SURVEILLANCE REPORT

Weekly influenza surveillance overview

08 January 2010

Main surveillance developments in week 53/2009 (28 December—03 January)

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

- This overview covers a period when consultation and reporting patterns in European countries were disrupted by national holidays. Therefore data has to be interpreted even more carefully than usual.
- All countries that reported this week experienced low to medium influenza intensity and stable activity or a decreasing trend.
- While the proportion of influenza-positive sentinel samples continues to decline, the 2009 influenza A(H1N1) pandemic virus still accounts for nearly 100% of all subtyped viruses in sentinel and SARI patients.
- The number of SARI cases, measured by week of onset, continues to decline.

Sentinel surveillance of influenza like-illness (ILI)/ acute respiratory illness (ARI): Estonia, France, Ireland, Romania and the UK (Scotland) reported medium intensity while all remaining countries reported low intensity. France, Slovenia and the UK (Wales) reported widespread activity. All countries reported a decreasing trend or stable activity. For more information, **click here.**

Virological surveillance: Sentinel physicians collected 588 respiratory specimens, of which 145 (25%) were positive for influenza virus. This proportion has now decreased for the sixth consecutive week. The number of weekly respiratory syncytial virus (RSV) detections decreased for the first time since the beginning of this season; nevertheless, reporting may have been affected by the Christmas holidays. For more information, **click here.**

Aggregate numbers of 2009 pandemic influenza A(H1N1) deaths: In week 53/2009, 10 countries reported 78 pandemic influenza-related deaths. For more information, **click here.**

Hospital surveillance of severe acute respiratory infection (SARI): During week 53/2009, 133 SARI cases were reported, and of the 92 influenza viruses subtyped in week 53, all were the 2009 pandemic influenza virus. For more information, **click here.**

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

Sentinel surveillance (ILI/ARI)

Weekly analysis – epidemiology

In week 53/2009, 19 out of 29 countries reported epidemiological data. For the activity intensity indicator—a comparison with baseline national network levels for ILI and/or ARI—Estonia, France, Ireland, Romania and the UK (Scotland) reported medium intensity while all remaining countries reported low intensity (Map 1, Table 1).

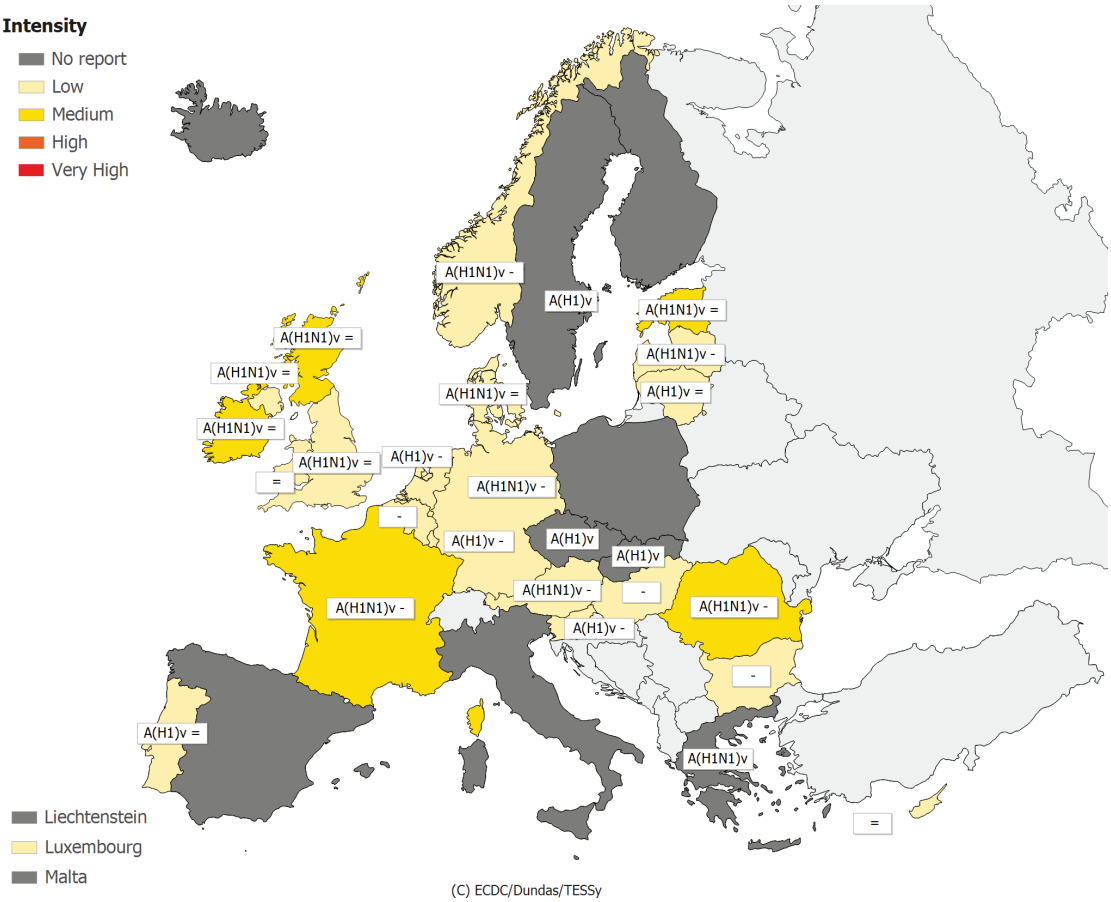
For the geographic spread indicator, France, Slovenia and part of the UK (Wales) reported widespread activity. Austria, Germany, the Netherlands, Norway, Romania, and the UK (Scotland) reported regional activity, while the remaining countries reported local or sporadic activity (Map 2, Table 1).

