SURVEILLANCE REPORT

Weekly influenza surveillance overview

24 December 2009

Main surveillance developments in week 51/2009 (from 14 Dec 2009 to 20 Dec 2009)

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

- Most countries are witnessing medium influenza intensity with only two reporting high levels. In the majority of countries, activity is still widespread.
- Only one country reported an increasing trend in consultations for ILI/ARI and, of the other 19 countries that reported epidemiological data this week, 17 reported a declining trend and two reported stable levels. Fourteen countries reported observing a decline for two weeks in succession.
- While the proportion of influenza-positive sentinel samples continued to decline, the 2009 pandemic influenza A(H1N1) virus still accounted for 99% of all subtyped viruses in sentinel patients and for 98% in SARI patients.
- One in five SARI cases had no known underlying medical condition.

Sentinel surveillance of influenza-like illness (ILI)/acute respiratory illness (ARI): In week 51/2009, Bulgaria and Greece reported high intensity, 13 countries reported medium intensity and the remaining four countries reported low intensity. Seventeen of the 20 countries reporting epidemiological data indicated decreasing trend in consultations. UK reported decreasing trends and low intensity except for Scotland, where the trend was stable and intensity medium. For more information click here…

Virological surveillance: Sentinel physicians collected 969 respiratory specimens, of which 318 (33%) were positive for influenza virus. This proportion has now decreased for the fourth week in a row. Of the 14 991 viruses detected by sentinel networks and subtyped since week 40/2009, 14 897 (99%) were the 2009 pandemic influenza virus. For more information click here…

Aggregate numbers of 2009 pandemic influenza A(H1N1) deaths: For more information click here…

Hospital surveillance of severe acute respiratory infection (SARI): During week 51/2009, 257 SARI cases were reported, 29 (11%) of whom were known to have required ICU admission and one required ventilatory support. Of 183 isolates subtyped in week 51, 179 (98%) were the 2009 pandemic influenza virus. For more information click here…

Qualitative reporting: For more information click here…

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Sentinel surveillance (ILI/ARI)

Weekly analysis – epidemiology

In week 51/2009, 20 countries reported epidemiological data. For the activity intensity indicator—a comparison with baseline national network levels for ILI and/or ARI— Bulgaria and Greece reported high intensity. Austria, Czech Republic, Estonia, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Norway, Portugal, Romania, Slovakia and Sweden reported medium intensity and Belgium, Cyprus, Germany, the Netherlands and the UK (England and Northern Ireland)reported low intensity (Map 1, Table 1).

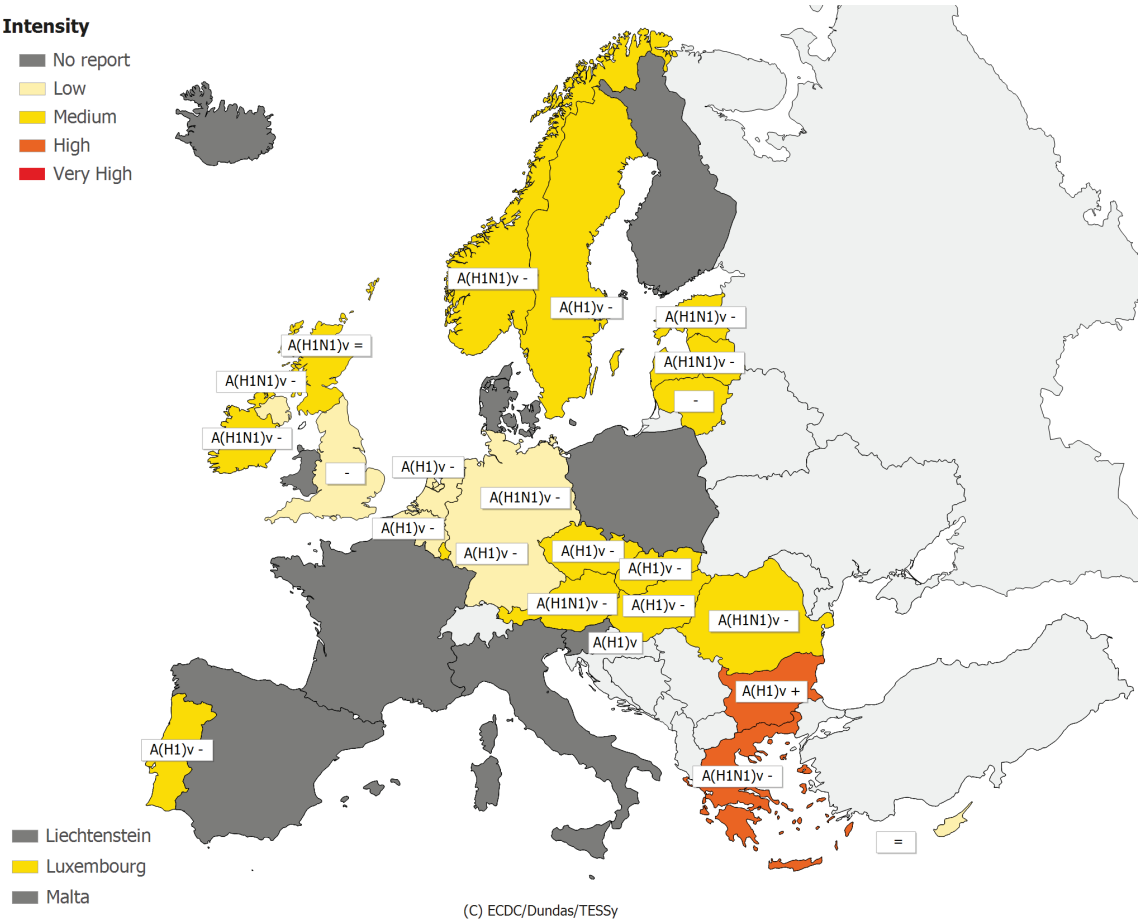
For the geographic spread indicator, six countries (Estonia, Greece, Luxembourg, the Netherlands, Norway and Portugal) reported widespread activity. Austria, Bulgaria, Germany, Hungary, Latvia, Lithuania, Romania, Sweden and the UK (Scotland) reported regional activity, and five countries and the UK (England and Northern Ireland) reported local or sporadic activity (Map 2, Table 1).

