SURVEILLANCE REPORT

Weekly influenza surveillance overview

27 November 2009

Main surveillance developments in week 47/2009

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

- Influenza activity is still high in 27 EU countries.
- Thirteen countries reported a rising trend, many of which are in Eastern Europe.
- Influenza activity is stable in some countries which may suggest they may be nearing the peak of their epidemics.
- Influenza A(H1N1)v oseltamivir resistance has been officially reported in the EU.

Sentinel surveillance of influenza like illness (ILI)/ acute respiratory illness (ARI): Influenza activity remains very high in Sweden and high in fourteen countries. Overall, fifteen countries reported widespread activity. For more information, **click here.**

Virological surveillance: Almost all sub-typed influenza viruses are A(H1N1)v (99.6%), with a small number of influenza B viruses identified. Forty-five percent of the specimens collected by sentinel practices were influenza positive. For more information, **click here.**

Aggregate numbers of pandemic H1N1 2009 deaths: Forty-one deaths were reported by 13 countries with the cumulative total number of deaths at 323. For more information, **click here.**

Hospital surveillance of severe acute respiratory infection (SARI): One hundred and ninety SARI cases were reported during week 47/2009 with 69 fatalities. Forty percent of SARI cases were less than 45 years of age. Sixty-four percent of SARI cases developed an additional complication. For more information, **click here.**

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

Sentinel surveillance (ILI/ARI)

Weekly analysis – epidemiology

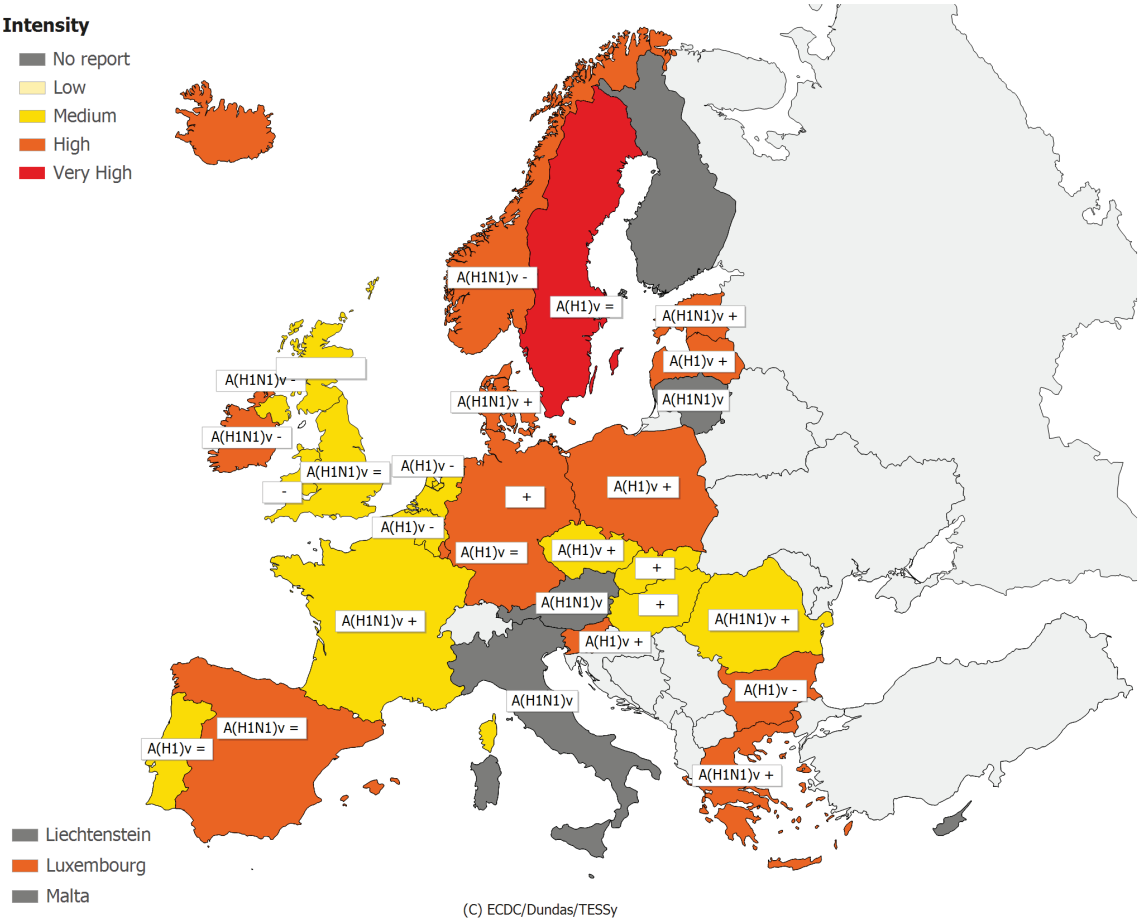
For week 47/2009, 24 countries reported epidemiological data. For the activity intensity indicator–national network levels for ILI and/or ARI– very high intensity was reported only by Sweden. High intensity was reported by Bulgaria, Denmark, Estonia, Germany, Greece, Iceland, Ireland, Latvia, Lithuania, Luxembourg, Norway, Poland, Slovenia and Spain. Medium intensity was reported by nine countries and no country reported low intensity.