All countries reported a decreasing trend or 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. Of the 19 countries reporting in week 53, all but Cyprus, Portugal, Romania and the UK (Northern Ireland and Wales) have observed decreasing ILI/ARI rates for at least the last two weeks, with 11 countries and the UK (England and Scotland) reaching levels below those reported 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 patients, individuals younger than 15 years have been the most affected age group.

Map 1: Intensity for week 53/2009



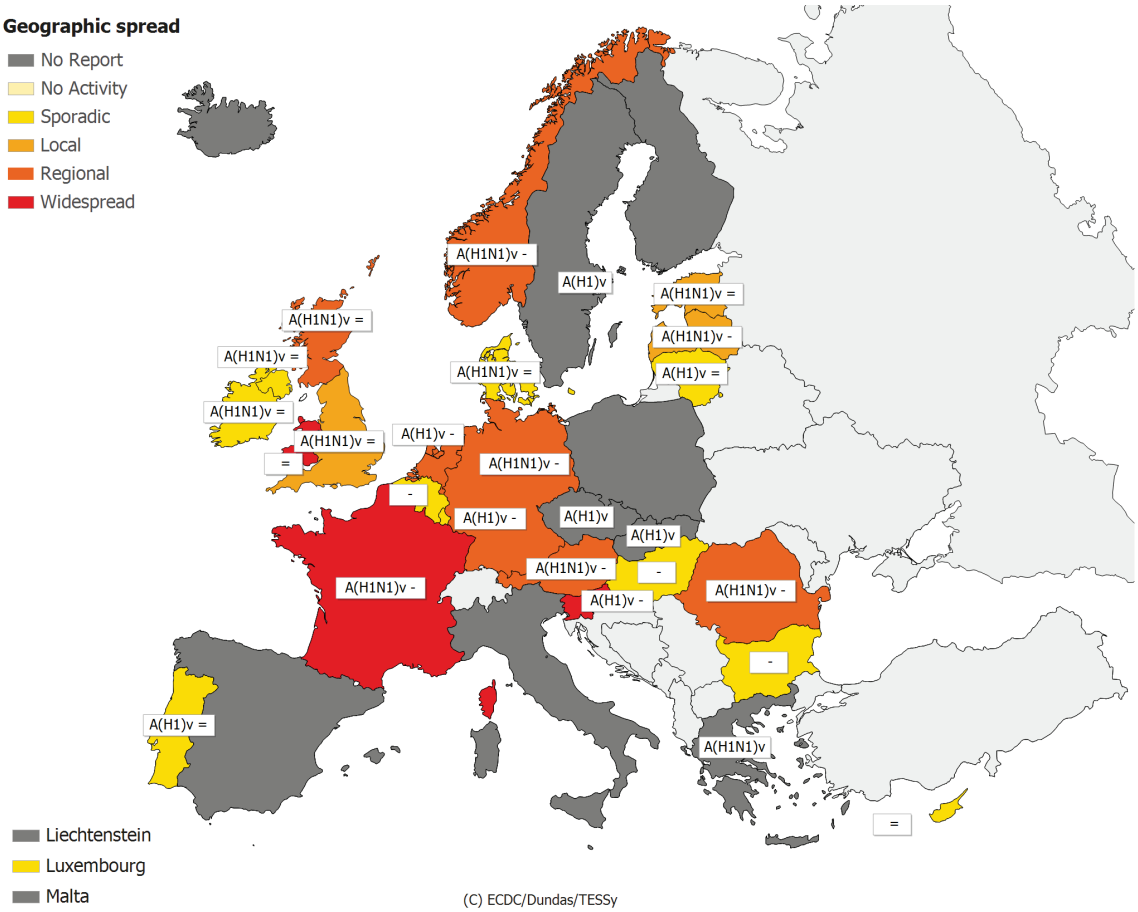
(C) ECDC/Dundas/TESSy

* 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 53/2009



* 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	Low	Regional	Decreasing	5	A(H1N1)v	40.0	-	3.9	Graphs	Graphs
Belgium	Low	Sporadic	Decreasing	0	None	-	42.3	1406.5	Graphs	Graphs
Bulgaria	Low	Sporadic	Decreasing	0	None	-	-	492.8	Graphs	Graphs
Cyprus	Low	Sporadic	Stable	0	-	-	2163.1	8818.6	Graphs	Graphs
Czech Republic				0	A(H1)v	-	-	-	Graphs	Graphs
Denmark	Low	Sporadic	Stable	0	A(H1N1)v	-	58.4	0.0	Graphs	Graphs
Estonia	Medium	Local	Stable	13	A(H1N1)v	15.4	17.7	338.4	Graphs	Graphs
Finland				0	-	-	-	-	Graphs	Graphs
France	Medium	Widespread	Decreasing	125	A(H1N1)v	25.6	-	1692.0	Graphs	Graphs
Germany	Low	Regional	Decreasing	27	A(H1N1)v	48.2	-	623.9	Graphs	Graphs
Greece				8	A(H1N1)v	50.0	-	-	Graphs	Graphs
Hungary	Low	Sporadic	Decreasing	42	None	7.1	107.0	-	Graphs	Graphs
Iceland				0	-	-	-	-	Graphs	Graphs
Ireland	Medium	Sporadic	Stable	9	A(H1N1)v	33.3	16.5	-	Graphs	Graphs
Italy				0	-	-	-	-	Graphs	Graphs
Latvia	Low	Local	Decreasing	0	A(H1N1)v	-	3.2	655.1	Graphs	Graphs
Lithuania	Low	Sporadic	Stable	5	A(H1)v	80.0	11.5	265.9	Graphs	Graphs
Luxembourg	Low	Sporadic	Decreasing	14	A(H1)v	0.0	704.2	25117.4	Graphs	Graphs
Malta				0	-	-	-	-	Graphs	Graphs
Netherlands	Low	Regional	Decreasing	12	A(H1)v	16.7	28.8	-	Graphs	Graphs
Norway	Low	Regional	Decreasing	1	A(H1N1)v	0.0	20.3	-	Graphs	Graphs
Poland				0	-	-	-	-	Graphs	Graphs
