SURVEILLANCE REPORT

Weekly influenza surveillance overview

20 November 2009

Main surveillance developments in week 46/2009

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

- Twenty seven countries reported intensity above baseline levels. Several countries, Belgium, Bulgaria, Iceland, Ireland, Luxembourg, Norway and UK (Northern Ireland), reported decreasing trends.
- The percentage of positive samples from the sentinel systems is 45%, a level usually seen during the winter epidemic peak.
- Of the SARI patients notified by seven countries, 20% had no known underlying medical condition

Sentinel surveillance of influenza like illness (ILI)/ acute respiratory illness (ARI): Three countries reported very high intensity, nine countries reported high intensity and 16 countries reported medium intensity. Still, most of the countries (seventeen) reported an increasing trend. For more information **click here.**

Virological surveillance: Sentinel physicians collected 3903 respiratory specimens, of which 1745 (44%) were positive for influenza virus. All but three of the influenza A sub-typed viruses were type A(H1N1)v. For more information **click here.**

Aggregate numbers of pandemic H1N1 2009: As most of the countries stopped counting total number of cases, the aggregated reporting presents the reported number of deaths. For more information **click here.**

Hospital surveillance of severe acute respiratory infection (SARI): Three hundred and thirty-five SARI cases were reported, 23% of whom had no known underlying medical condition. For more information **click here.**

Qualitative reporting: No qualitative indicator data are available yet. For more information **click here.**

Sentinel surveillance

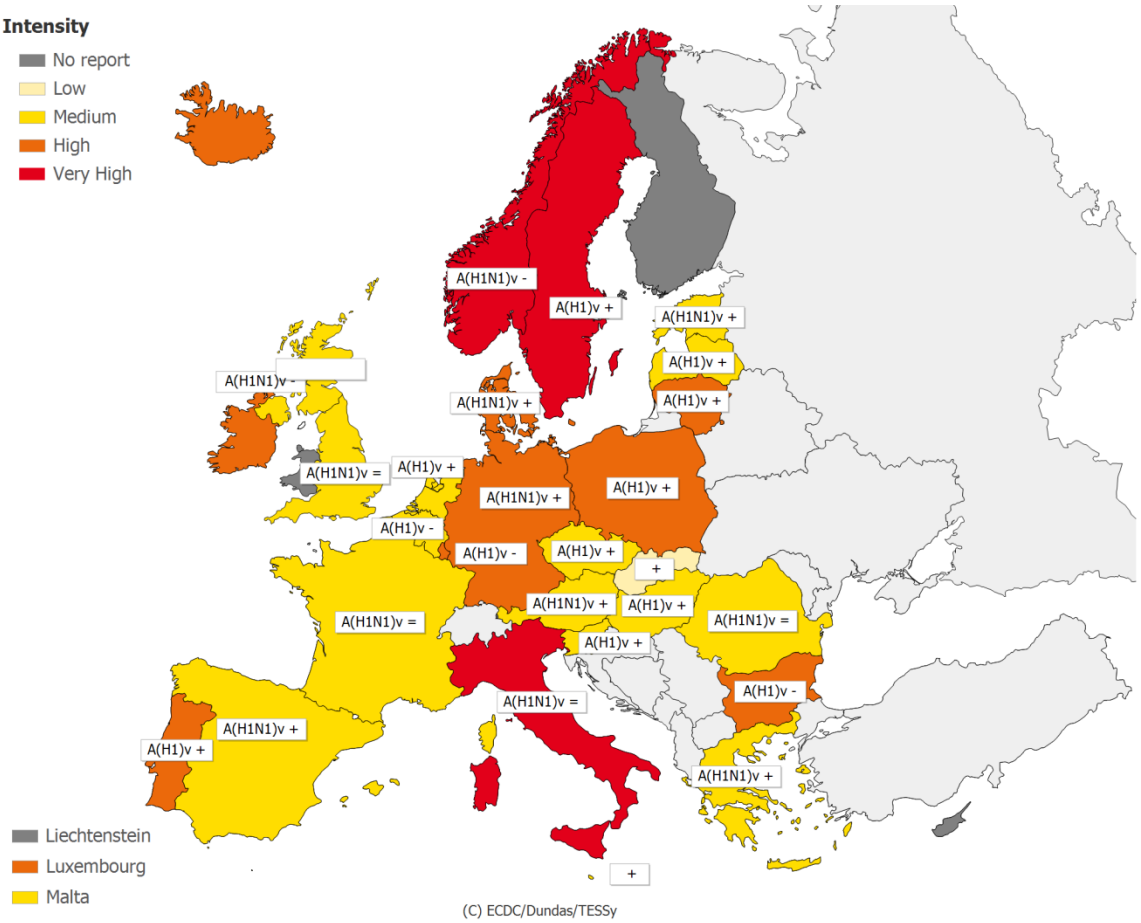
Weekly analysis – epidemiology

For week 46/2009, 27 countries reported epidemiological data. For the activity intensity indicator—national network levels for ILI and/or ARI— Italy, Norway and Sweden reported very high intensity; Bulgaria, Denmark, Germany, Iceland, Ireland, Lithuania, Luxembourg, Poland and Portugal reported high intensity; medium intensity was reported by 14 countries and one country reported low intensity.

