1 and 2). In addition, 32 non-sentinel source specimens (i.e. specimens collected for diagnostic purpose in hospitals) were reported positive for influenza virus. Of the 38 influenza viruses detected from sentinel and non-sentinel sources during week 16/2010, 24 (63%) were type B viruses. These viruses were detected in various countries across Europe. Italy, Norway, Slovenia, Sweden and the UK (England) reported influenza B virus as the dominant type in circulation.

Of the 20 508 type A influenza viruses detected by sentinel practices and subtyped since week 40/2009, 19 713 (96%) were identified as the 2009 pandemic influenza A(H1N1) virus. Table 2 shows the distribution of both sentinel and non-sentinel specimens by type and subtype. Figures 1—3 show the trends of virological detections over time. The proportion of positive sentinel samples decreased between week 46/2009 and week 07/2010 and has since stabilised at levels usually seen outside the influenza season (Figure 3).

From week 40/2009 to week 16/2010, 2862 influenza viruses from sentinel and non-sentinel specimens were characterised antigenically (Table 3), and 1197 were characterised genetically. Of the former, 2811 (98.2%) were antigenically pandemic A/California/7/2009(H1N1)-like, and of the latter, 1158 (96.7%) belonged to the phylogenetic cluster represented by A/California/7/2009. Eleven (68.7%) of the 16 influenza type B viruses antigenically characterised up to week 16/2010 were of the B/Victoria/2/87 lineage while the remaining five (31.3%) were of the B/Yamagata/16/88 lineage.

More details on circulating viruses can be found in the report prepared by the Community Network of Reference Laboratories coordination team.

The latest antiviral resistance data are from week 9/2010. All pandemic viruses tested were resistant to M2 inhibitors. Of the 1453 viruses tested from nine countries, 37(2.5%) were resistant to oseltamivir, and of 1447 viruses tested, none were resistant to zanamivir (Table 4). However, the Netherlands reported a virus with reduced sensitivity against oseltamivir as well as zanamivir in week 14 (WISO week 14/2010).

Since the peak in week 01/2010, the total number of respiratory syncytial virus (RSV) detections in 11 countries has been in decline (Figure 4).

Table 2: Weekly and cumulative influenza virus detections by type, subtype and surveillance system, weeks 40/2009–16/2010

	Current Week		Season	
Virus type/subtype	Sentinel	Non-sentinel	Sentinel	Non-sentinel
Influenza A	2	12	20508	93190
A (pandemic H1N1)	0	11	19713	81513
A (subtyping not performed)	2	0	733	11520
A (not subtypable)	0	0	14	48
A (H3)	0	0	11	56
A (H1)	0	1	37	53
Influenza B	4	20	169	317
Total Influenza	**6**	**32**	**20677**	**93507**

Note: A(pandemic H1N1), A(H3) and A(H1) includes both N-subtyped and not N-subtyped viruses.

Figure 1: Number of sentinel specimens positive for influenza, by type, subtype and by week of report, weeks 40/2009–16/2010