Portugal	Low	Sporadic	Stable	13	A(H1)v	38.5	30.2	-	Graphs	Graphs
Romania	Medium	Regional	Decreasing	43	A(H1N1)v	34.9	6.2	574.6	Graphs	Graphs
Slovakia				5	A(H1)v	40.0	-	-	Graphs	Graphs
Slovenia	Low	Widespread	Decreasing	4	A(H1)v	50.0	5.5	860.3	Graphs	Graphs
Spain				0	-	-	-	-	Graphs	Graphs
Sweden				0	A(H1)v	-	-	-	Graphs	Graphs
UK - England	Low	Local	Stable	47	A(H1N1)v	28.6	11.2	359.4	Graphs	Graphs
UK - Northern Ireland	Low	Sporadic	Stable	13	A(H1N1)v	7.7	57.2	468.1	Graphs	Graphs
UK - Scotland	Medium	Regional	Stable	77	A(H1N1)v	15.6	8.7	242.1	Graphs	Graphs
UK - Wales	Low	Widespread	Stable	0	-	-	9.9	-	Graphs	Graphs
Europe				588		24.7				Graphs

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 53/2009, 22 countries reported virological data. Sentinel physicians collected 588 respiratory specimens, of which 145 (25%) were positive for influenza virus (Tables 1 & 2). This proportion has now decreased for the sixth consecutive week (Figure 3). In addition, 2231 non-sentinel source specimens (e.g. specimens collected for diagnostic purposes in hospitals) were reported positive for influenza virus. Of the 17 930 influenza viruses detected by sentinel networks and subtyped since week 40/2009, 17 790 (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 and/or genetic characterisation of 1154 influenza viruses reported from week 40/2009 to week 53/2009, 1150 (99.7%) were reported as A/California/7/2009 (H1N1)v-like and four (<1%) as A/Brisbane/10/2007 (H3N2)-like. Figure 4 shows the results of antigenic characterisation 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 has been detected in 33 (3%) of the 1257 viruses tested and reported to EISN, whereas resistance to zanamivir has not been detected in any of the 1251 strains tested (Table 3).

In week 53, specimens were tested for respiratory syncytial virus (RSV) in 11 countries reporting to EISN. The number of RSV detections decreased for the first time since the beginning of this season (Figure 5); nevertheless, reporting may have been affected by the Christmas holidays.