For the geographic spread indicator, 15 countries reported widespread activity, seven countries reported regional activity and Slovakia reported local activity. In the UK, widespread activity was reported in Wales, regional activity in England and Scotland and sporadic activity in Northern Ireland.

Thirteen countries reported increasing activity while Luxemburg, Portugal, Spain, Sweden and the UK (England and Scotland) reported stable activity. Belgium, Bulgaria, Iceland, Ireland, the Netherlands, Norway and the UK (Northern Ireland and Wales) reported decreasing trends. For definitions of the intensity and geographic spread indicators, click here.

Even with activity declining in some countries, to date all 27 countries reported activity above the baseline. In most countries where influenza activity has risen above baseline levels to date, the most affected group includes those younger than 15 years.

Map 1: Intensity for week 47/2009



(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 47/2009

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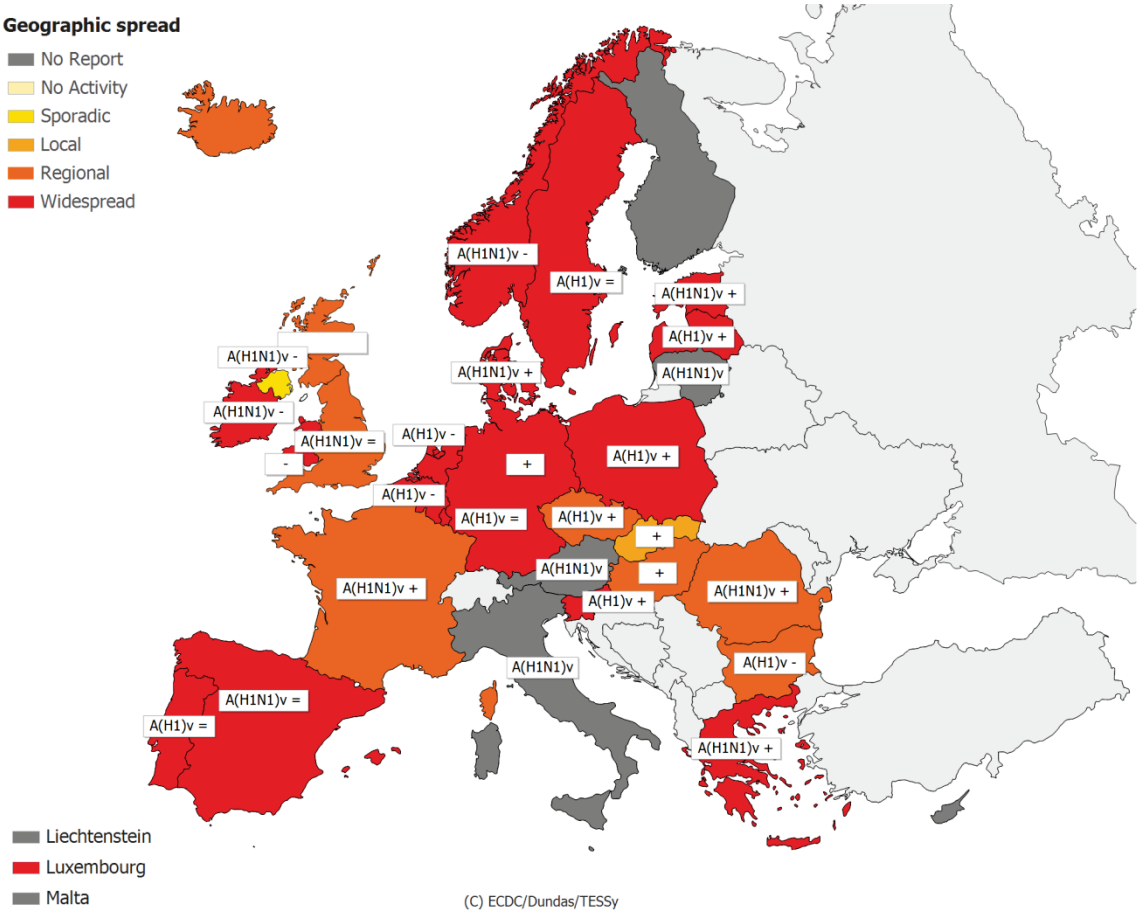