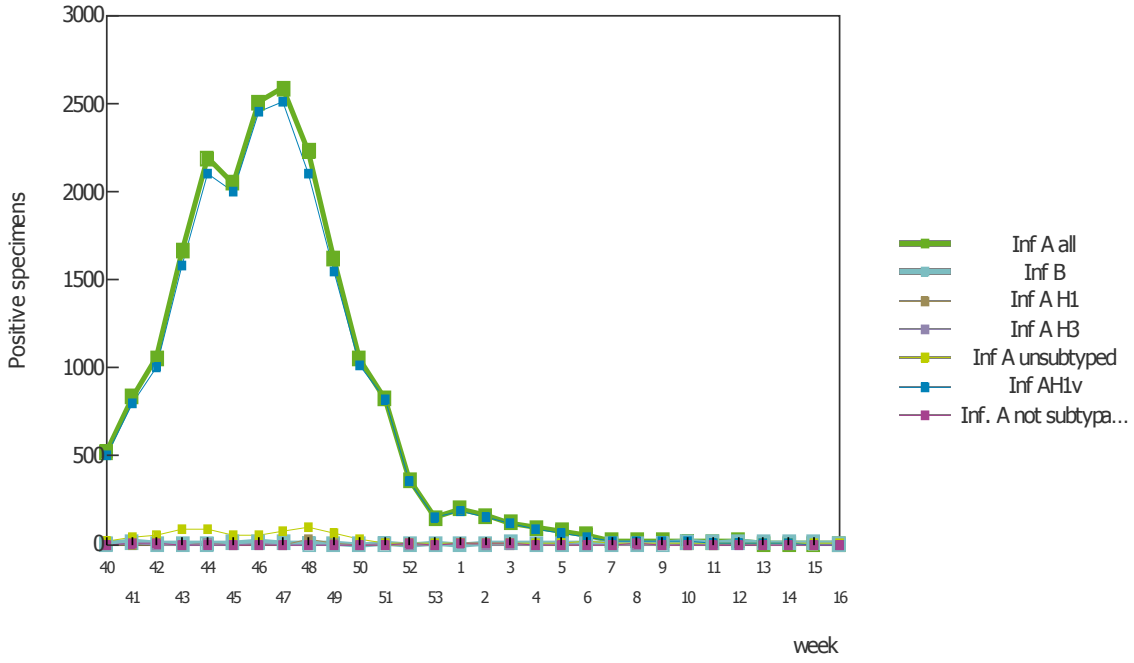


Figure 2: Number of non-sentinel specimens positive for influenza by type, subtype and week of report, weeks 40/2009–16/2010

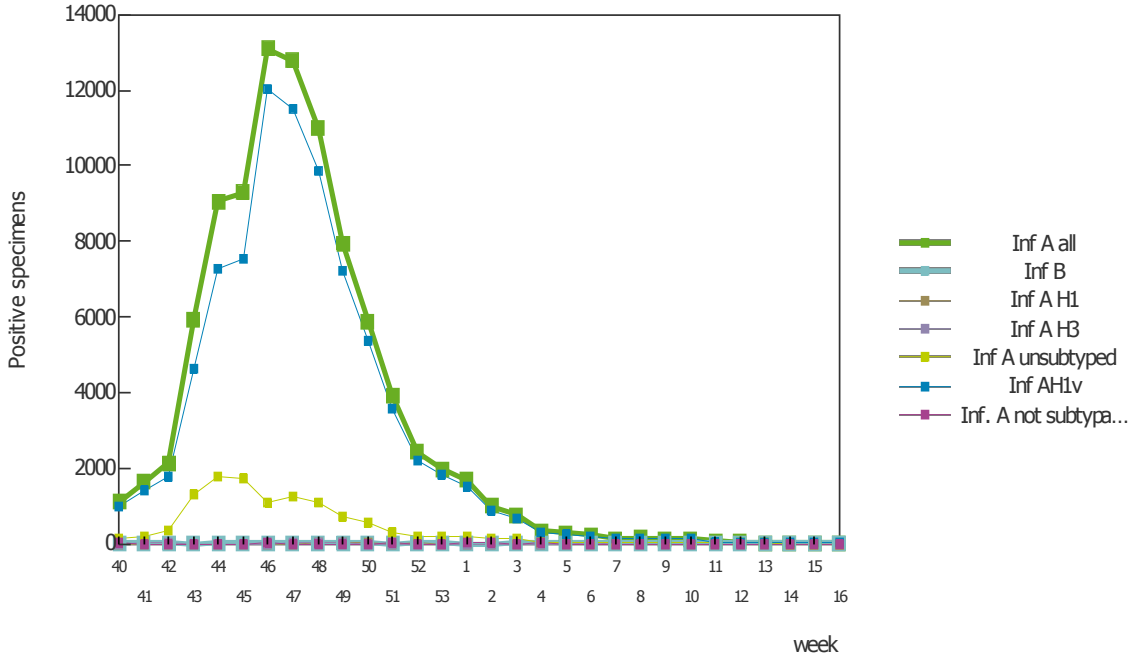


Figure 3: Proportion of sentinel samples positive for influenza, weeks 40/2009–16/2010