For the geographic spread indicator, increases were noted compared to the previous week with 15 countries reporting widespread activity. Nine countries reported regional activity. The other countries reported sporadic or no activity. Seventeen countries reported an increasing trend of influenza activity compared to twenty in the previous week. Seven countries, Belgium, Bulgaria, Iceland, Ireland, Luxembourg, Norway and UK (Northern Ireland), reported decreasing trends. Belgium, Iceland and the UK (Northern Ireland), reported decreasing trends in week 45 as well. For definitions of the intensity and geographic spread indicators, click here.

From week 40/2009 to week 46/2009, influenza activity above baseline levels has been reported in 27 countries. To date, in most countries where influenza activity has risen above baseline levels, the most affected group includes those younger than 15 years.

Map 1: Intensity for week 46/2009

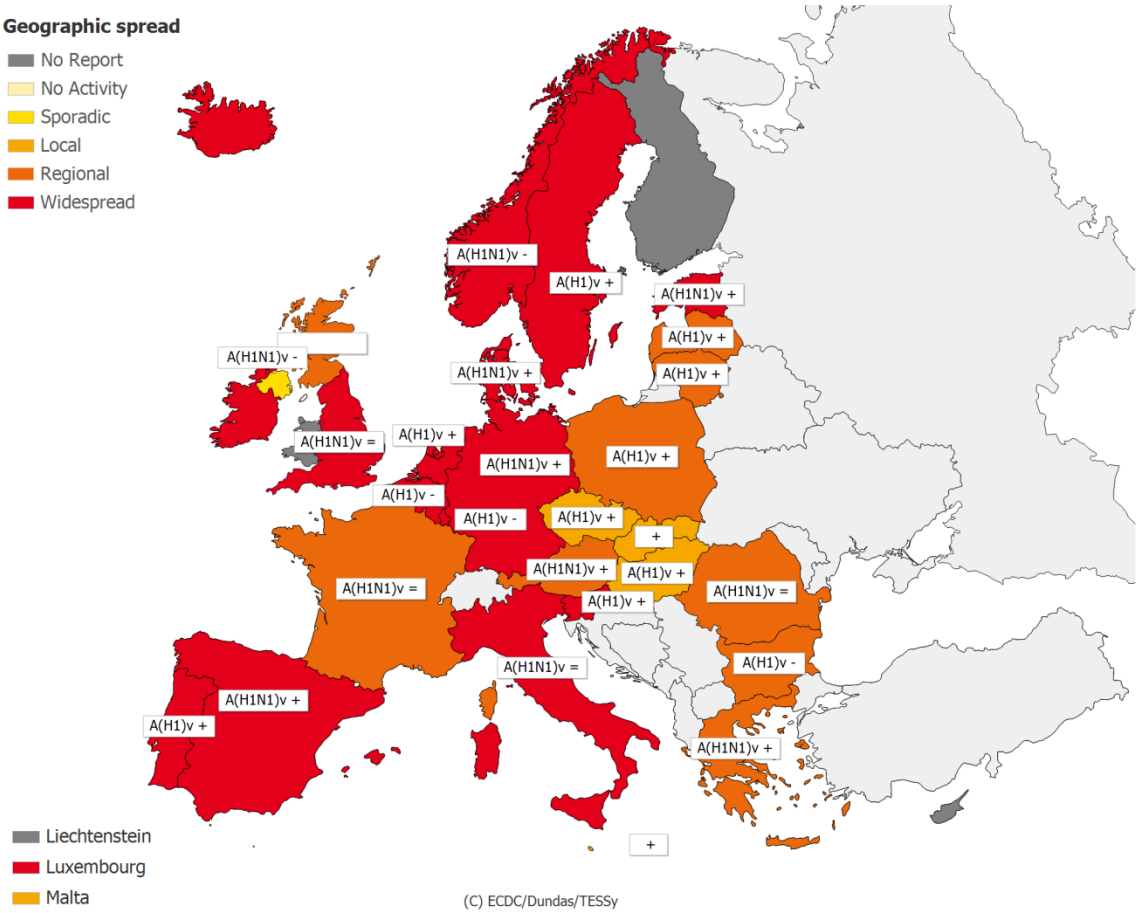


* A type/subtype is reported as dominant when > 40 % of all samples are positive for the type/subtype.