Table 2: Weekly and cumulative influenza virus detections by type, subtype and surveillance system, weeks 40/2009–53/2009

	Current Week		Season	
Virus type/subtype	Sentinel	Non-sentinel	Sentinel	Non-sentinel
Influenza A	145	2228	18671	98571
A (pandemic H1N1)	140	2033	17790	87505
A (subtyping not performed)	5	192	790	10681
A (not subtypable)	0	2	51	288
A (H3)	0	0	5	30
A (H1)	0	1	35	67
Influenza B	0	3	49	72
Total Influenza	**145**	**2231**	**18720**	**98643**

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 week of report, weeks 40/2009–53/2009

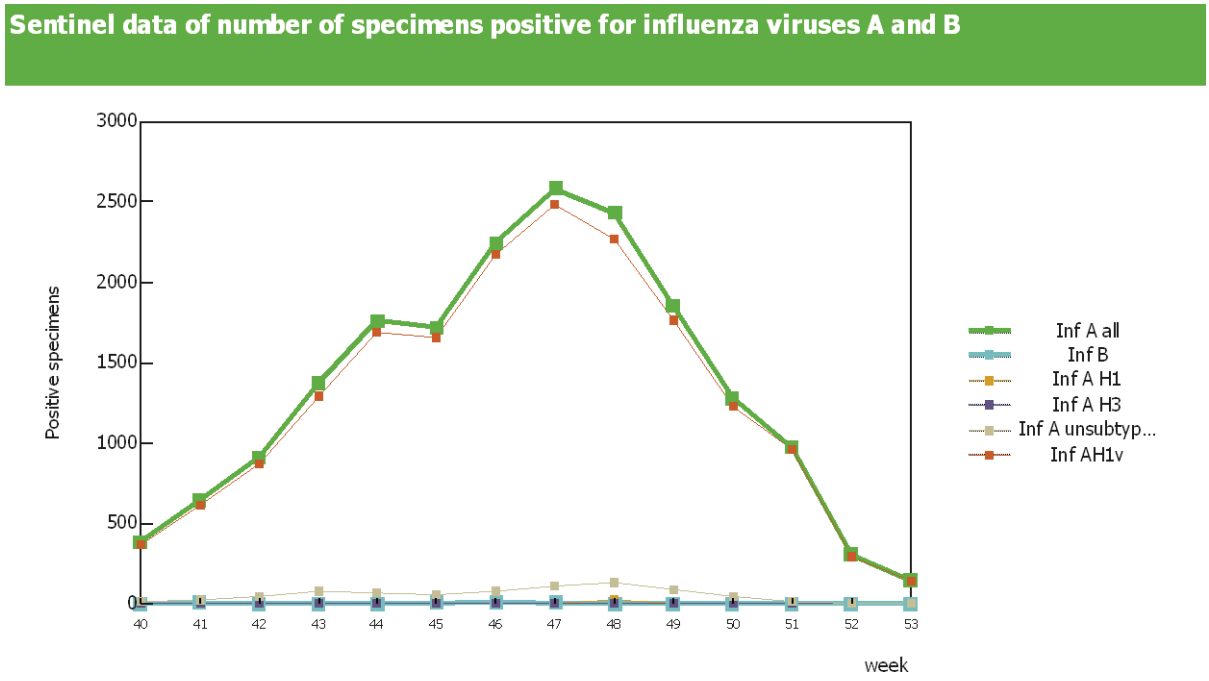


Figure 2: Number of non-sentinel specimens positive for influenza by type, subtype and week of report, weeks 40/2009–53/2009

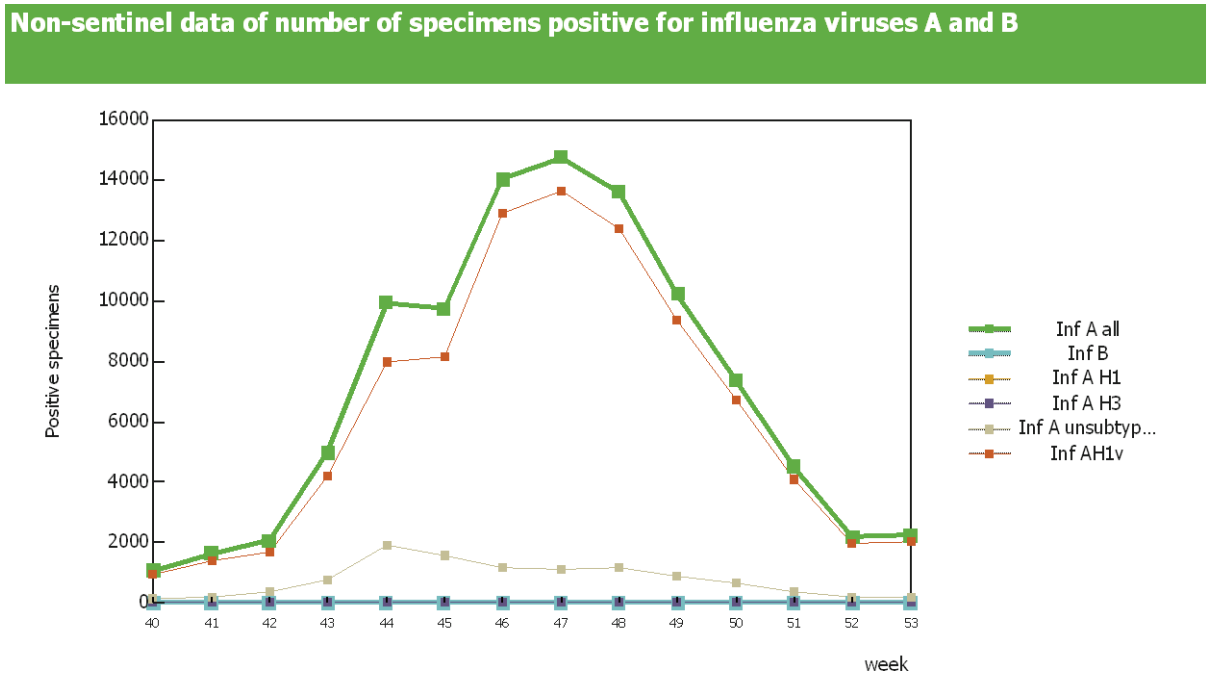


Figure 3: Proportion of sentinel samples positive for influenza, weeks 40/2009–53/2009