* A type/subtype is reported as dominant when > 40 % of all samples are positive for the type/subtype.

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				86	A(H1N1)v	58.1	-	-	Graphs	Graphs
Belgium	Medium	Widespread	Decreasing	144	A(H1)v	41.0	300.7	1385.4	Graphs	Graphs
Bulgaria	High	Regional	Decreasing	0	A(H1)v	-	-	1198.8	Graphs	Graphs
Cyprus				-	-	-	-	-		
Czech Republic	Medium	Regional	Increasing	35	A(H1)v	62.9	219.1	1497.6	Graphs	Graphs
Denmark	High	Widespread	Increasing	43	A(H1N1)v	39.5	418.8	0.0	Graphs	Graphs
Estonia	High	Widespread	Increasing	95	A(H1N1)v	50.5	50.6	740.9	Graphs	Graphs
Finland				-	-	-	-	-		
France	Medium	Regional	Increasing	290	A(H1N1)v	61.4	-	2487.5	Graphs	Graphs
Germany	High	Widespread	Increasing	0	-	-	-	1817.8	Graphs	Graphs
Greece	High	Widespread	Increasing	62	A(H1N1)v	66.7	395.0	-	Graphs	Graphs
Hungary	Medium	Regional	Increasing	0	-	-	341.7	-	Graphs	Graphs
Iceland	High	Regional	Decreasing	39	None	18.0	78.3	-	Graphs	Graphs
Ireland	High	Widespread	Decreasing	114	A(H1N1)v	38.6	126.9	-	Graphs	Graphs
Italy				60	A(H1N1)v	56.7	-	-	Graphs	Graphs
Latvia	High	Widespread	Increasing	47	A(H1)v	0.0	424.8	1586.1	Graphs	Graphs
Lithuania	High	Regional	Increasing	35	A(H1N1)v	82.9	-	-	Graphs	Graphs
Luxembourg	High	Widespread	Stable	60	A(H1)v	25.0	4081.6	18571.4	Graphs	Graphs
Malta				-	-	-	-	-		
Netherlands	Medium	Widespread	Decreasing	80	A(H1)v	51.3	113.3	-	Graphs	Graphs
Norway	High	Widespread	Decreasing	29	A(H1N1)v	44.8	462.0	-	Graphs	Graphs
Poland	High	Widespread	Increasing	432	A(H1)v	14.8	299.5	-	Graphs	Graphs
Portugal	Medium	Widespread	Stable	55	A(H1)v	70.9	98.9	-	Graphs	Graphs
Romania	Medium	Regional	Increasing	65	A(H1N1)v	60.0	5.8	1135.5	Graphs	Graphs
Slovakia	Medium	Local	Increasing	0	-	-	591.3	2723.3	Graphs	Graphs
Slovenia	High	Widespread	Increasing	97	A(H1)v	80.4	287.9	1741.9	Graphs	Graphs
Spain	High	Widespread	Stable	775	A(H1N1)v	53.3	371.4	-	Graphs	Graphs
Sweden	Very High	Widespread	Stable	120	A(H1)v	33.3	30.4	-	Graphs	Graphs
UK - England	Medium	Regional	Stable	270	A(H1N1)v	31.8	39.2	444.7	Graphs	Graphs
UK - Northern Ireland	Medium	Sporadic	Decreasing	42	A(H1N1)v	28.6	91.9	382.6	Graphs	Graphs
UK - Scotland	Medium	Regional	Stable	536	A(H1N1)v	44.4	42.9	343.0	Graphs	Graphs
UK - Wales	Medium	Widespread	Decreasing	0	-	-	25.2	-	Graphs	Graphs
Europe				3611		44.4				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 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 47/2009, 22 countries reported virological data. Sentinel physicians collected 3611 respiratory specimens, of which 1627 (45%) were positive for influenza virus (Tables 1 and 2). In addition, 9126 non-sentinel source specimens (e.g. specimens collected for diagnostic purposes in hospitals) were reported positive for influenza virus. Of the 10 753 detected influenza viruses, 10 739 were type A and 14 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 slightly lower than the proportion seen in the previous week and higher than it was during peaks of previous winter influenza epidemics.