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 46/2009



* 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	increasing	119	A(H1N1)v	52.9	-	32.6	Graphs	Graphs
Belgium	Medium	Widespread	decreasing	136	A(H1)v	51.5	392.8	1447.6	Graphs	Graphs
Bulgaria	High	Regional	decreasing	0	A(H1)v	-	-	1945.3	Graphs	Graphs
Czech Republic	Medium	Local	increasing	37	A(H1)v	54.1	95.0	1246.3	Graphs	Graphs
Denmark	High	Widespread	increasing	52	A(H1N1)v	59.6	419.5	0.0	Graphs	Graphs
Estonia	Medium	Widespread	increasing	112	A(H1N1)v	34.8	18.6	467.7	Graphs	Graphs
France	Medium	Regional	stable	373	A(H1N1)v	50.1	-	1603.8	Graphs	Graphs
Germany	High	Widespread	increasing	352	A(H1N1)v	51.1	-	1769.2	Graphs	Graphs
Greece	Medium	Regional	increasing	67	A(H1N1)v	67.6	219.4	-	Graphs	Graphs
Hungary	Medium	Local	increasing	130	A(H1)v	30.0	221.0	-	Graphs	Graphs
Iceland	High	Widespread	decreasing	74	None	20.3	141.9	-	Graphs	Graphs
Ireland	High	Widespread	decreasing	84	None	47.6	134.4	-	Graphs	Graphs
Italy	Very High	Widespread	stable	24	A(H1N1)v	62.5	1253.4	-	Graphs	Graphs
Latvia	Medium	Regional	increasing	5	A(H1)v	100.0	133.4	1443.5	Graphs	Graphs
Lithuania	High	Regional	increasing	20	A(H1)v	60.0	39.2	903.8	Graphs	Graphs
Luxembourg	High	Widespread	decreasing	51	A(H1)v	31.4	5339.8	23786.4	Graphs	Graphs
Malta	Medium	Local	increasing	0	-	-	10557.9	-	Graphs	Graphs
Netherlands	Medium	Widespread	increasing	94	A(H1)v	54.3	184.3	-	Graphs	Graphs
Norway	Very High	Widespread	decreasing	42	A(H1N1)v	42.9	596.0	-	Graphs	Graphs
Poland	High	Regional	increasing	110	A(H1)v	16.4	171.2	-	Graphs	Graphs
Portugal	High	Widespread	increasing	38	A(H1)v	44.7	125.8	-	Graphs	Graphs
Romania	Medium	Regional	stable	93	A(H1N1)v	49.5	2.2	853.3	Graphs	Graphs
Slovakia	Low	Local	increasing	0	-	-	522.4	2682.8	Graphs	Graphs
Slovenia	Medium	Widespread	increasing	103	A(H1)v	78.6	76.7	1443.1	Graphs	Graphs
Spain	Medium	Widespread	increasing	740	A(H1N1)v	56.0	360.8	-	Graphs	Graphs
Sweden	Very High	Widespread	increasing	191	A(H1)v	0.0	19.5	-	Graphs	Graphs
UK - England	Medium	Widespread	stable	273	A(H1N1)v	31.1	35.9	421.0	Graphs	Graphs
UK - Northern Ireland	Medium	Sporadic	decreasing	62	A(H1N1)v	43.6	106.5	356.7	Graphs	Graphs
UK - Scotland	Medium	Regional	stable	521	A(H1N1)v	43.0	42.1	362.7	Graphs	Graphs
Europe				3903		44.8				Graphs

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 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 national level are also reported.

Virological surveillance

Weekly analysis – virology

In week 46/2009, 25 countries reported virological data. Sentinel physicians collected 3903 respiratory specimens, of which 1745 (44%) were positive for influenza virus (Tables 1 and 2). In addition, 11 736 non-sentinel source specimens (e.g. specimens collected for diagnostic purposes in hospitals) were reported positive for influenza virus. Of the 13 481 detected influenza viruses, 13 463 were type A and 18 were type B. Table 2 shows the distribution of sentinel and non-sentinel specimens by type and sub-type; Figures 1–3 show the temporal trends. The proportion of positive sentinel specimens is 45%, a level seen during peaks of previous winter influenza epidemics. To date, 137 antigenically or genetically characterised strains have been reported as A(H1)v California/7/2009-like.