Bulgaria reported an increasing trend, while 17 countries and the UK (England and Northern Ireland) reported a decreasing trend, Cyprus and the UK (Scotland) indicated stable activity (Table 1). For definitions of the intensity and geographic spread indicators, click here.

Since week 40/2009, all countries reporting data to EISN have experienced influenza activity above baseline levels. Fourteen countries (Austria, Estonia, Germany, Greece, Ireland, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Portugal, Slovakia, Sweden and the UK (England and Northern Ireland)) have reported observing decreasing ILI/ARI rates for at least the last two weeks, with five (Belgium, Iceland, Ireland, Spain and part of the UK (Northern Ireland)) reaching levels below those registered in week 40.

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 the patients, individuals younger than 15 years are the most affected age group.

Map 1: Intensity for week 51/2009

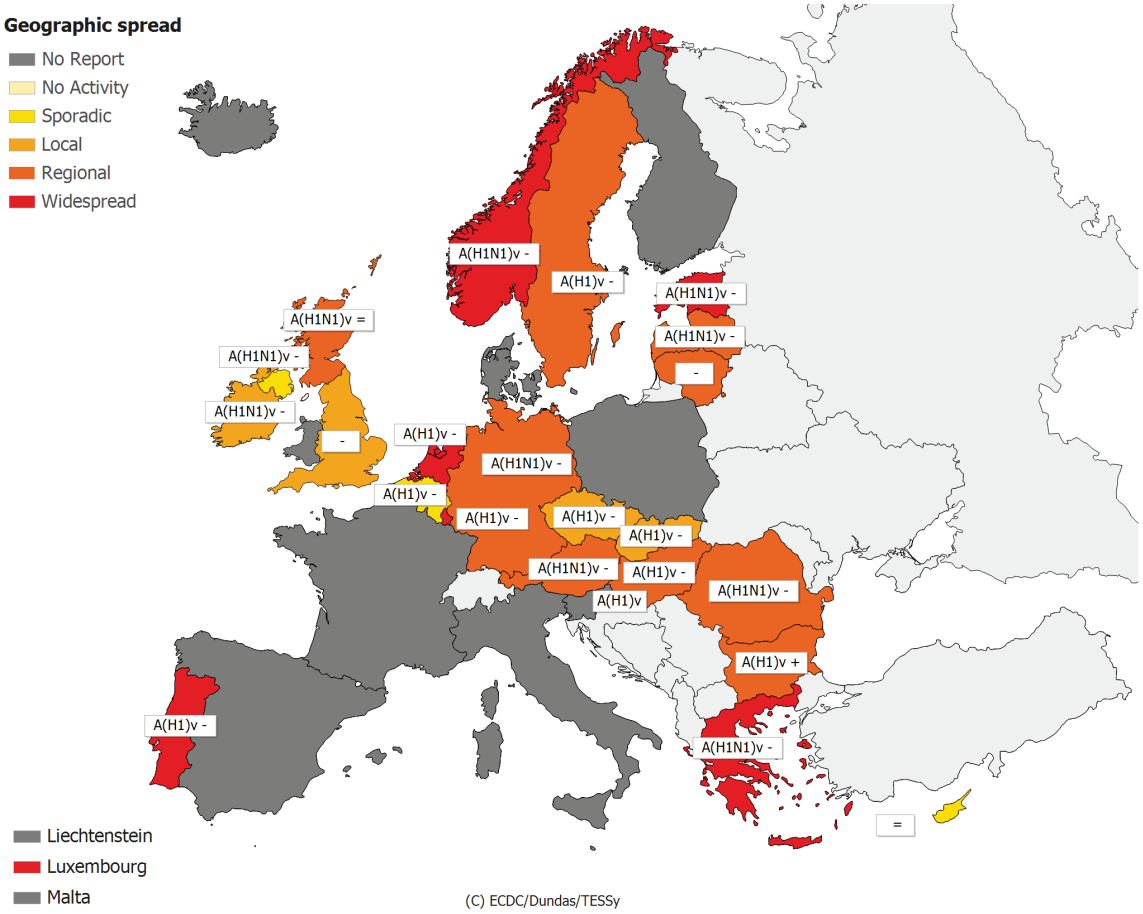


* A type/subtype is reported as dominant when > 40 % of all samples are positive for the type/subtype.