Four resistant strains were observed when testing for susceptibility to oseltamivir in 904 strains and no resistance to zanamivir was observed in 282 of the tested strains.

Table 2: Weekly and cumulative influenza virus detections by type, subtype and surveillance system, weeks 40/2009–47/2009

	Current Week		Season	
Virus type/subtype	Sentinel	Non-sentinel	Sentinel	Non-sentinel
Influenza A	1622	9117	10075	47066
A (pandemic H1N1)	1482	7949	9582	40076
A (subtyping not performed)	93	902	438	6694
A (not subtypable)	47	266	50	278
A (H3)	0	0	4	17
A (H1)	0	0	1	1
Influenza B	5	9	40	41
Total Influenza	**1627**	**9126**	**10115**	**47107**

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 40/2009–47/2009

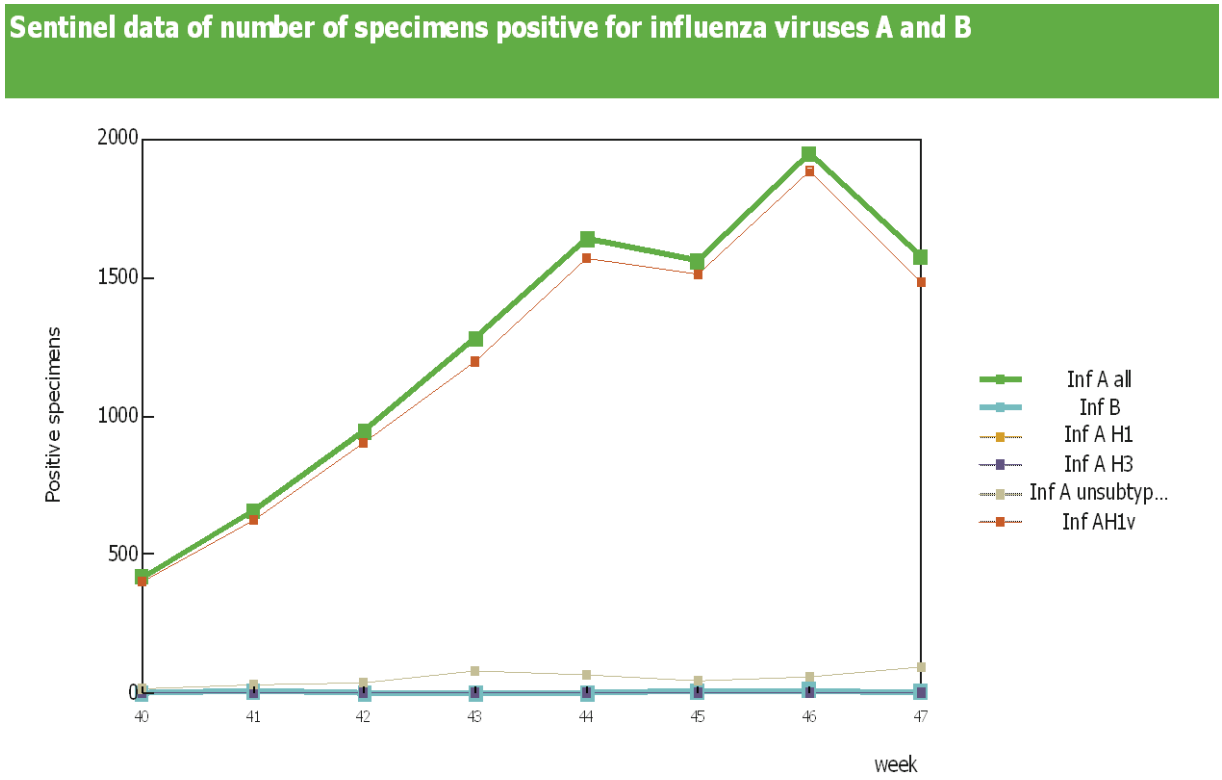

Figure 2: Number of non-sentinel specimens positive for influenza by type, subtype and week of report, weeks 40/2009–47/2009