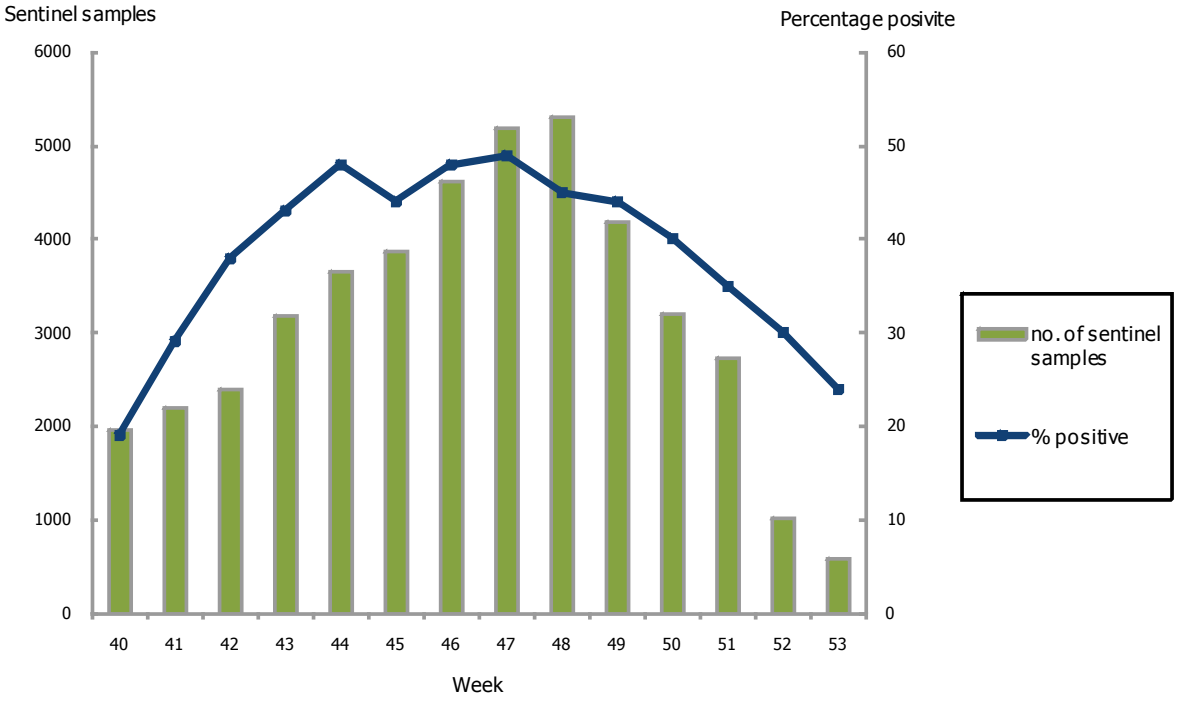


Figure 4: Results of antigenic characterisations of sentinel and non-sentinel influenza viruses since week 40/2009