Table 2: Weekly and cumulative influenza virus detections by type, subtype and surveillance system, weeks 40/2009–46/2009

	Current Week		Season	
Virus type/subtype	Sentinel	Non-sentinel	Sentinel	Non-sentinel
Influenza A	1733	11730	7954	34819
A (pandemic H1N1)	1669	10688	7610	29211
A (subtyping not performed)	61	1037	336	5578
A (not subtypable)	0	5	3	12
A (H3)	2	0	4	17
A (H1)	1	0	1	1
Influenza B	12	6	38	29
Total Influenza	**1745**	**11736**	**7992**	**34848**

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 40/2009–46/2009

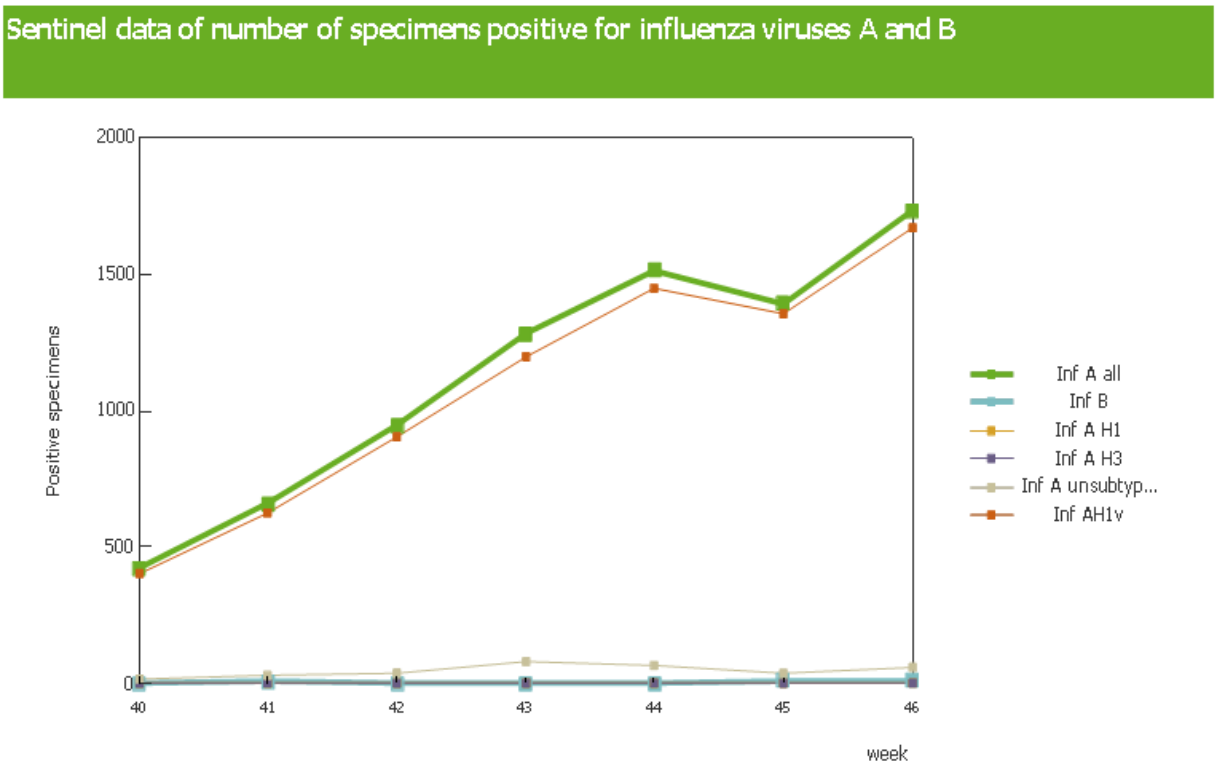


Figure 2: Number of non-sentinel specimens positive for influenza by type, subtype and week of report, weeks 40/2009-46/2009