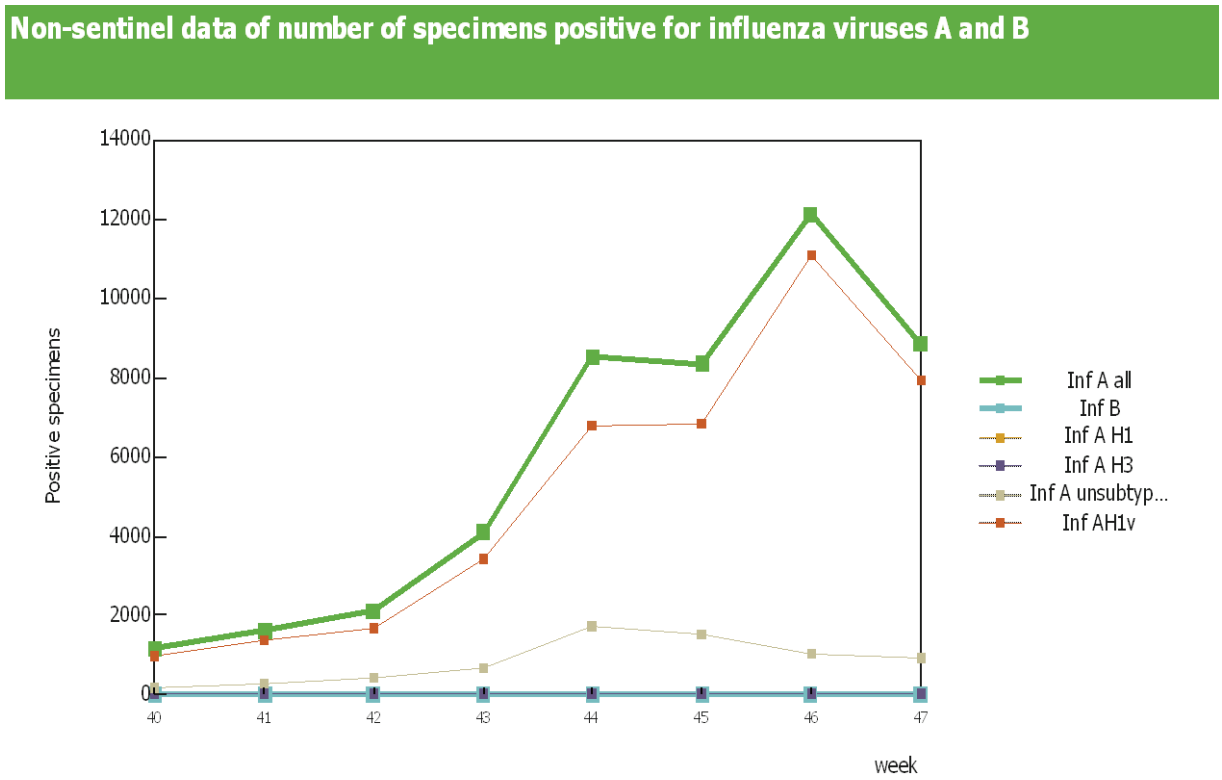

Figure 3: Proportion of sentinel samples positive for influenza, weeks 40/2009–47/2009