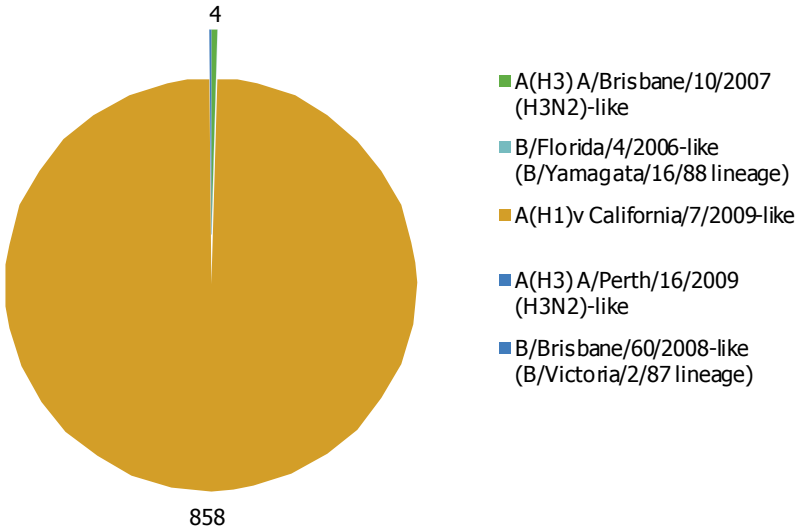
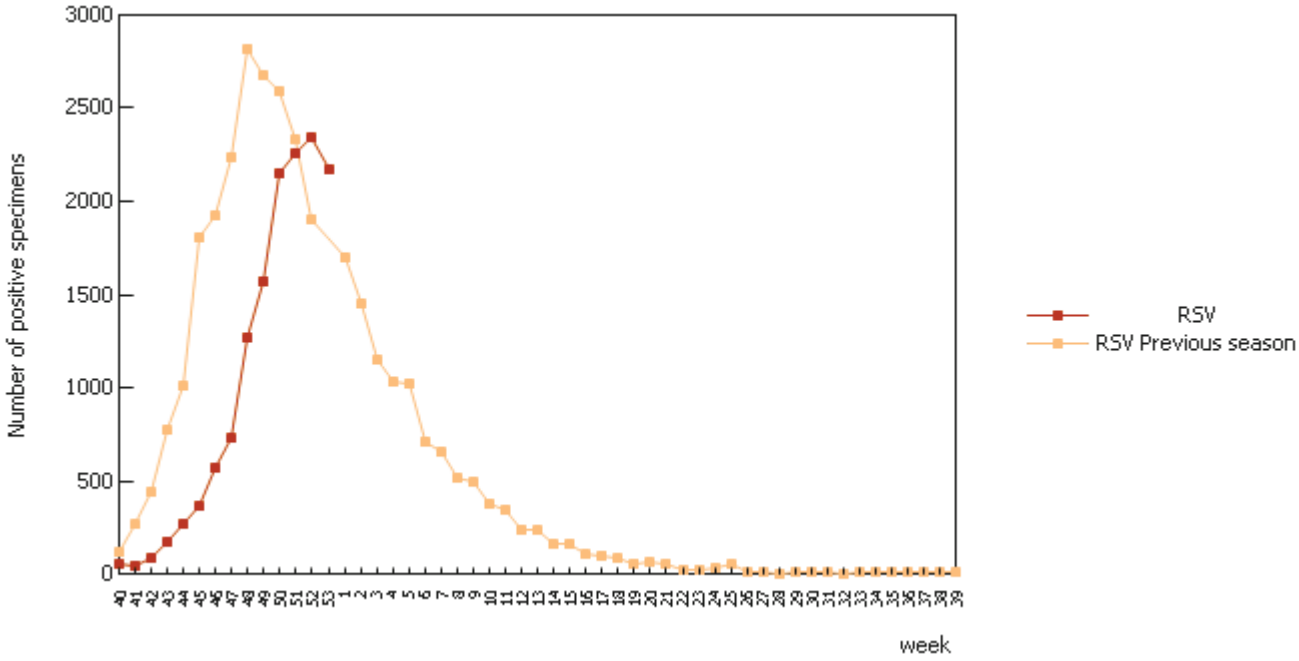


Table 3: Antiviral resistance by influenza virus type and subtype, weeks 40/2009–53/2009

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	
A(H1N1)	0		0		0	
A(H1N1)v	1257	33 (3)	1251	0	140	140 (100)
B	0		0			

Figure 5: Respiratory syncytial virus (RSV) detections (sentinel and non-sentinel), weeks 40/2009–53/2009



Comments on virological data provided by countries in week 53/2009

The Netherlands By week 1/2010 in the Netherlands, 16 patients were diagnosed with oseltamivir-resistant 2009 pandemic influenza A(H1N1) virus. Compared with week 53/2009, one additional patient was diagnosed with a mixed population of H275Y oseltamivir- resistant and wild-type virus. Twelve of 15 patients receiving oseltamivir therapy were immunosuppressed due to cytostatic/immunosuppressive therapy, five of whom died. One patient with 100% oseltamivir-resistant virus 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 2009 pandemic influenza A(H1N1) deaths

Weekly analysis — deaths

In week 53/2009, 10 countries reported 78 new deaths. Since the beginning of the pandemic, 1045 deaths have been reported.

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

Country	Deaths reported in week 53	Cumulative deaths since start of season
Austria	-	0
Belgium	-	0
Bulgaria	-	34
Cyprus	-	0
Czech Republic	19	73
Denmark	-	0
Estonia	3	11
Finland	-	0
France	21	214
Germany	5	157
Greece	9	73
Hungary	5	57
Iceland	-	2
Ireland	0	22
Italy	-	1
Latvia	-	28
Lithuania	2	16
Luxembourg	-	3
Malta	-	3
Netherlands	1	54
Norway	0	29
Poland	-	9
Portugal	-	0
Romania	12	63
Slovakia	-	0
Slovenia	1	15
Spain	-	4
Sweden	0	22
United Kingdom	-	155
Total	**78**	**1045**

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.

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 these 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 53/2009, 133 SARI cases were reported, of which 16 (12%) had symptom onset during the same week. The number of cases by week of onset has been declining since week 46/2009 (Figure 6). Since the beginning of this surveillance, eight EU countries have reported 6529 SARI cases, including 296 fatalities (Table 5).