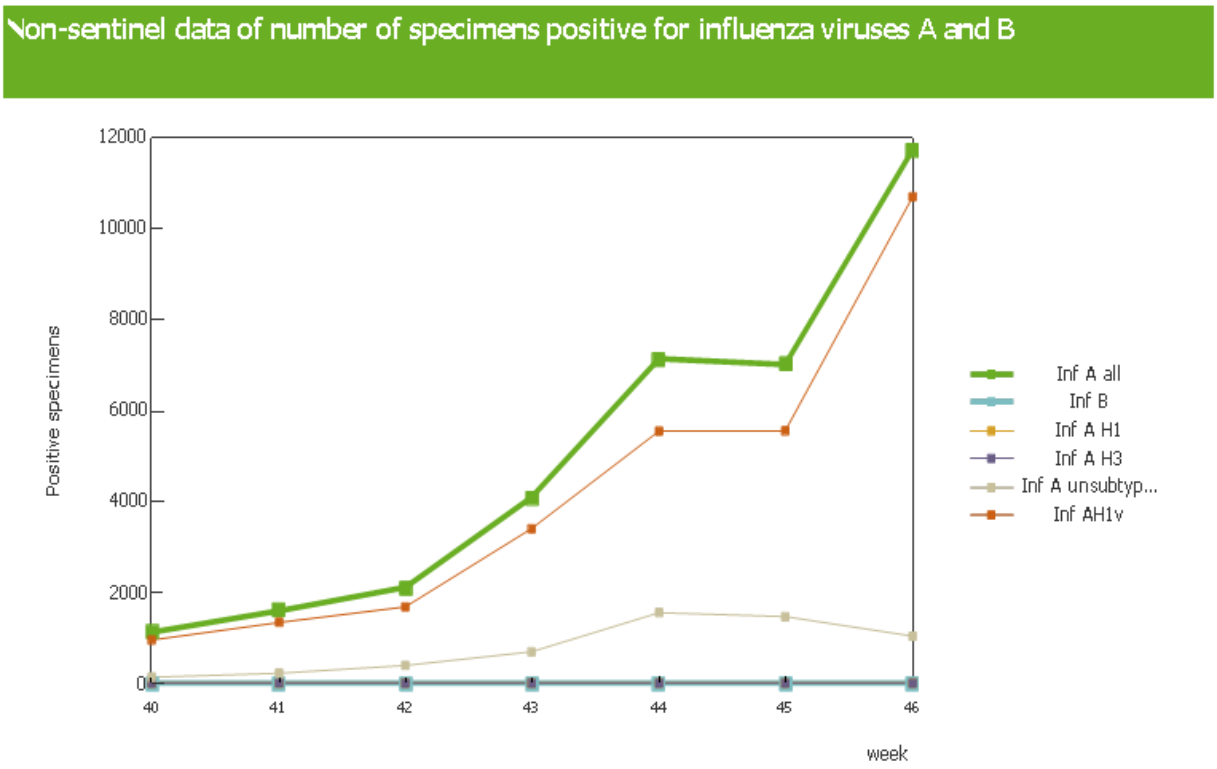


Figure 3: Proportion of sentinel samples positive for influenza, weeks 40/2009–46/2009

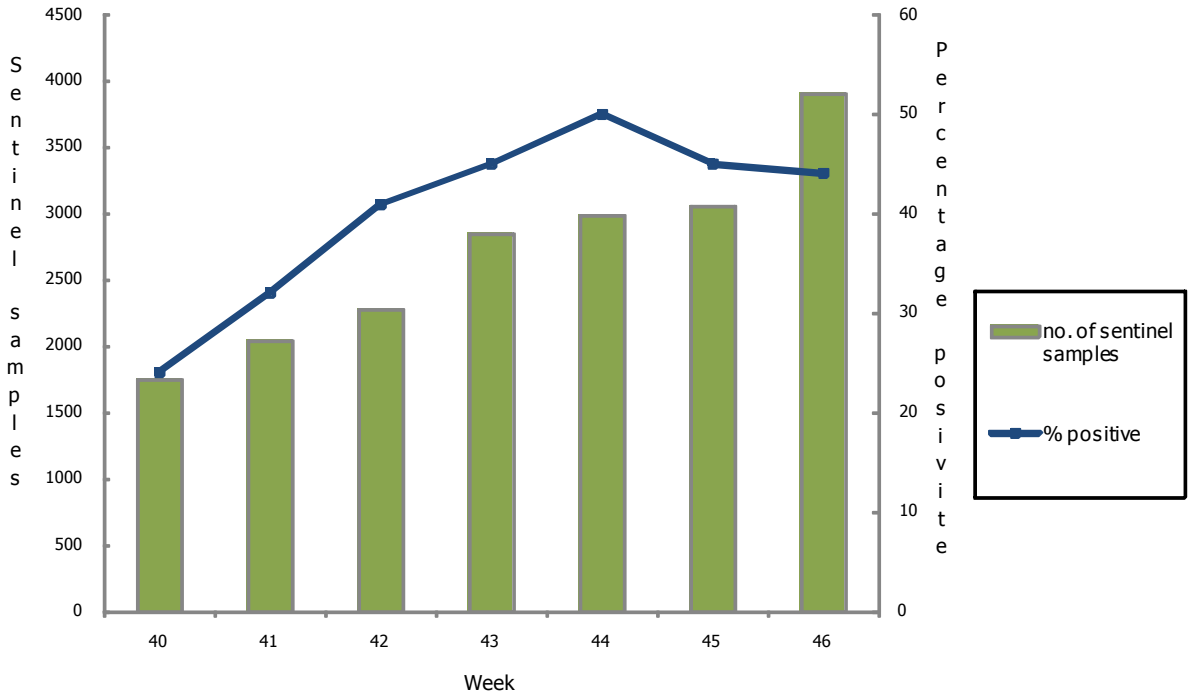


Table 3: Antiviral resistance by influenza virus type and subtype, weeks 40/2009 – 46/2009

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	89	0	89	0	0	0
B	0	0	0	0		

Comments on virological data provided by countries in week 46/2009	
Greece	Virological data are consistent with an increasing influenza activity. The rate of swab specimens positive for the influenza A(H1N1)v virus exceeded 50%
Latvia	Influenza activity continued to increase last week. Influenza A(H1N1)v virus was mainly detected.
Norway	The number of virus detections remains very high, but has decreased from the previous week.