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 51/2009



* 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	Medium	Regional	Decreasing	37	A(H1N1)v	56.8	-	26.0	Graphs	Graphs
Belgium	Low	Sporadic	Decreasing	49	A(H1)v	24.5	95.6	1455.7	Graphs	Graphs
Bulgaria	High	Regional	Increasing	0	A(H1)v	-	-	1019.3	Graphs	Graphs
Cyprus	Low	Sporadic	Stable	0	-	-	2035.2	10802.3	Graphs	Graphs
Czech Republic	Medium	Local	Decreasing	29	A(H1)v	51.7	193.2	1242.7	Graphs	Graphs
Denmark				0	-	-	-	-		
Estonia	Medium	Widespread	Decreasing	50	A(H1N1)v	46.0	36.7	486.1	Graphs	Graphs
Finland				0	-	-	-	-		
France				0	-	-	-	-		
Germany	Low	Regional	Decreasing	121	A(H1N1)v	48.8	-	1099.7	Graphs	Graphs
Greece	High	Widespread	Decreasing	59	A(H1N1)v	63.0	274.1	-	Graphs	Graphs
Hungary	Medium	Regional	Decreasing	62	A(H1)v	16.1	366.0	-	Graphs	Graphs
Iceland				0	-	-	-	-		
Ireland	Medium	Local	Decreasing	42	A(H1N1)v	14.3	42.4	-	Graphs	Graphs
Italy				0	-	-	-	-		
Latvia	Medium	Regional	Decreasing	0	A(H1N1)v	-	64.9	893.5	Graphs	Graphs
Lithuania	Medium	Regional	Decreasing	18	None	55.6	53.5	516.8	Graphs	Graphs
Luxembourg	Medium	Widespread	Decreasing	57	A(H1)v	29.8	2801.1	20728.3	Graphs	Graphs
Malta				0	-	-	-	-		
Netherlands	Low	Widespread	Decreasing	13	A(H1)v	15.4	44.2	-	Graphs	Graphs
Norway	Medium	Widespread	Decreasing	12	A(H1N1)v	0.0	89.0	-	Graphs	Graphs
Poland				0	-	-	-	-		
Portugal	Medium	Widespread	Decreasing	39	A(H1)v	38.5	47.4	-	Graphs	Graphs
Romania	Medium	Regional	Decreasing	108	A(H1N1)v	46.3	6.9	1127.3	Graphs	Graphs
Slovakia	Medium	Local	Decreasing	6	A(H1)v	66.7	331.9	1993.8	Graphs	Graphs
Slovenia				15	A(H1)v	40.0	-	-	Graphs	Graphs
Spain				0	-	-	-	-		
Sweden	Medium	Regional	Decreasing	18	A(H1)v	0.0	3.2	-	Graphs	Graphs
UK - England	Low	Local	Decreasing	0	-	-	24.7	493.2	Graphs	Graphs
UK - Northern Ireland	Low	Sporadic	Decreasing	25	A(H1N1)v	4.0	54.2	470.3	Graphs	Graphs
UK - Scotland	Medium	Regional	Stable	209	A(H1N1)v	14.8	14.1	318.1	Graphs	Graphs
UK - Wales				0	-	-	-	-		
Europe				969		32.8				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 Cyprus and 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.

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Virological surveillance

Weekly analysis – virology

In week 51/2009, 20 countries reported virological data. Sentinel physicians collected 969 respiratory specimens, of which 318 (33%) were positive for influenza virus (Tables 1 & 2). This proportion has now decreased for the fourth week in a row (Figure 3). In addition, 2 084 non-sentinel source specimens (e.g. specimens collected for diagnostic purposes in hospitals) were reported positive for influenza virus. Of the 14 260 viruses detected by sentinel networks and subtyped since week 40/2009, 14 166 (99%) were the 2009 pandemic influenza 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 and/or genetic characterisation of 815 influenza viruses reported from week 40/2009 to week 51/2009, 810 (99%) were reported as A/California/7/2009 (H1N1)v-like, four (<1%) as A/Brisbane/10/2007 (H3N2)-like and one as B/Brisbane/60/2008-like (B/Victoria/2/87 lineage). Figure 4 shows the results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates since week 40/2009. For details on the current virus strains recommended by WHO for vaccine preparation click here.

All pandemic viruses tested so far have been resistant to M2 inhibitors. Oseltamivir resistance was detected in 19 of the 595 viruses tested and reported to EISN so far, whereas resistance to zanamivir was not detected in any of the 589 strains tested (Table 3).

Specimens have been tested for respiratory syncytial virus (RSV) in 18 countries reporting to EISN. A decrease in RSV detections was observed during week 51/2009 (Figure 5), probably also due to less countries reporting, however, countries should be on the alert for this virus.