Of the 92 influenza viruses subtyped in week 53, all were the pandemic virus (Table 7). Of the 133 SARI cases, 78 (59%) were known to have required ICU admission and 52 (39%) needed ventilatory support (Table 9). Of the 107 SARI cases for which an underlying condition was reported, 15 (14%) were known not to have had any underlying condition (Figure 7).

Detailed information on SARI cases reported during week 53 can be found in Tables 6–12.

Table 5: Cumulative number of SARI cases, weeks 40/2009–week 53/2009

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	2705		17		
Belgium	1634	15.3			10666866
Cyprus	22		3		
France	1124		214		
Malta	59	14.3	1	0.2	413609
Netherlands	610	3.7	27	0.2	16521505
Romania	131	1.0	10	0.8	1268418
Slovakia	244		24	0.1	16521505
Total	6529	8.4	296	0.2	

Figure 6: Number of all SARI cases by week of onset, week 53/2009

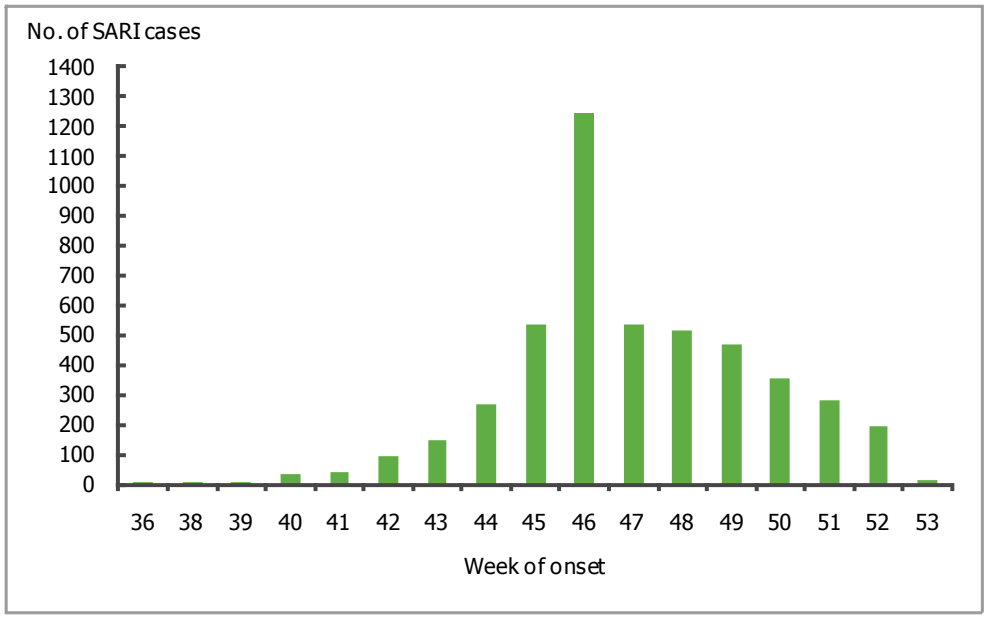


Table 6: Number of SARI cases by age and gender, week 53/2009

Age groups	Male	Female	Total
Under 2	2		2
2-17	3	6	9
18-44	28	18	46
45-59	31	23	54
>=60	15	7	22
Total	79	54	133

Table 7: Number of SARI cases by influenza type and subtype, week 53/2009

Virus type/subtype	Number of cases (and percentage) during current week	Cumulative number of cases (and percentage) since the start of the season
Influenza A	92 (69.2)	4632 (70.9)
A (pandemic H1N1)	92 (69.2)	4583 (70.2)
A(subtyping not performed)		23 (0.4)
A(H3)		
A(H1)		26 (0.4)
A(H5)		
Influenza B		
Unknown	41 (30.8)	1897 (29.1)
Total	133	6529

Table 8: Number of SARI cases by antiviral treatment, week 53/2009

Antiviral treatment	Number of patients who received prophylaxis	Number of patients who received anti-viral treatment
Oseltamivir		58
Unknown	93	67
None	40	8
Total	133	133

