SURVEILLANCE REPORT

Weekly influenza surveillance overview

22 January 2010

Main surveillance developments in week 2/2010 (11 Jan 2010 – 17 Jan 2010)

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

- During week 2/2010 only Bulgaria, Malta, Poland and Romania reported medium ILI/ARI activity in the EU and EEA.
- Of 684 sentinel samples tested, 18.1% were positive for influenza of which more than 99% were 2009 pandemic influenza A(H1N1) virus.
- The number of SARI cases, measured by week of onset, continued to decline in week 2/2010.
- Of the 123 SARI cases, 44 (36%) were known to have required ICU admission and 28 (23%) needed respiratory support
- Detection of 2009 pandemic influenza A(H1N1) viruses resistant to oseltamivir remains sporadic; of 1 260 viruses reported, 34 (2.7%) were resistant.

Sentinel surveillance of influenza like-illness (ILI)/acute respiratory illness (ARI): Of the 23 countries reporting, only four reported medium ILI/ARI activity (Bulgaria, Malta, Poland and Romania) while all other countries reported low activity. For more information **click here...**

Virological surveillance: Sentinel physicians collected 684 respiratory specimens, of which 124 (18.1%) were positive for influenza virus. 2009 pandemic influenza A(H1N1) virus was detected in more than 99% of these samples. The total number of influenza, as well as RSV detections, continued to decrease during week 2/2010. For more information **click here...**

Aggregate numbers of 2009 pandemic influenza (H1N1) deaths: In week 02/2010, eight countries reported 71 new deaths. For more information **click here...**

Hospital surveillance of severe acute respiratory infection (SARI): During week 02/2010, 123 SARI cases were reported and of the 76 influenza viruses isolated and subtyped, 74 were the pandemic virus. For more information, **click here...**

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

Sentinel surveillance (ILI/ARI)

Weekly analysis – epidemiology

In week 02/2010, 23 out of 29 countries reported epidemiological data. For the activity intensity indicator—a comparison with baseline national network levels for ILI and/or ARI—four countries reported medium activity (Bulgaria, Malta, Poland and Romania) while all remaining countries reported low intensity (Map 1, Table 1).

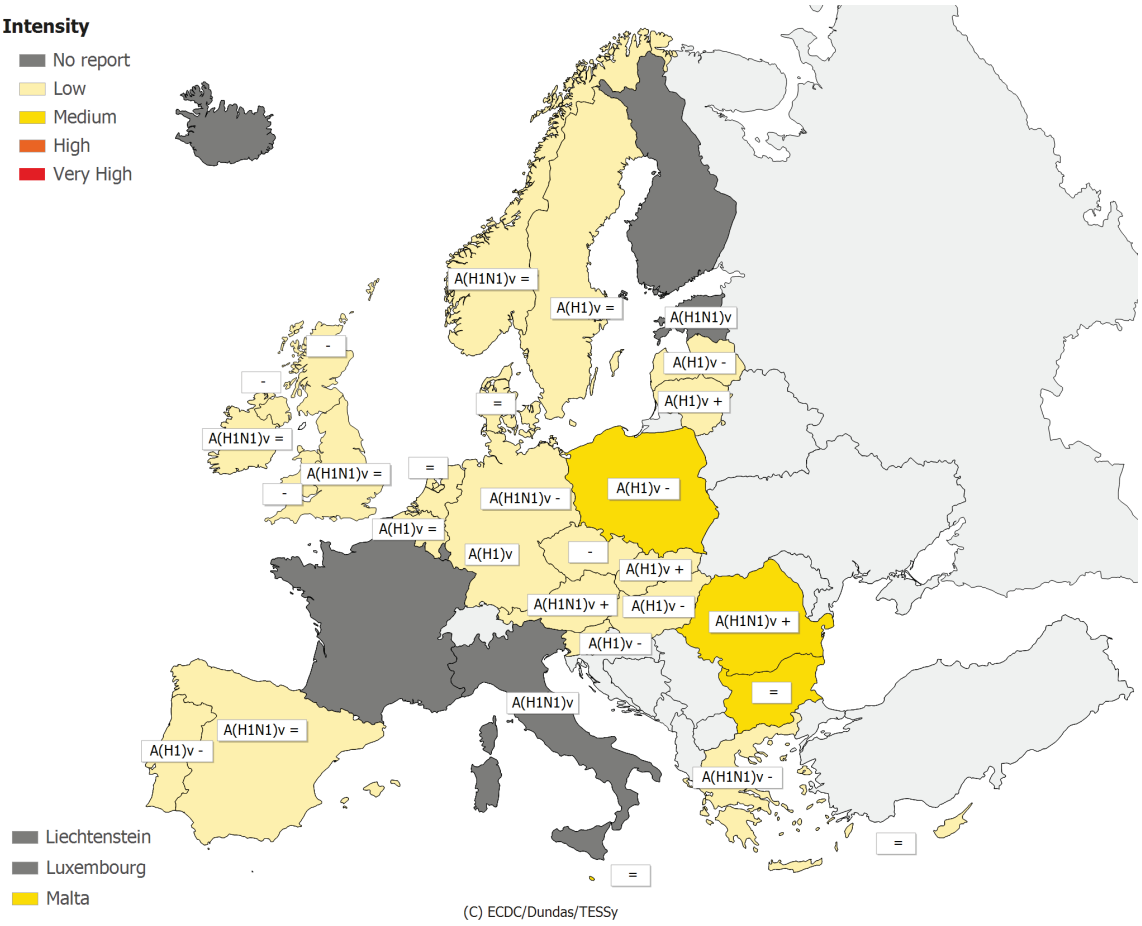
Among countries who reported intensity above baseline levels, there is a stable trend in Bulgaria and Malta and a decreasing trend in Poland and Romania. Trend indicators during week 2 are difficult to interpret as they may reflect an increase of reporting after the holiday season (Table 1). For definitions of the intensity and geographic spread indicators, **click here.**