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

As most of the countries stopped counting total number of cases, we continue to present just the aggregated number of deaths.

Table 4: Aggregate numbers of pandemic H1N1 2009 and deaths

Country	Deaths reported in week 46	Cumulative Deaths since start of season
Austria	-	0
Belgium	-	0
Bulgaria	-	0
Cyprus	-	0
Czech Republic	2	3
Denmark	-	0
Estonia	0	0
Finland	-	0
France	-	31
Germany	-	13
Greece	-	1
Hungary	0	4
Iceland	0	1
Ireland	3	17
Italy	-	1
Latvia	-	1
Lithuania	0	0
Luxembourg	-	0
Malta	0	3
Netherlands	24	59
Norway	2	18
Poland	1	1
Portugal	-	0
Romania	0	0
Slovakia	-	0
Slovenia	-	0
Spain	-	4
Sweden	2	10
United Kingdom	0	88
Total	34	255

*Fatal cases are reported in the country where the death occurred.

Description of the system

Aggregate numbers of deaths due to pandemic influenza are reported by countries still collecting this data.

Hospital surveillance – severe acute respiratory infection (SARI)

Weekly analysis – SARI

In week 46/2009, 335 SARI cases were reported. Since the beginning of this surveillance, seven EU countries have reported 1616 cases including 47 fatalities (2.9%, see Table 5). The trend in numbers of SARI cases has been steadily increasing since week 36, which could be due to improved reporting or reflect the increasing influenza activity in the reporting countries.

The female/male ratio in week 46 was approximately 1.2 and 66% of cases were younger than 45 years (Table 6). Since the beginning of the season, a significant majority of SARI cases related to influenza infection were caused by the pandemic virus (Table 7).

Of the 92 SARI patients for which treatment status was reported during week 46/2009, 30% received antiviral treatment (Table 8). Nevertheless, it is too early for any conclusion to be made regarding the potential benefits of such treatment.

Sixty two SARI patients needed intensive care treatment in week 46, of whom at least nine required ventilator assistance (Table 9).

Fifty five (64%) of 86 SARI cases reported in week 46 developed a complication (Table 12).

Of the 111 SARI cases for whom an underlying condition was reported, 22 (20%) had no known medical condition; however, 21 (19%) had more than one underlying condition (Figure 5).

Table 5: Cumulative number of SARI cases, weeks 40/2009—week 46/2009

Country	Number of sentinel sites	Estimated population covered	Estimated notification rate (in the covered geographic area)	Number of cases	Number of fatal cases reported
Austria				3	3
Belgium	63	10666866	0	1032	
Cyprus				1	
France				216	31
Malta	1	413609	0	22	
Netherlands				322	12
Romania	8	1268418	0	20	1
Total			0	1616	47