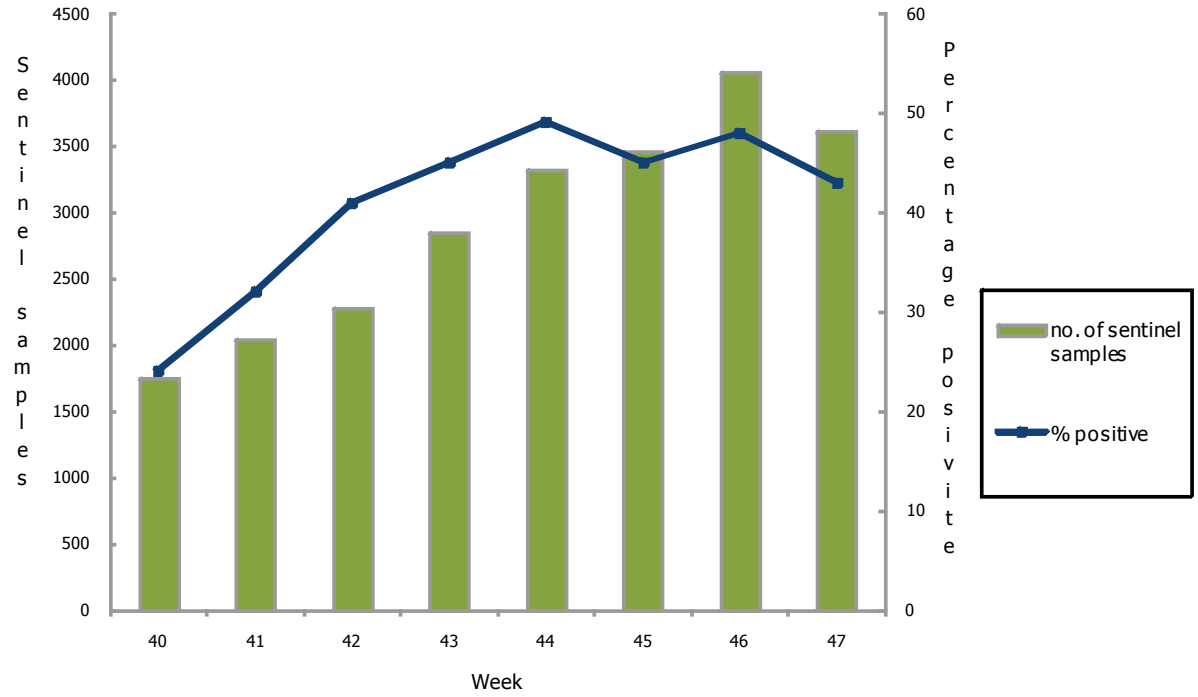

Table 3: Antiviral resistance by influenza virus type and subtype, weeks 40/2009 – 47/2009

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	904	4 (0.44%)	282	0	64	64 (100%)
B	0	0	0	0		

Comments on virological data provided by countries in week 47/2009

Italy During this last week, a significant decrease in the H1N1v influenza lab-confirmed cases has been reported compared to the previous week.

Norway The number of virus detections remains high, but has declined over the last two weeks.

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 countries have stopped counting the total number of cases, we continue to present just the aggregated number of deaths. In week 47/2009, 13 countries reported 41 new deaths. Since the beginning of the pandemic, 323 deaths have been reported.

Table 4: Aggregate numbers of pandemic H1N1 2009 deaths

Country	Deaths reported in week 47	Cumulative deaths since start of the season
Austria	-	0
Belgium	-	0
Bulgaria	10	29
Cyprus	-	0
Czech Republic	3	6
Denmark	-	0
Estonia	1	1
Finland	-	0
France	-	46
Germany	-	13
Greece	-	1
Hungary	1	8
Iceland	1	2
Ireland	0	17
Italy	-	1
Latvia	0	1
Lithuania	1	1
Luxembourg	1	1
Malta	0	3
Netherlands	5	32
Norway	6	24
Poland	8	9
Portugal	-	0
Romania	1	1
Slovakia	-	0
Slovenia	1	2
Spain	-	4
Sweden	2	15
United Kingdom	0	106
Total	**41**	**323**

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

Description of the system

Aggregate numbers of pandemic influenza associated deaths for both probable and laboratory-confirmed cases are reported by countries still collecting this data.

Hospital surveillance – severe acute respiratory infection (SARI)

Weekly analysis – SARI

During week 47/2009, 190 SARI cases were reported. Since the beginning of this surveillance, seven EU countries have reported 2021 cases including 69 fatalities (3.4%, Table 5). The trend in the numbers of SARI cases increased up to week 45, most probably due to improved reporting.

The female/male ratio in week 47 was 1.1 and 40% of cases were younger than 45 years (Table 6). Since the beginning of the season, the large majority of SARI cases related to influenza infection were caused by the pandemic virus (Table 7).

Of the 71 SARI patients for whom treatment status was reported during the current week, 64% received antiviral treatment (Table 8), but it is too early for any conclusion to be made regarding the potential benefits of such treatment.

Ninety-one SARI patients needed intensive care treatment in week 47, at least five of whom required ventilator assistance (Table 9).

Forty-six (24%) of 190 SARI cases reported in week 47 were known to have developed an additional complication (table 12).

Of the 107 SARI cases for whom information on underlying conditions was available, 20 (18.7%) had no known medical condition. However, 26 (24.3%) had more than one underlying condition.