For the geographic spread indicator, Greece reported widespread activity while Austria, Bulgaria and Romania reported regional spread. Eight countries and the UK (England and Scotland) reported local spread while 11 countries, as well as the UK (Northern Ireland and Wales), reported sporadic geographical spread (Map 2, Table 1).

Since week 40/2009, all countries reporting data to EISN have experienced influenza activity above baseline levels. In most of the countries ILI/ARI activity peaks were observed between weeks 46 and 49. In Iceland and Ireland peaks were observed at an earlier stage (week 43).

During the 2009/10 season, most countries started to report influenza activity above baseline levels earlier than in recent seasons. In addition, peak incidences of ILI and/or ARI have generally been higher this season. In all countries collecting information on the age of patients, individuals younger than 15 years have been the most affected age group.

Map 1: Intensity for week 2/2010

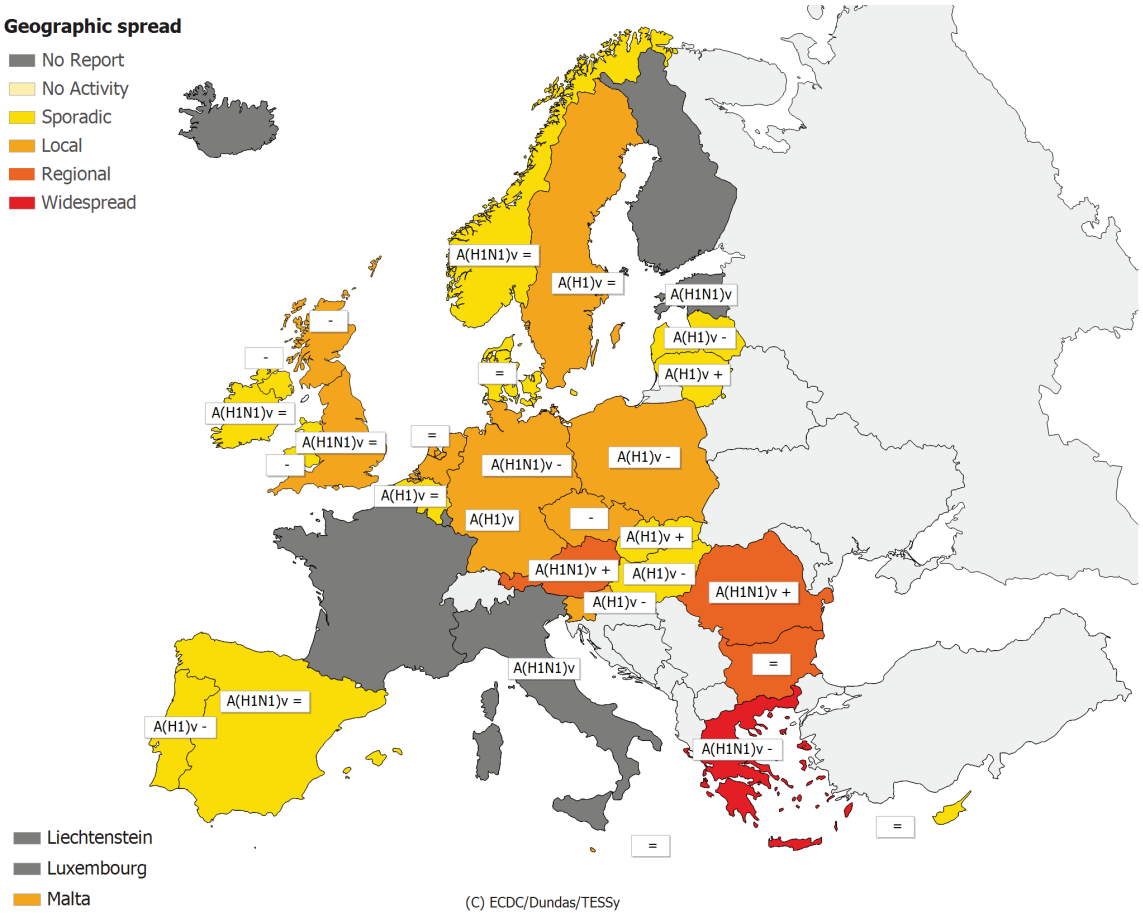


* A type/subtype is reported as dominant when > 40 % of all samples are positive for the type/subtype.

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

Map 2: Geographic spread for week 2/2010



* 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)
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)v	Type A, Subtype H1v
A(H1N1)v	Type A, Subtype H1N1v

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	Low	Regional	Increasing	14	A(H1N1)v	21.4	-	16.0	Graphs	Graphs
Belgium	Low	Sporadic	Stable	23	A(H1)v	17.4	89.3	1 403.8	Graphs	Graphs
Bulgaria	Medium	Regional	Stable	11	None	0.0	-	917.2	Graphs	Graphs
Cyprus	Low	Sporadic	Stable	-	-	-	1 497.8	8 637.0	Graphs	Graphs
Czech Republic	Low	Local	Decreasing	-	-	-	47.4	782.8	Graphs	Graphs