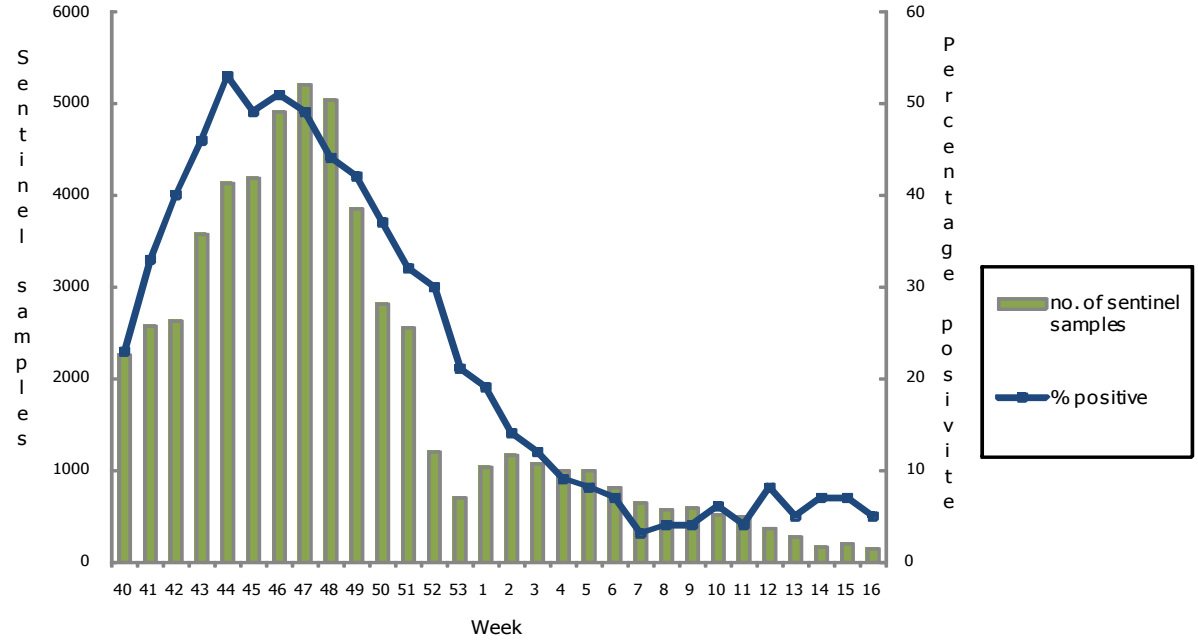


Table 3: Results of antigenically characterised sentinel and non-sentinel influenza virus isolates since week 40/2009

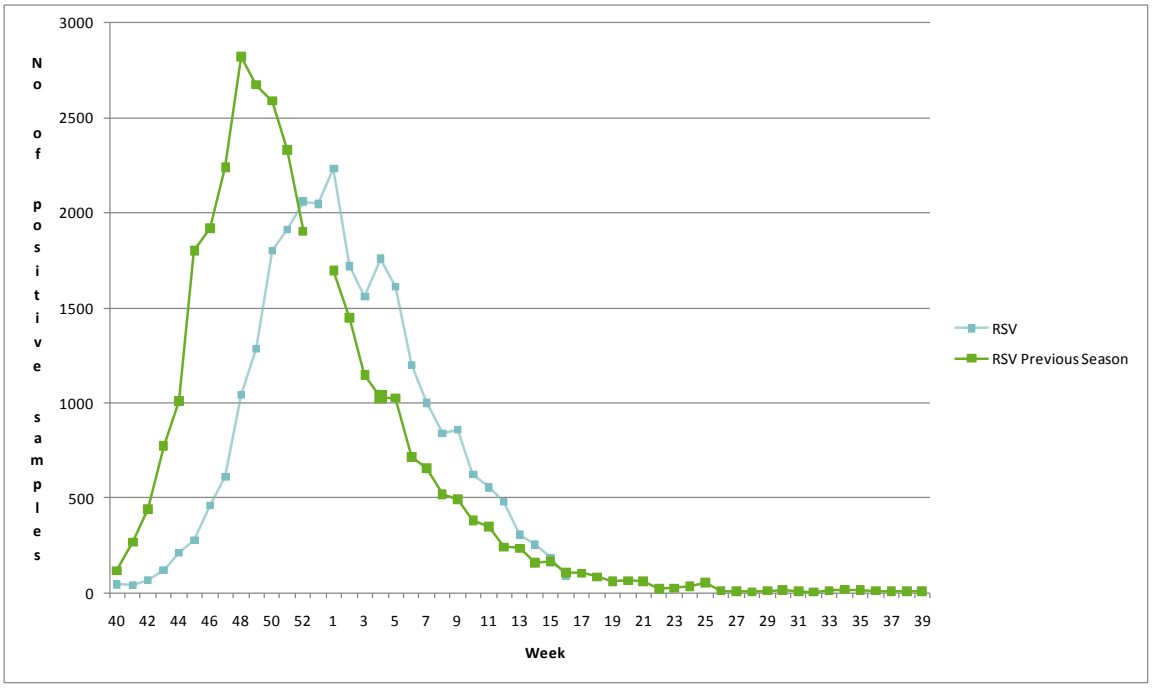
Strain name	Number of strains
A(H1)v California/7/2009-like	2811
A(H3) A/Brisbane/10/2007 (H3N2)-like	11
A(H3) A/Perth/16/2009 (H3N2)-like	22
B/Brisbane/60/2008-like (B/Victoria/2/87 lineage)	11
B/Florida/4/2006-like (B/Yamagata/16/88 lineage)	5