Table 2: Weekly and cumulative influenza virus detections by type, subtype and surveillance system, weeks 40/2009–51/2009

	Current Week		Season	
Virus type/subtype	Sentinel	Non-sentinel	Sentinel	Non-sentinel
Influenza A	317	2084	14897	74711
A (pandemic H1N1)	315	1946	14166	65135
A (subtyping not performed)	2	131	637	9108
A (not subtypable)	0	7	50	285
A (H3)	0	0	4	26
A (H1)	0	0	40	157
Influenza B	1	0	47	61
Total Influenza	**318**	**2084**	**14944**	**74772**

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 40/2009–51/2009

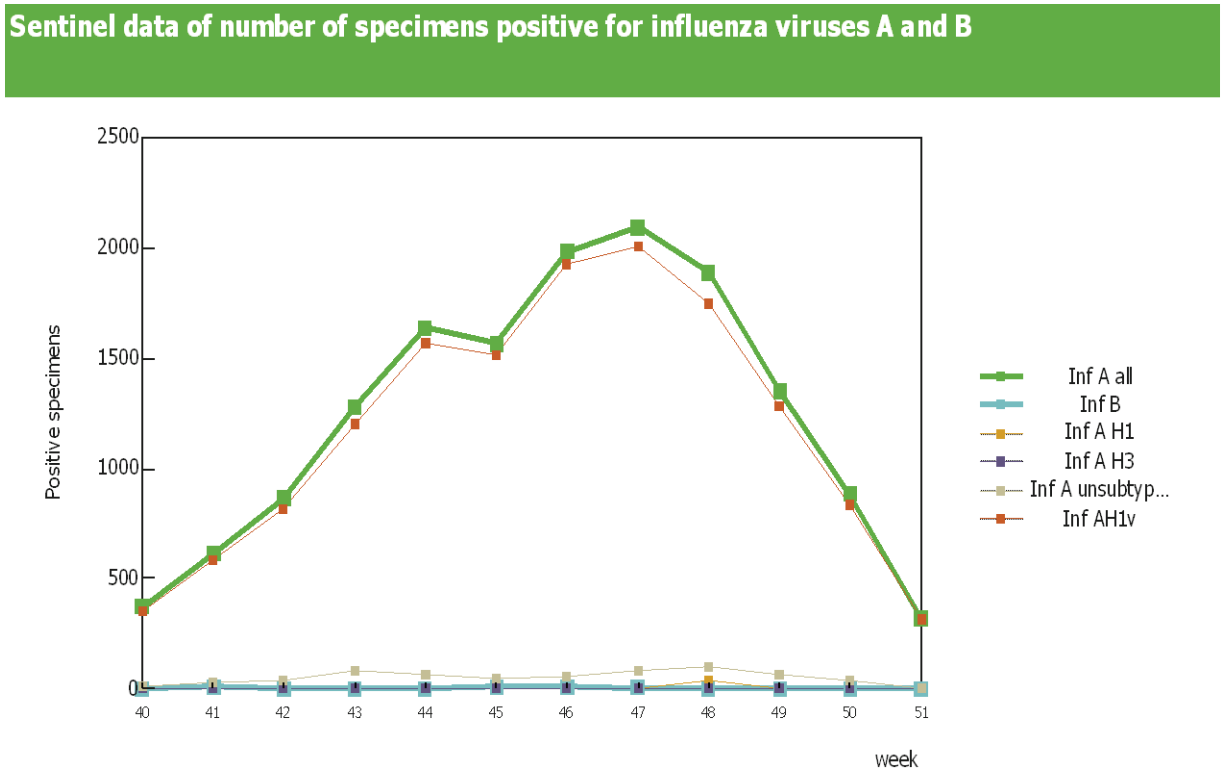


Figure 2: Number of non-sentinel specimens positive for influenza by type, subtype and week of report, weeks 40/2009–51/2009