Denmark	Low	Sporadic	Stable	-	-	-	48.1	0.0	Graphs	Graphs
Estonia				14	A(H1N1)v	21.4	-	-	Graphs	Graphs
Finland				-	-	-	-	-	Graphs	Graphs
France				-	-	-	-	-	Graphs	Graphs
Germany	Low	Local	Decreasing	49	A(H1N1)v	26.5	-	973.7	Graphs	Graphs
Greece	Low	Widespread	Decreasing	4	A(H1N1)v	75.0	119.8	-	Graphs	Graphs
Hungary	Low	Sporadic	Decreasing	79	A(H1)v	13.9	142.0	-	Graphs	Graphs
Iceland				-	-	-	-	-	Graphs	Graphs
Ireland	Low	Sporadic	Stable	14	A(H1N1)v	28.6	15.9	-	Graphs	Graphs
Italy				28	A(H1N1)v	7.1	-	-	Graphs	Graphs
Latvia	Low	Sporadic	Decreasing	0	A(H1)v	-	3.7	799.4	Graphs	Graphs
Lithuania	Low	Sporadic	Increasing	2	A(H1)v	50.0	5.6	412.5	Graphs	Graphs
Luxembourg				14	A(H1)v	21.4	-	-	Graphs	Graphs
Malta	Medium	Local	Stable	-	-	-	6 906.3	-	Graphs	Graphs
Netherlands	Low	Local	Stable	13	None	0.0	36.2	-	Graphs	Graphs
Norway	Low	Sporadic	Stable	7	A(H1N1)v	0.0	49.7	-	Graphs	Graphs
Poland	Medium	Local	Decreasing	23	A(H1)v	17.4	-	-	Graphs	Graphs
Portugal	Low	Sporadic	Decreasing	17	A(H1)v	23.5	8.2	-	Graphs	Graphs
Romania	Medium	Regional	Decreasing	142	A(H1N1)v	31.7	4.1	840.1	Graphs	Graphs
Slovakia	Low	Sporadic	Increasing	0	A(H1)v	-	148.4	1 255.2	Graphs	Graphs
Slovenia	Low	Local	Decreasing	10	A(H1)v	40.0	8.5	970.1	Graphs	Graphs
Spain	Low	Sporadic	Stable	103	A(H1N1)v	9.7	29.6	-	Graphs	Graphs
Sweden	Low	Local	Stable	10	A(H1)v	0.0	1.5	-	Graphs	Graphs
UK – England	Low	Local	Stable	103	A(H1N1)v	6.8	12.1	396.1	Graphs	Graphs
UK – Northern Ireland	Low	Sporadic	Decreasing	4	None	25.0	36.1	431.2	Graphs	Graphs
UK – Scotland	Low	Local	Decreasing	-	-	-	7.6	247.9	Graphs	Graphs
UK – Wales	Low	Sporadic	Decreasing	-	-	-	6.7	-	Graphs	Graphs
Europe				684		18.1				Graphs

Note: Liechtenstein is not reporting to the European Influenza Surveillance Network.