Figure 4: Number of SARI cases by week of onset, week 46/2009

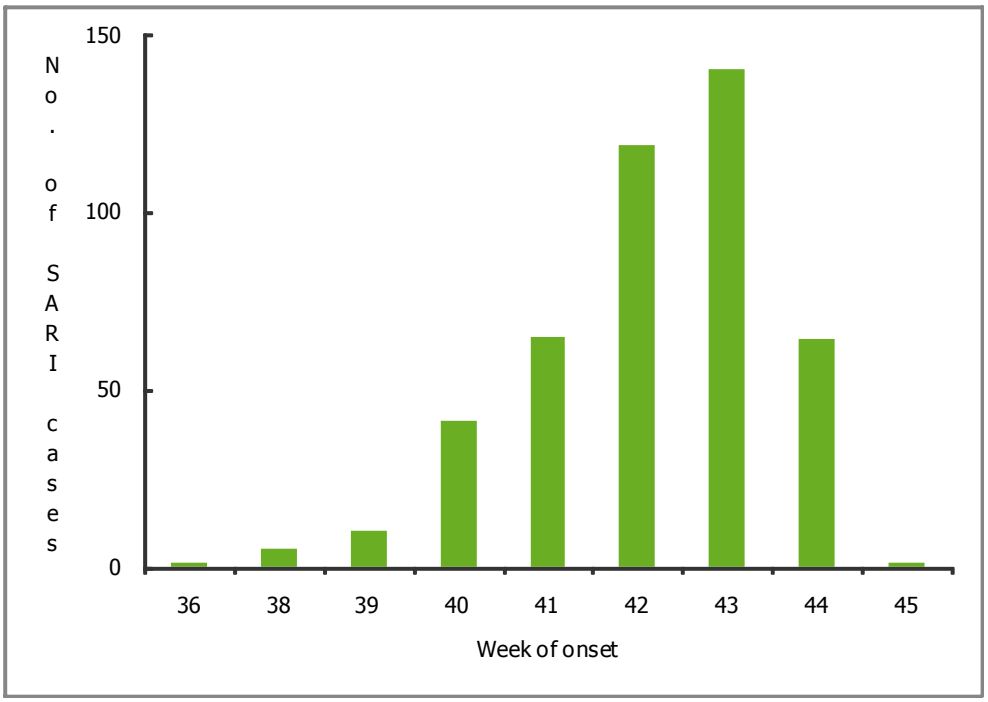


Table 6: Number of SARI cases by age and gender, week 46/2009

Age groups	Male	Female	Other (e.g., transsexual)	Unknown
Under 2	6	2		41
2-17	13	13		57
18-44	15	27		47
45-59	19	18		29
>=60	5	9		34
Total	58	69		208

Table 7: Number of SARI cases by influenza type and subtype, week 46/2009

Virus type/subtype	Number of cases during current week	Cumulative number of cases since the start of the season
Influenza A	113	548
A (pandemic H1N1)	113	541
A(subtyping not performed)		3
A(H3)		
A(H1)		4
A(H5)		
Influenza B		
Unknown	222	1068
Total	335	1616

Table 8: Number of SARI cases by antiviral treatment and resistance, week 46/2009

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		68	
Zanamivir		1	
Oseltamivir and Zanamivir		2	
Unknown	319	243	335
None	16	21	
Total	335	335	335

Table 9: Number of SARI cases by level of care and respiratory support, week 46/2009

Respiratory support	ICU	Inpatient ward	Other	Unknown
No respiratory support necessary	4	49		
Oxygen therapy	35	12		2
Respiratory support given unknown	14			210
Ventilator	9			

Table 10: Number of SARI cases by vaccination status, week 46/2009

Vaccination Status	Number Of Cases	Percentage of cases
Both, seasonal and pandemic vaccination	4	1.2
Not full pandemic vaccination	0	0
Not vaccinated	53	15.8
Pandemic vaccination	1	0
Seasonal vaccination	105	31.3
Unknown	172	51
TOTAL	335	