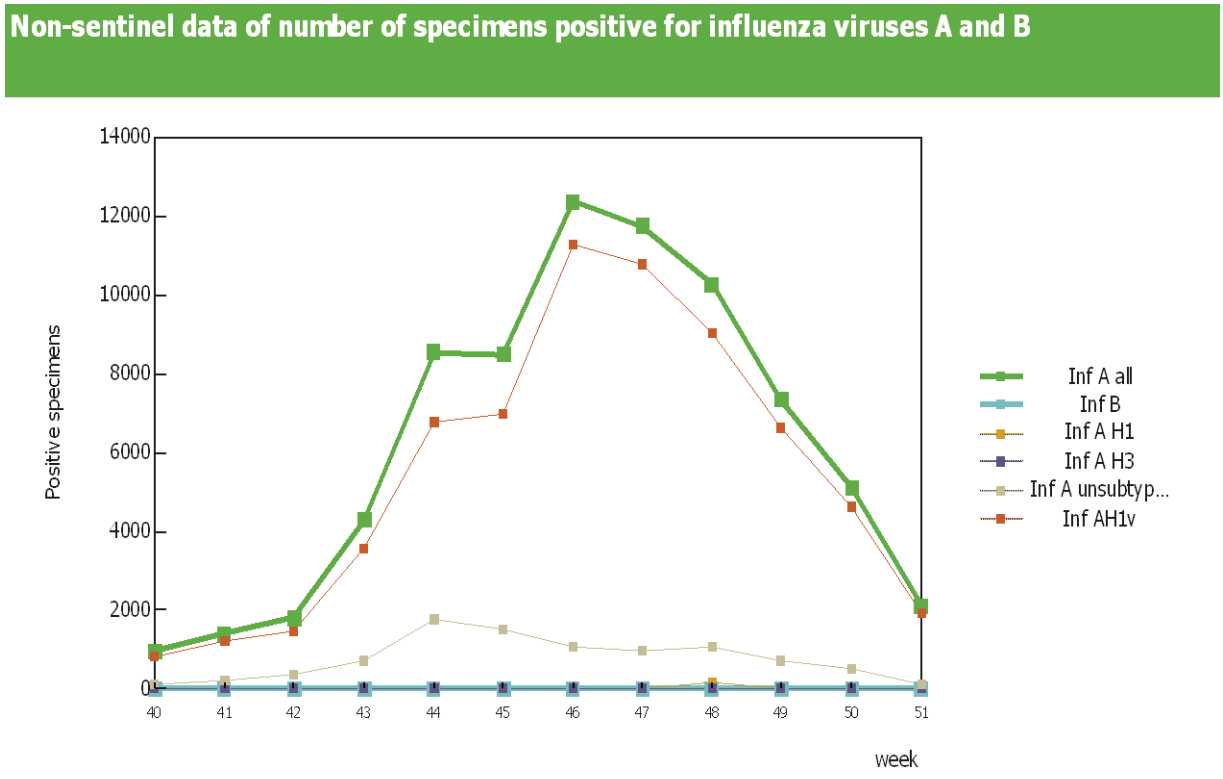


Figure 3: Proportion of sentinel samples positive for influenza, weeks 40/2009–51/2009

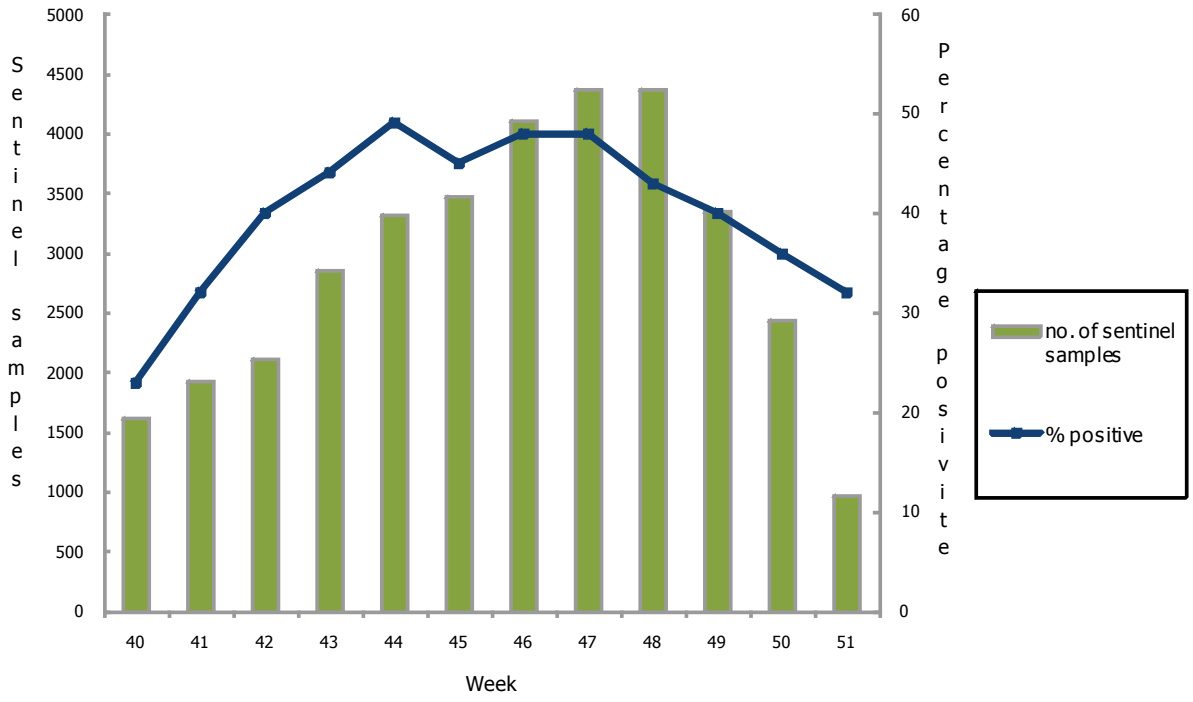


Figure 4: Results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates since week 40/2009