Description of the system

This surveillance is based on nationally organised 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 02/2010, 21 countries and the UK (England and the Northern Ireland) reported virological data. Sentinel physicians collected 684 respiratory specimens, of which 124 (18.1%) were positive for influenza virus (Tables 1 & 2, and Figure 3). In addition, 827 non-sentinel source specimens (e.g. specimens collected for diagnostic purposes in hospitals) were reported positive for influenza virus. Of the 16 407 influenza viruses detected by sentinel networks and subtyped since week 40/2009, 16 315 (99%) were the pandemic virus. Table 2 shows the distribution of sentinel and non-sentinel specimens by type and subtype; Figures 1–3 show the temporal trends of virological detections.

Based on the antigenic characterisation of 1 256 influenza viruses reported from week 40/2009 to week 02/2010, 1 243 (99%) were reported as A/California/7/2009 (H1N1)v-like, seven (<1%) as A/Brisbane/10/2007 (H3N2)-like, five as A/Perth/16/2009 (H3N2)-like (<1%) and one as B/Victoria/2/87 lineage. Figure 4 shows the results of the antigenic characterisation of sentinel and non-sentinel influenza virus isolates since week 40/2009.

All pandemic viruses tested so far have been resistant to M2 inhibitors. Oseltamivir resistance has been detected in 34 (2.7%) of the 1 260 viruses tested and reported to EISN, whereas resistance to zanamivir has not been detected in any of the 1 254 strains tested (Table 3).

In week 2, specimens were tested for respiratory syncytial virus (RSV) in eight countries reporting to EISN. The total number of RSV detections continued to decrease (Figure 5).

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

	Current Week		Season	
Virus type/subtype	Sentinel	Non-sentinel	Sentinel	Non-sentinel
Influenza A	123	826	17052	85601
A (pandemic H1N1)	117	707	16315	73443
A (subtyping not performed)	4	116	641	11769
A (not subtypable)	2	3	55	304
A (H3)	0	0	6	36
A (H1)	0	0	35	49
Influenza B	1	1	51	81
Total Influenza	**124**	**827**	**17103**	**85682**

Note: A(pandemic H1N1), A(H3) and A(H1) include 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 40/2009–2/2010