Figure 5: Number of SARI cases by underlying condition

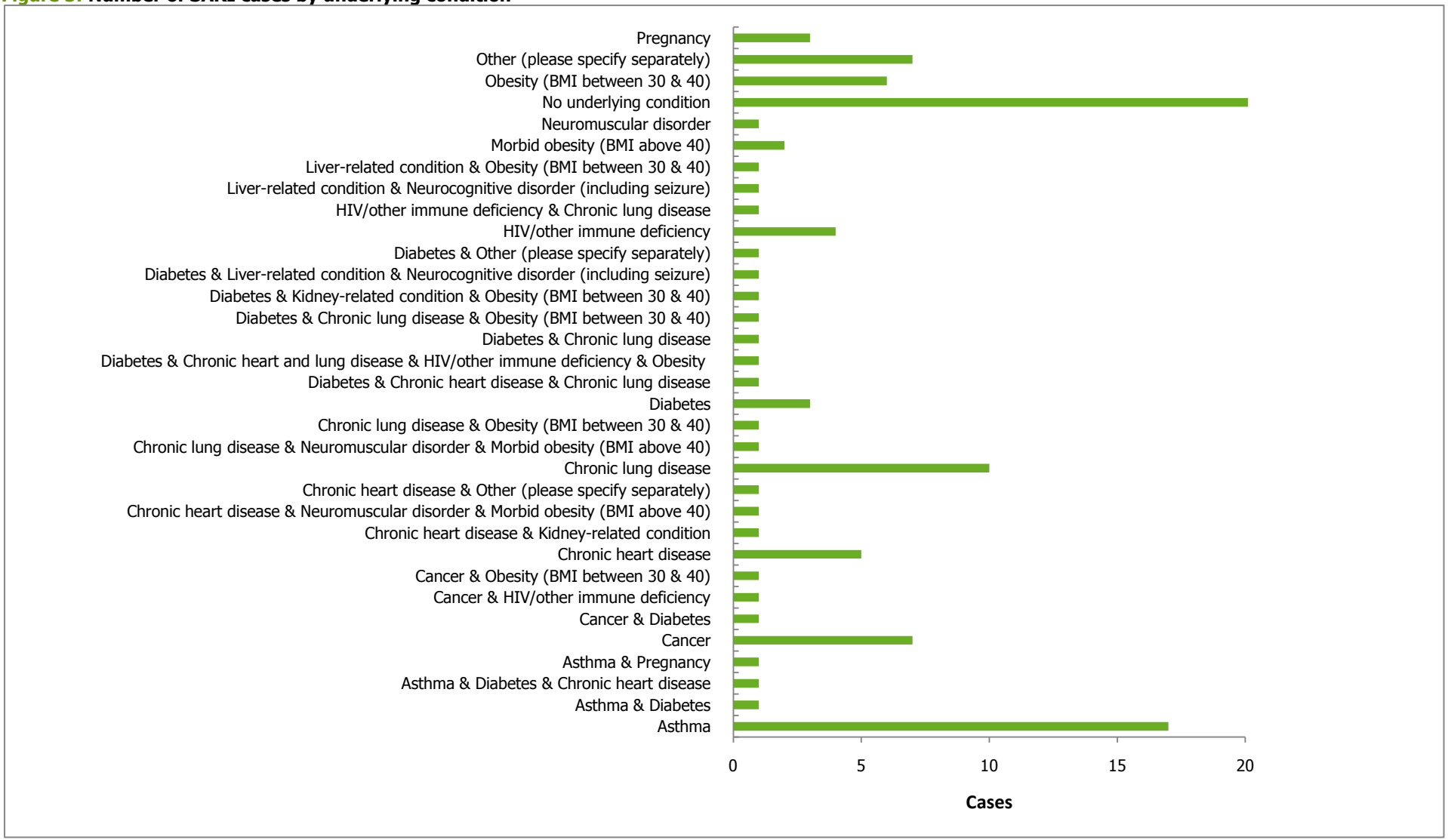


Table 11: Number of underlying conditions in SARI cases (n=111) by age group, week 46/2009

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	1	7	8	3	1
Cancer		1		6	4
Diabetes		2	1	4	5
Chronic heart disease			3	5	4
HIV/other immune deficiency			2	5	
Kidney-related condition			1		2
Liver-related condition		1	1	2	
Chronic lung disease		3	3	6	6
Neurocognitive disorder (including seizure)		1		1	
Neuromuscular disorder			2	1	
No underlying condition	3	4	9	6	
Other (please specify separately)		5	1	2	
Obesity (BMI between 30 and 40)		2	5	2	3
Morbid obesity (BMI above 40)			2	2	
Pregnancy			4		
Underlying condition unknown	47	68	68	46	40

Note: Obesity is considered an underlying condition only if no any other underlying condition is present. One case can have more than one underlying condition

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Table 12: Number of SARI cases by complication and age group, week 46/2009

Complication	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	3	3
Bronchiolitis	2				
None	1	10	9	8	3
Other (please specify separately)		5	7	9	2
Pneumonia (secondary bacterial infection)	1	1	6	3	3
Sepsis/Multi-organ failure			2	1	1
Unknown	48	67	68	47	40

Table 13: Number of underlying conditions in SARI cases by level of care, week 46/2009

	ICU	Inpatient ward	Other	Unknown
Asthma	7	13		
Cancer	8	3		
Diabetes	5	6		1
Chronic heart disease	7	5		
HIV/other immune deficiency	6	1		
Kidney-related condition	3			
Liver-related condition	3			1
Chronic lung disease	8	9		1
Neurocognitive disorder (including seizure	1			1
Neuromuscular disorder	2	1		
No underlying condition	4	18		
Other (please specify separately)	1	7		
Obesity (BMI between 30 and 40)	11			1
Morbid obesity (BMI above 40)	4			
Pregnancy	3	1		
Underlying condition unknown	46	11		212

Note: One case can have more underlying conditions

Table 14: Number of underlying conditions in SARI cases by level of respiratory support, week 46/2009

	Oxygen therapy	Ventilator support provided	Ventilator support necessary but not available	Respiratory support given unknown
Asthma	6			4
Cancer	6			2
Diabetes	4	1		2
Chronic heart disease	5	1		1
HIV/other immune deficiency	6			
Kidney-related condition	3			
Liver-related condition	1	1		2
Chronic lung disease	6	2		2
Neurocognitive disorder (including seizure)				2
Neuromuscular disorder	1			1
No underlying condition	3	2		
Other (please specify separately)				1
Obesity (BMI between 30 and 40)	8	4		
Morbid obesity (BMI above 40)	2			2
Pregnancy	2	1		
Underlying condition unknown	45			222

Note: One case can have more underlying conditions

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 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).