Table 4: Antiviral resistance by influenza virus type and subtype, weeks 40/2009–16/2010

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)	0	0	0	0	0	0
A(H1N1)	0	0	0	0	0	0
A(H1N1)v	1453	37 (2.5%)	1447	0	205	205 (100%)
B	0	0	0	0	NA*	NA*

** NA - not applicable, as M2 inhibitors do not act against influenza B viruses*

Figure 4: Respiratory syncytial virus (RSV) detections, sentinel and non-sentinel, weeks 40/2009–16/2010



Comments on virological data provided by countries in week 16/2010

Greece: A non-sentinel source swab, collected in Athens during week 16/2010, was confirmed by real-time PCR to be positive for influenza virus type A (subtype H1N1). Concerning antiviral susceptibility, this seasonal influenza isolate (the first detected in 2010) was found by NA activity determination (MUNANA assay) to be oseltamivir resistant.The mutation responsible for oseltamivir resistance was confirmed by neuraminidase gene sequencing.

The Netherlands: In week 15/2010, a cluster of nosocomial spread involving three cases of pandemic A(H1N1) 2009 occurred in a hospital ward in the Netherlands. The initial case was hospitalised with pneumonia and in the second instance diagnosed for viral infection. When found positive for pandemic A(H1N1) 2009 virus four days after admission, all patients in the same room were put into isolation. Two out of three patients in the same room became subsequently positive for pandemic A(H1N1) 2009 virus. By direct sequencing it was confirmed that the viruses of the index case and one of the contacts were identical but unique in the Dutch background set of A(H1N1) 2009 sequences. The viral load of the other contact was too low for direct sequencing. Investigations are ongoing.

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**.

Aggregate numbers of 2009 pandemic A(H1N1) associated deaths

Weekly analysis—deaths

In week 16/2010, Germany and the Netherlands each reported one death attributable to the 2009 pandemic influenza virus. Since the beginning of the pandemic, 1852 such deaths have been notified to ECDC through TESSy (Table 5).

Table 5: Aggregate numbers of 2009 pandemic A(H1N1) associated deaths, week 16/2010

Country	Cumulative deaths since start of season	Last reported week	Deaths reported in week 16/2010
Austria	0	2009-w36	
Belgium	0	2009-w29	
Bulgaria	40	2009-w53	
Cyprus	0	2009-w29	
Czech Republic	98	2010-w16	0
Denmark	0	2009-w36	
Estonia	19	2010-w16	0
Finland	0	2009-w36	
France	312	2010-w15	
Germany	254	2010-w16	1
Greece	141	2010-w16	0
Hungary	134	2010-w16	0
Iceland	2	2009-w52	
Ireland	26	2010-w16	0
Italy	1	2010-w14	
Latvia	34	2010-w09	
Lithuania	23	2010-w16	0
Luxembourg	3	2009-w52	
Malta	5	2010-w12	
Netherlands	62	2010-w16	1
Norway	29	2010-w16	0
Poland	148	2009-w53	
Portugal	0	2009-w36	
Romania	122	2010-w16	0
Slovakia	56	2010-w16	0
Slovenia	19	2010-w15	
Spain	4	2009-w29	
Sweden	24	2010-w16	0
United Kingdom	296	2010-w09	
Total	1852		2

Description of the system

Aggregate numbers of both probable and laboratory-confirmed cases of pandemic influenza associated deaths are reported by countries still collecting such data. As countries are retrospectively updating their weekly numbers of deaths and the system calculates the cumulative values based on the current status, weekly numbers of deaths published in previous WISO editions may not always add up to the cumulative totals.

Hospital surveillance – severe acute respiratory infection (SARI)

Weekly analysis—SARI

In week 16/2010, nine SARI cases were reported, none of which had a confirmed 2009 pandemic influenza infection. The number of SARI cases by week of onset has been in decline since the peak in week 46/2009 (Figure 5). Since the beginning of SARI surveillance, 11 countries have reported 11 593 cases, including 575 fatalities (Table 6). More than 99% of the influenza viruses detected in SARI cases since the start of the season were the 2009 pandemic influenza virus (Table 8). Other viral pathogens may play a role in the 2362 reported SARI cases of unknown aetiology.