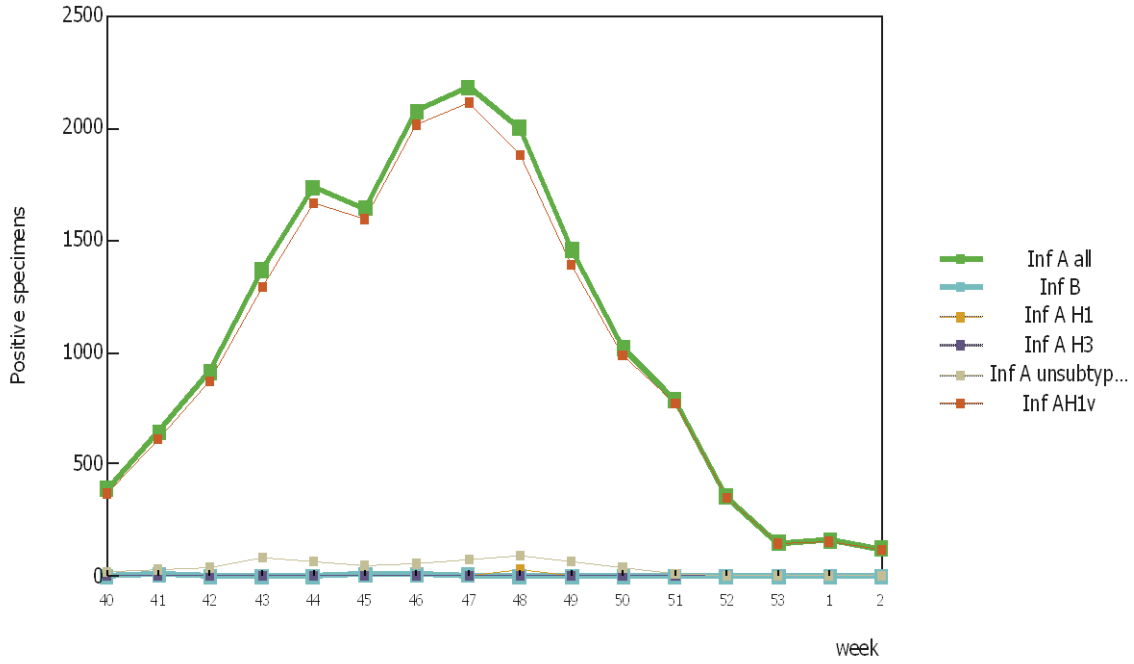


Figure 2: Number of non-sentinel specimens positive for influenza by type, subtype and week of report, weeks 40/2009–2/2010

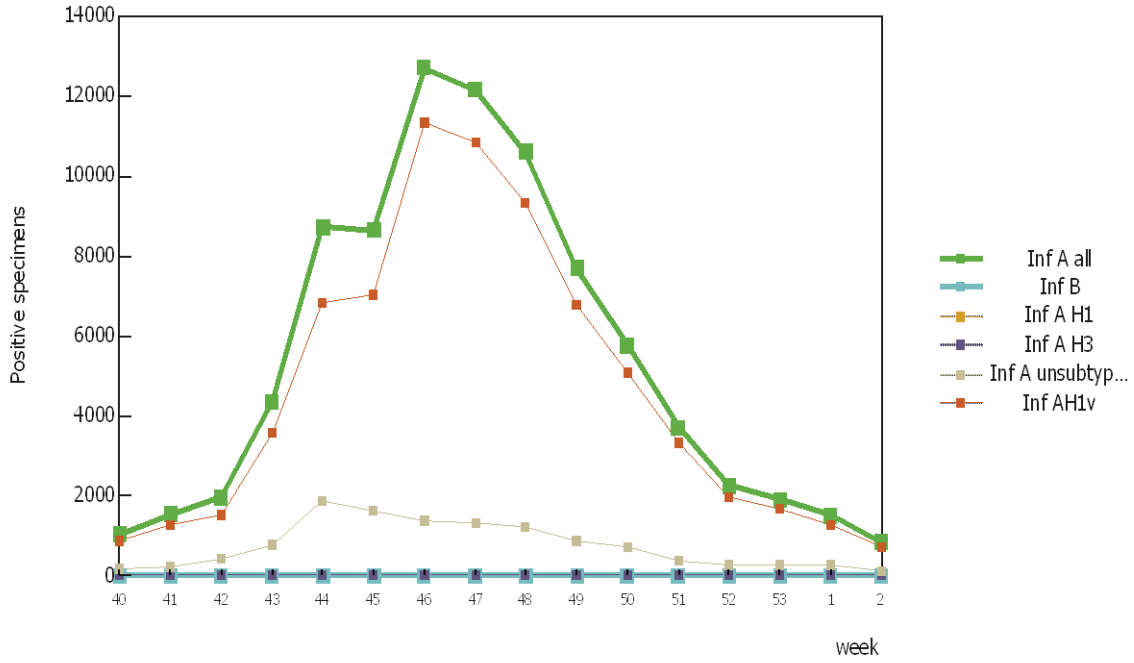


Figure 3: Proportion of sentinel samples positive for influenza, weeks 40/2009–2/2010