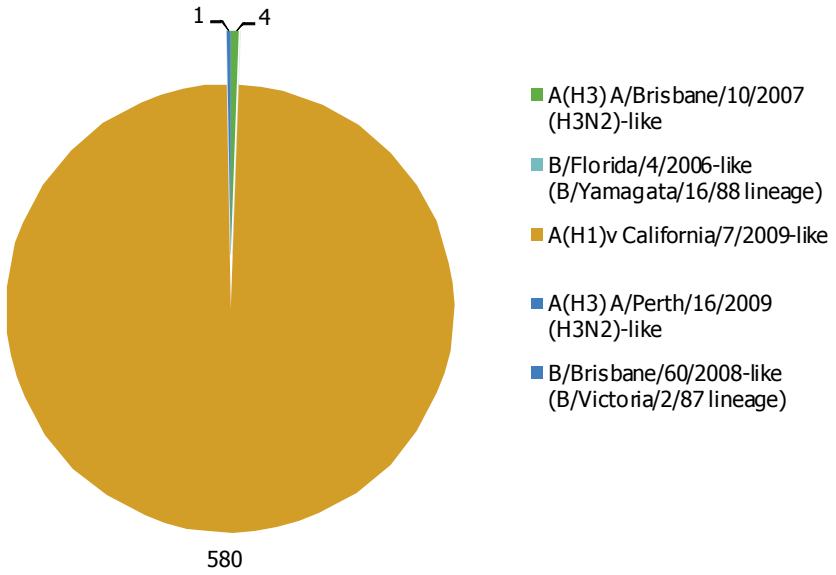
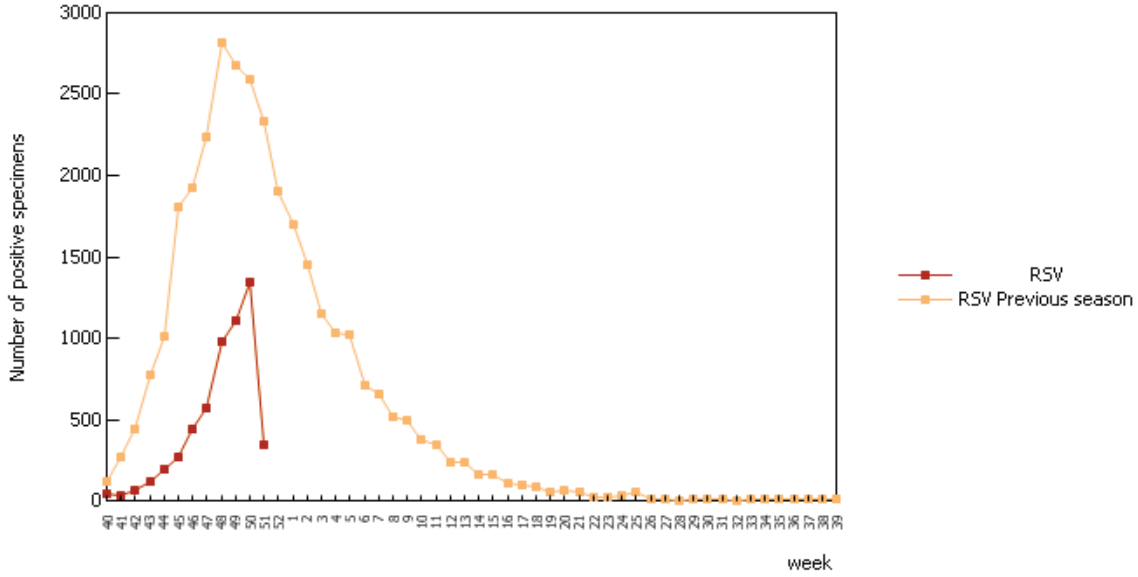


Table 3: Antiviral resistance by influenza virus type and subtype, weeks 40/2009–51/2009

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	595	19(3)	589	0	140	140 (100%)
B	0	0	0	0		

Figure 5: Respiratory syncytial virus (RSV) detections (sentinel and non-sentinel), weeks 40/2009–50/2009



Comments on virological data provided by countries in week 51/2009

The Netherlands: By week 51 in the Netherlands, 14 patients were diagnosed with oseltamivir-resistant 2009 pandemic influenza A(H1N1) virus. Compared to week 50, one additional patient was diagnosed with a monopopulation of H275Y oseltamivir-resistant virus, following oseltamivir therapy. Eleven of the 14 patients were immunosuppressed due to cytostatic/immunosuppressive therapy, of which four died. 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.

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Aggregate numbers of 2009 pandemic A(H1N1) deaths

Weekly analysis — deaths

In week 51/2009, nine countries reported 48 new deaths. Since the beginning of the pandemic, 832 deaths have been reported.

Table 4: Aggregate numbers of 2009 pandemic A(H1N1) deaths

Country	Deaths reported in week 51	Cumulative deaths since start of season
Austria	-	0
Belgium	-	0
Bulgaria	2	34
Cyprus	-	0
Czech Republic	7	46
Denmark	-	0
Estonia	1	6
Finland	-	0
France	-	150
Germany	4	123
Greece	-	49
Hungary	9	45
Iceland	-	2
Ireland	0	22
Italy	-	1
Latvia	6	24
Lithuania	4	14
Luxembourg	-	2
Malta	-	3
Netherlands	1	52
Norway	-	29
Poland	-	9
Portugal	-	0
Romania	14	32
Slovakia	-	0
Slovenia	-	10
Spain	-	4
Sweden	0	20
United Kingdom	-	155
Total	**48**	**832**

Countries shaded with grey are not recommending laboratory tests for all suspect cases, therefore comparisons in time or between these countries should not be made at present. Fatal cases are reported in the country where the death occurred.

Note: Fatal cases are reported in the country where the death occured.

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.

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Hospital surveillance – severe acute respiratory infection (SARI)

Weekly analysis – SARI

During week 51/2009, 257 SARI cases were reported, of whom 160 (62%) had symptom onset during the same week. This proportion increased from 17% in week 49, indicating much more timely reporting. Since the beginning of this surveillance, seven EU countries have reported 2 404 SARI cases, including 97 fatalities (Table 5).

Of 183 isolates subtyped in week 51, 179 (98%) were the 2009 pandemic influenza virus (Table 7). Of the 257 SARI cases, 29 (11%) were known to have required ICU admission and one ventilatory support (Table 9). Of 59 SARI cases for whom underlying condition was reported eleven (19%) were known not to have had any underlying condition(n=59) (Figure 7).

Detailed information on SARI cases reported during week 51 can be found in Tables 6–12.