Table 6: Cumulative number of SARI cases, weeks 40/2009 - week 16/2010

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	2915		40		
Belgium	1880	17.62			10668666
Cyprus	26		9		
Finland	1422	26.7	56	1.05	5326314
France	1357		302		
United Kingdom	1670	4.23	68	0.17	39503332
Ireland	903		17		
Malta	207	50.05	1	0.24	413609
Netherlands	651	3.94	29	0.18	16521505
Romania	207	16.32	13	1.02	1268418
Slovakia	355		40		
Total	11593		575		73701844

Figure 5: Number of SARI cases by week of onset, week 16/2010

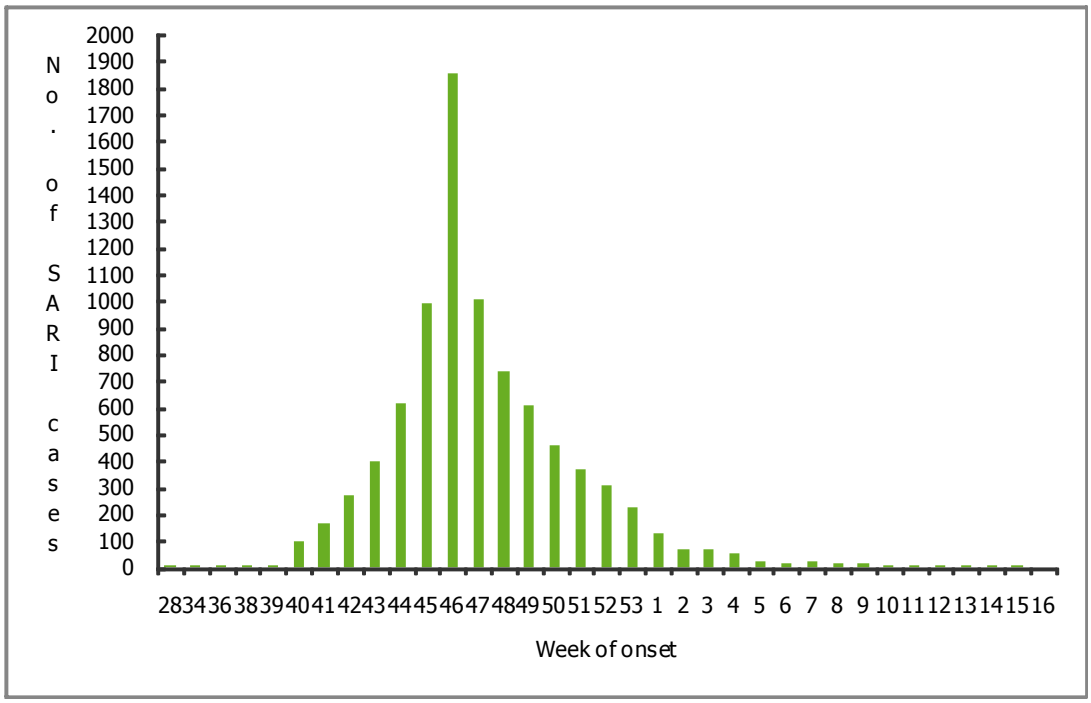


Table 7: Number of SARI cases by influenza type and subtype, week 16/2010

Virus type/subtype	Number of cases during current week	Cumulative number of cases since the start of the season
Influenza A		9092
A (pandemic H1N1)		9060
A(subtyping not performed)		25
A(H3)		
A(H1)		7
A(H5)		
Influenza B		
Unknown	9	2362
Total	9	11454

Description of the system

A number of Member States carry out hospital-based surveillance of severe acute respiratory infection (SARI) exhaustively or at selected sentinel sites. SARI surveillance serves to monitor the trends in the severity of influenza and potential risk factors for severe disease to help guide preventive measures and health care resource allocation.

Qualitative reporting

Qualitative monitoring will be an acceptable replacement for the quantitative monitoring when reliable numbers are no longer available for reporting due to overburdened surveillance systems. The qualitative components will give some indication of influenza intensity, geographic spread, trend and impact.

The report text was written by an editorial team at the European Centre for Disease Prevention and Control (ECDC): Flaviu Plata, Phillip Zucs, Bruno Ciancio, Rene Snacken and Eeva Broberg. 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 Joan O'Donnell (Health Protection Surveillance Centre, Ireland) and Katarina Prosenc (National Institute of Public Health, Slovenia).