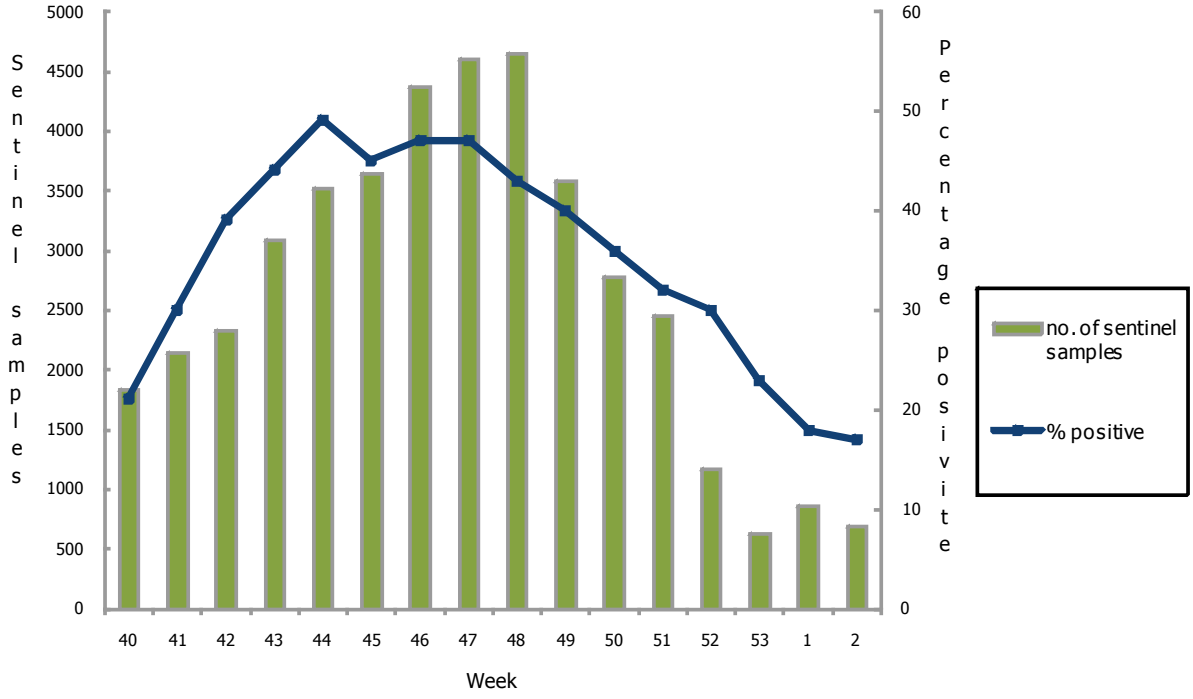


Figure 4: Results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates since week 40/2009

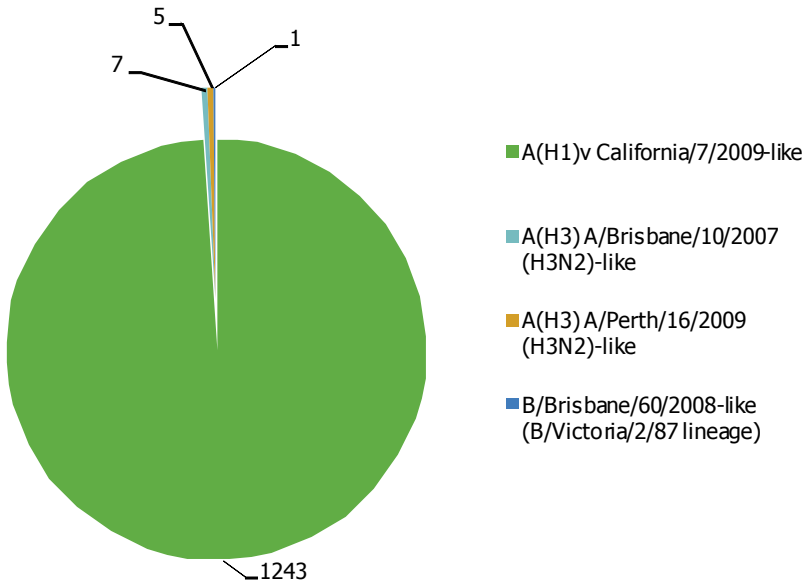
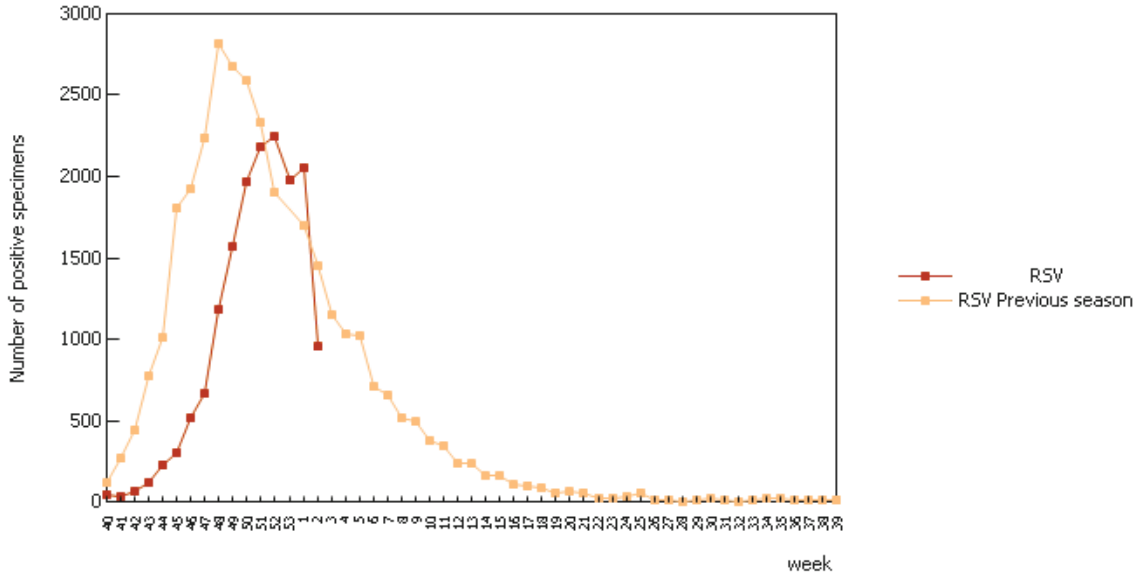