Table 5: Cumulative number of SARI cases, weeks 40/2009 – week 51/2009

Country	Number of SARI cases	Incidence of SARI cases per 100 000 population	Number of fatal cases reported	Incidence of fatal cases per 100 000	Estimated population covered
Austria	321		10		
Belgium	1632	15.2			10668666
Cyprus	18		2		
France	752		119		
Malta	40	9.7			413609
Netherlands	562	3.4	24	0.1	16521505
Romania	79	6.2	4	0.3	1268418
Slovakia	194		15		
Total	3598	8.0*	174	0.2*	

** Based on countries that reported both numerator and denominator.*

Figure 6: Number of SARI cases by week of onset, week 51/2009

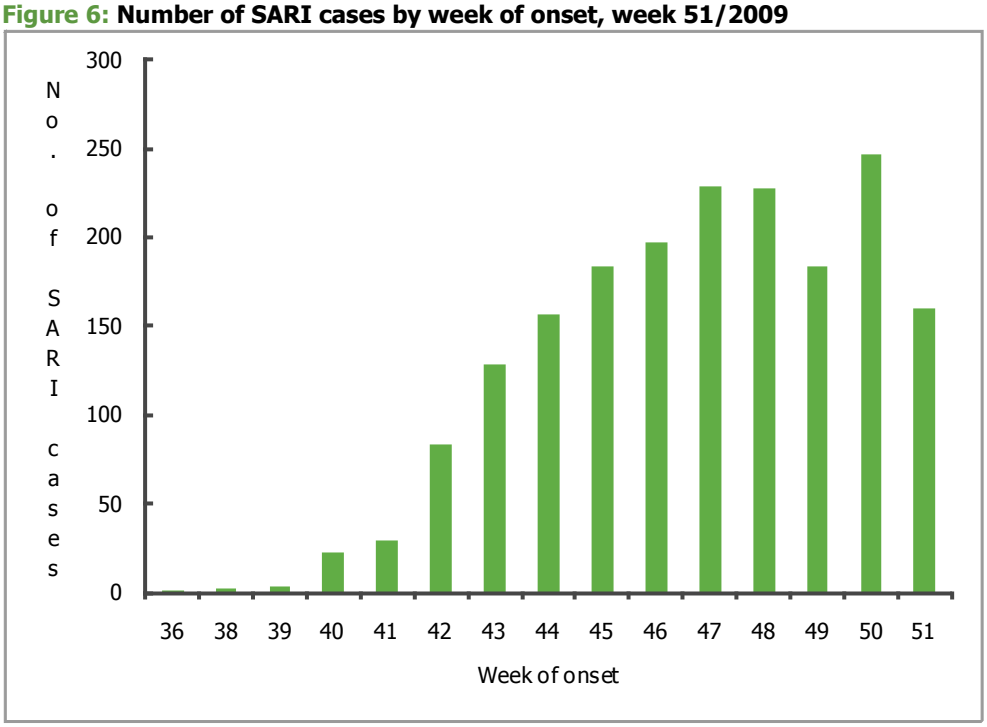

Table 6: Number of SARI cases by age and gender, week 51/2009

Age groups	Male	Female	Other (e.g., transsexual)	Unknown
Under 2	9	12		7
2-17	31	24		5
18-44	42	26		6
45-59	26	22		2
>=60	22	16		7
Total	130	100		27

Table 7: Number of SARI cases by influenza type and subtype, week 51/2009

Virus type/subtype	Number of cases during current week	Cumulative number of cases since the start of the season
Influenza A	184	1757
A (pandemic H1N1)	179	1711
A(subtyping not performed)	1	19
A(H3)		
A(H1)	4	27
A(H5)		
Influenza B		
Unknown	73	1841
Total	257	3598

Table 8: Number of SARI cases by antiviral treatment, week 51/2009

Antiviral treatment	Number of patients who received prophylaxis	Number of patients who received anti-viral treatment	Number of patients with strains resistant to treatment
Oseltamivir		16	
Oseltamivir and Zanamivir		2	
Unknown	241	235	257
None	16	4	
Total	257	257	257

Table 9: Number of SARI cases by level of care and respiratory support, week 51/2009

Respiratory support	ICU	Inpatient ward	Other	Unknown
No respiratory support necessary	1	5		1
Oxygen therapy	17	3		2
Respiratory support given unknown	10	39		176
Ventilator	1	2		

Table 10: Number of SARI cases by vaccination status, week 51/2009

Vaccination Status	Number Of Cases	Percentage of cases
Both, seasonal and pandemic vaccination	1	0.4
Not vaccinated	61	24
Pandemic vaccination	2	0.8
Seasonal vaccination	9	4
Unknown	184	71.6
TOTAL	257	