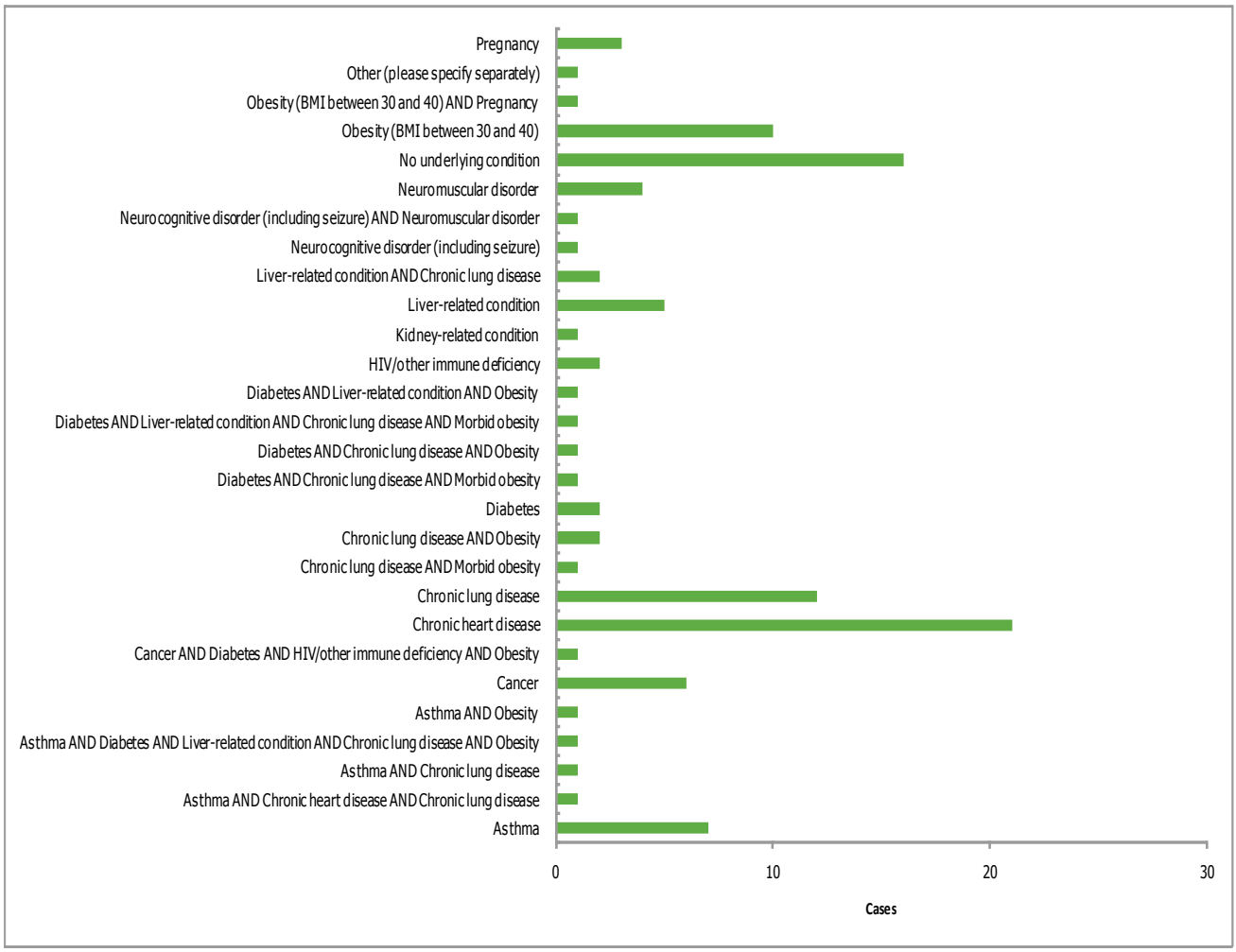
Table 9: Number of SARI cases by level of care and respiratory support, week 53/2009

Respiratory support	ICU	Inpatient ward	Other	Unknown
No respiratory support necessary		9		
Oxygen therapy	27	17		1
Respiratory support given unknown	2	13		12
Ventilator	49	2		1

Table 10: Number of SARI cases by vaccination status, week 53/2009

Vaccination Status	Number Of Cases	Percentage of cases
Not full pandemic vaccination	0	0
Not vaccinated	64	48
Seasonal vaccination	4	3
Unknown	65	49
TOTAL	133	

Figure 7: Number of SARI cases by underlying condition, week 53/2009



Obesity: Body mass index 30.1 – 40
Morbid obesity: Body mass index > 40

Table 11: Number of underlying conditions in SARI cases by age group, week 53/2009

Underlying condition/risk factor	Infant below 2 years	2-17 years	18-44 years	45-59 years	>=60 years
Asthma		1	4	4	2
Cancer			1	3	2
Diabetes			1	4	3
Chronic heart disease			2	15	5
HIV/other immune deficiency				2	1
Kidney-related condition				1	
Liver-related condition			4	5	1
Chronic lung disease		1	5	10	7
Neurocognitive disorder (including seizure)		1		1	
Neuromuscular disorder		2	2		1
No underlying condition	1	4	4	5	1
Other (please specify separately)					1
Obesity (BMI between 30 and 40)			7	8	3
Morbid obesity (BMI above 40)			1	2	
Pregnancy			4		
Underlying condition unknown	1	1	14	10	2

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 53/2009

Additional clinical complications	Infant below 2 years	2-17 years	18-44 years	45-59 years	>=60 years
Acute respiratory distress syndrome		2	14	22	6
Myocarditis			2	1	
None		2	2	4	1
Other (please specify separately)				1	
Pneumonia (secondary bacterial infection)		1	8	7	4
Unknown	2	4	20	20	11

Note: One case can have more than one complication.

Description of the system

A number of Member States carry out hospital-based surveillance of 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 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).