Table 3: Antiviral resistance by influenza virus type and subtype, weeks 40/2009–2/2010

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	1260	34 (2.7%)	1254	0	140	140 (100%)
B	0	0	0	0		

Figure 5: Respiratory syncytial virus (RSV) detections (sentinel and non-sentinel), weeks 40/2009–02/2010



Comments on virological data provided by countries in week 02/2010

The Netherlands

By week 3/2010 in the Netherlands 17 patients were diagnosed with oseltamivir-resistant pandemic A(H1N1) 2009 influenza virus. Compared to week 1/2010, one additional patient was diagnosed with a mixed population of H275Y oseltamivir-resistant and wild-type virus. Thirteen of 15 patients receiving oseltamivir therapy were immunosuppressed due to cytostatic/immunosuppressive therapy, of which five died. One patient with 100% oseltamivir-resistant virus population did not receive oseltamivir. Contact tracing identified no cases of onward transmission of the oseltamivir-resistant viruses.

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 pandemic (H1N1) 2009 deaths

Weekly analysis — deaths

In week 02/2010, nine countries reported 71 new deaths. Since the beginning of the pandemic, 1 314 deaths have been reported.

Table 4: Aggregate numbers of pandemic (H1N1) 2009 deaths, by week 2/2010

Country	Deaths reported in week	Cumulative deaths since start of season	Last reported week
Austria		0	2009-w36
Belgium		0	2009-w29
Bulgaria		40	2009-w53
Cyprus		0	2009-w29
Czech Republic		83	2010-w01
Denmark		0	2009-w36
Estonia	2	13	2010-w02
Finland		0	2009-w36
France	9	261	2010-w02
Germany	4	187	2010-w02
Greece	9	98	2010-w02
Hungary	24	94	2010-w02
Iceland		2	2009-w52
Ireland	0	22	2010-w02
Italy		1	2009-w52
Latvia		31	2009-w53
Lithuania	1	19	2010-w02
Luxembourg		3	2009-w52
Malta	0	5	2010-w02
Netherlands	2	56	2010-w02
Norway		29	2010-w01
Poland		9	2009-w47
Portugal		0	2009-w36
Romania	20	104	2010-w02
Slovakia		0	2009-w36
Slovenia	0	16	2010-w02
Spain		4	2009-w29
Sweden	0	22	2010-w02
United Kingdom		215	2010-w01
Total	71	1314	

Description of the system

Aggregate numbers of both probable and laboratory-confirmed cases of pandemic influenza and deaths due to pandemic influenza are reported by countries still collecting this 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

During week 02/2010, 123 SARI cases were reported, of which 48 (39%) had the onset of symptoms during the same week. The number of cases by week of onset has been declining since week 46/2009 (Figure 5). Since the beginning of this surveillance, 10 EU countries have reported 9 574 SARI cases, including 435 fatalities (Table 5).

Of the 75 influenza viruses detected in the SARI cases and subtyped, all but one were the 2009 pandemic influenza A(H1N1) virus (Table 7). Of the 123 SARI cases, 44 (36%) were known to have required ICU admission and 28 (23%) needed ventilation support (Table 9). Detailed information on SARI cases reported during week 2 can be found in Tables 6–12.