Figure 7: Number of SARI cases by underlying condition, week 51/2009

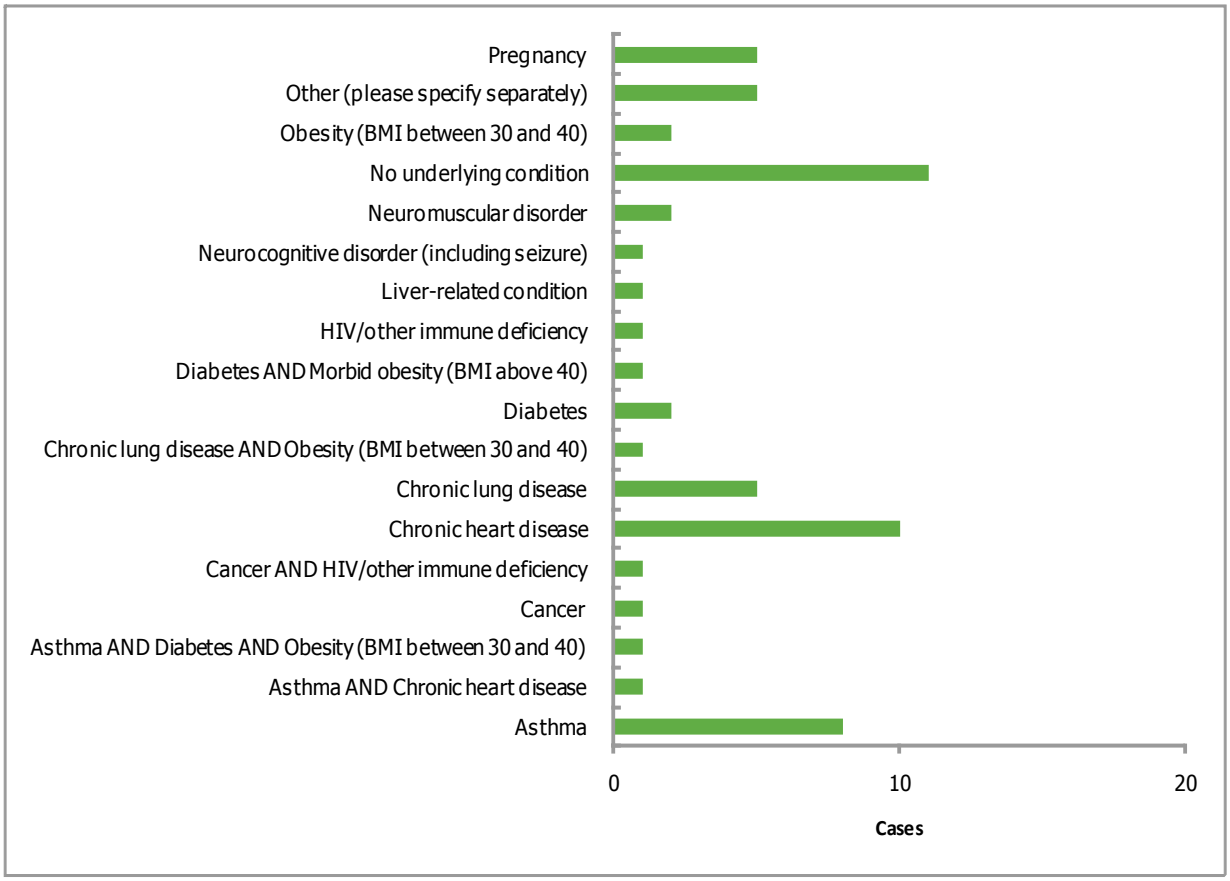

Table 11: Number of underlying conditions in SARI cases by age group, week 51/2009

Underlying condition/risk factor	Infant below 2 years Numbers	2-17 years Numbers	18-44 years Numbers	45-59 years Numbers	>=60 years Numbers
Asthma		3	5	1	
Cancer				1	
Diabetes			1	1	2
Chronic heart disease			1	4	6
Liver-related condition					1
Chronic lung disease		2		4	1
Neurocognitive disorder (including seizure)				1	
Neuromuscular disorder	1			1	
No underlying condition	2	4	1	1	
Other (please specify separately)	1	1			2
Obesity (BMI between 30 and 40)			2	2	
Morbid obesity (BMI above 40)					1
Pregnancy		1	4		
Underlying condition unknown	24	49	63	35	33

Note: Obesity is considered an underlying condition only if any other underlying conditions are not present. One case can have more than one underlying condition.

Table 12: Additional clinical complications in SARI cases by age group, week 51/2009

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	1	2	1	3	4
None	2	3	1	1	1
Pneumonia (secondary bacterial infection)		1	1	3	
Sepsis/Multi-organ failure				1	
Unknown	25	54	71	43	40

Note: One case can have more than one complication.

Table 13: Number of underlying conditions in SARI cases by level of care, week 51/2009

	ICU	Inpatient ward	Other	Unknown
Asthma	4	5		
Cancer	1			
Diabetes	3	1		
Chronic heart disease	4	5		2
Liver-related condition	1			
Chronic lung disease	6			1
Neurocognitive disorder (including seizure)				1
Neuromuscular disorder		1		1
No underlying condition	2	6		
Other (please specify separately)	2	2		
Obesity (BMI between 30 and 40)	3	1		
Morbid obesity (BMI above 40)	1			
Pregnancy	2	2		1
Underlying condition unknown	5	26		173

Note: One case can have more than one underlying condtion.

Table 14: Number of underlying conditions in SARI cases by level of respiratory support, week 51/2009

	Oxygen therapy	Ventilator support provided	Ventilator support necessary but not available	Respiratory support given unknown
Asthma	3			6
Cancer				1
Diabetes	3			1
Chronic heart disease	5			5
Liver-related condition	1			
Chronic lung disease	4			3
Neurocognitive disorder (including seizure)				1
Neuromuscular disorder				2
No underlying condition	2	1		1
Other (please specify separately)	1	1		1
Obesity (BMI between 30 and 40)	3	1		
Morbid obesity (BMI above 40)	1			
Pregnancy	1			4
Underlying condition unknown	3			200

Note: One case can have more than one underlying condtion.

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.

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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 and Rene 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, 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).