Table 5: Cumulative number of SARI cases, weeks 40/2009 – week 2/2010

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 covered2
Austria	2771		27		
Belgium	1634	15.32			10668666
Cyprus	22		5		
Finland	1390		41		
France	1217		246		
United Kingdom	1360	3.44	52	0.13	39503332
Malta	127	30.71	1	0.24	413609
Netherlands	626	3.79	27	0.16	16521505
Romania	164	1.29	11	0.09	12684180
Slovakia	263		25		
Total	9574	4.90	435	0.13	79791292

Figure 5: Number of SARI cases by week of onset, week 2/2010

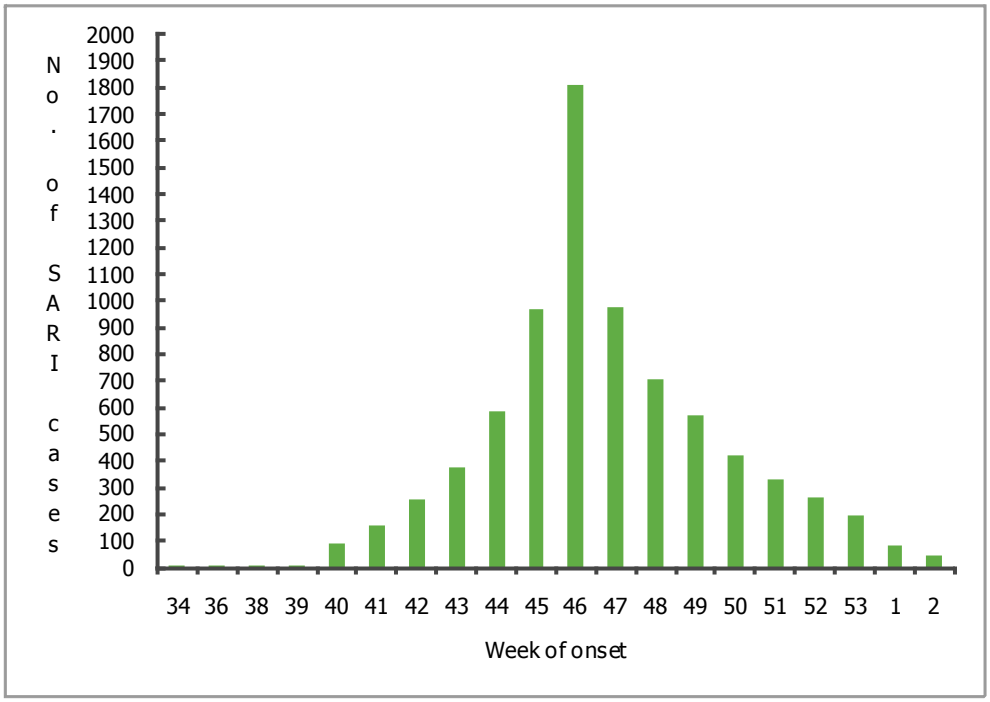


Table 6: Number of SARI cases by age and gender, week 2/2010

Age groups	Male	Female
Under 2	6	7
2-17	9	7
18-44	19	14
45-59	21	13
>=60	16	8
Unknown	1	
Total	72	49

Table 7: Number of SARI cases by influenza type and subtype, week 2/2010

Virus type/subtype	Number of cases during current week	Cumulative number of cases since the start of the season
Influenza A	76	7585
A (pandemic H1N1)	74	7532
A(subtyping not performed)	1	25
A(H3)		
A(H1)	1	28
A(H5)		
Influenza B		
Unknown	47	1989
Total	123	9574

Table 8: Number of SARI cases by antiviral treatment, week 2/2010

Antiviral treatment	Number of patients who received prophylaxis	Number of patients who received anti-viral treatment
Oseltamivir		39
Zanamivir		1
Other (or any other combination)		1
Unknown	70	62
None	53	20
Total	123	123

Table 9: Number of SARI cases by level of care and respiratory support, week 2/2010

Respiratory support	ICU	Inpatient ward	Other	Unknown
No respiratory support necessary		14		
Oxygen therapy	13	26		
Respiratory support given unknown	3	5		30
Ventilator	28	2		2

Table 10: Number of SARI cases by vaccination status, week 2/2010

Vaccination Status	Number Of Cases	Percentage of cases
Both, seasonal and pandemic vaccination	5	4.1
Not vaccinated	45	37
Pandemic vaccination	2	1.6
Seasonal vaccination	8	7
Unknown	63	51.2
TOTAL	123	

Table 12: Additional clinical complications in SARI cases by age group, week 2/2010

Additional clinical complications	Infant below 2 years Numbers	2-17 years Numbers	18-44 years Numbers	45-59 years Numbers	>=60 years Numbers
Acute respiratory distress syndrome	6	5	4	8	5
Bronchiolitis	1				1
Myocarditis			1	1	
None	3	5	6	2	6
Other (please specify separately)			1		1
Pneumonia (secondary bacterial infection		2	4	7	4
Sepsis/Multi-organ failure					1
Unknown	3	5	18	17	8

Note: One case can have more than one complication.

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 healthcare 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, Alan Hay 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).