Table 5: Cumulative number of SARI cases, weeks 40/2009—week 47/2009

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				5	5
Belgium	63	10666866	0.6	1240	
Cyprus				3	
France				323	46
Malta	1	413609	0.2	22	
Netherlands	97	16521505	0.6	398	17
Romania	12	1268418	0.9	30	1
Total				2021	69

Figure 4: Number of SARI cases by week of onset, week 47/2009

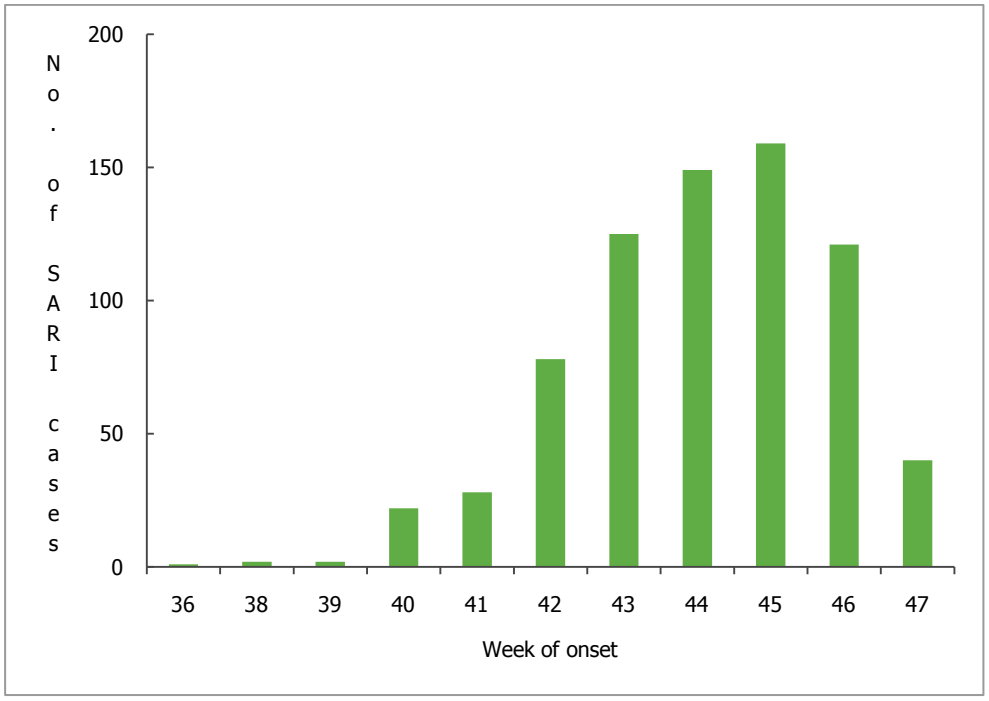

Table 6: Number of SARI cases by age and gender, week 47/2009

Age groups	Male	Female	Other (e.g., transsexual)	Unknown
Under 2	3	4		10
2-17	13	8		14
18-44	24	24		10
45-59	20	15		7
>=60	9	13		16
Total	69	64		57

Table 7: Number of SARI cases by influenza type and subtype, week 47/2009

Virus type/subtype	Number of cases during current week	Cumulative number of cases since the start of the season
Influenza A	128	741
A (pandemic H1N1)	124	730
A(subtyping not performed)		3
A(H3)		
A(H1)	4	8
A(H5)		
Influenza B		
Unknown	62	1280
Total	190	2021

Table 8: Number of SARI cases by antiviral treatment and resistance, week 47/2009

Antiviral treatment	Number of patients who received prophylaxis	Number of patients who received anti-viral treatment
Oseltamivir		50
Zanamivir		1
Oseltamivir and Zanamivir		6
Unknown	178	119
None	12	14
Total	190	190

Table 9: Number of SARI cases by level of care and respiratory support, week 47/2009

Respiratory support	ICU	Inpatient ward	Other	Unknown
No respiratory support necessary	4	31		2
Oxygen therapy	65	3		
Respiratory support given unknown	17			61
Ventilator	5	2		

Table 10: Number of SARI cases by vaccination status, week 47/2009

Vaccination Status	Number Of Cases	Percentage of cases
Both, seasonal and pandemic vaccination	5	2.6
Not full pandemic vaccination	0	0
Not vaccinated	40	21.1
Pandemic vaccination	3	2
Seasonal vaccination	27	14.2
Unknown	115	61
TOTAL	190	

Figure 5: Number of SARI cases by underlying condition, week 47/2009

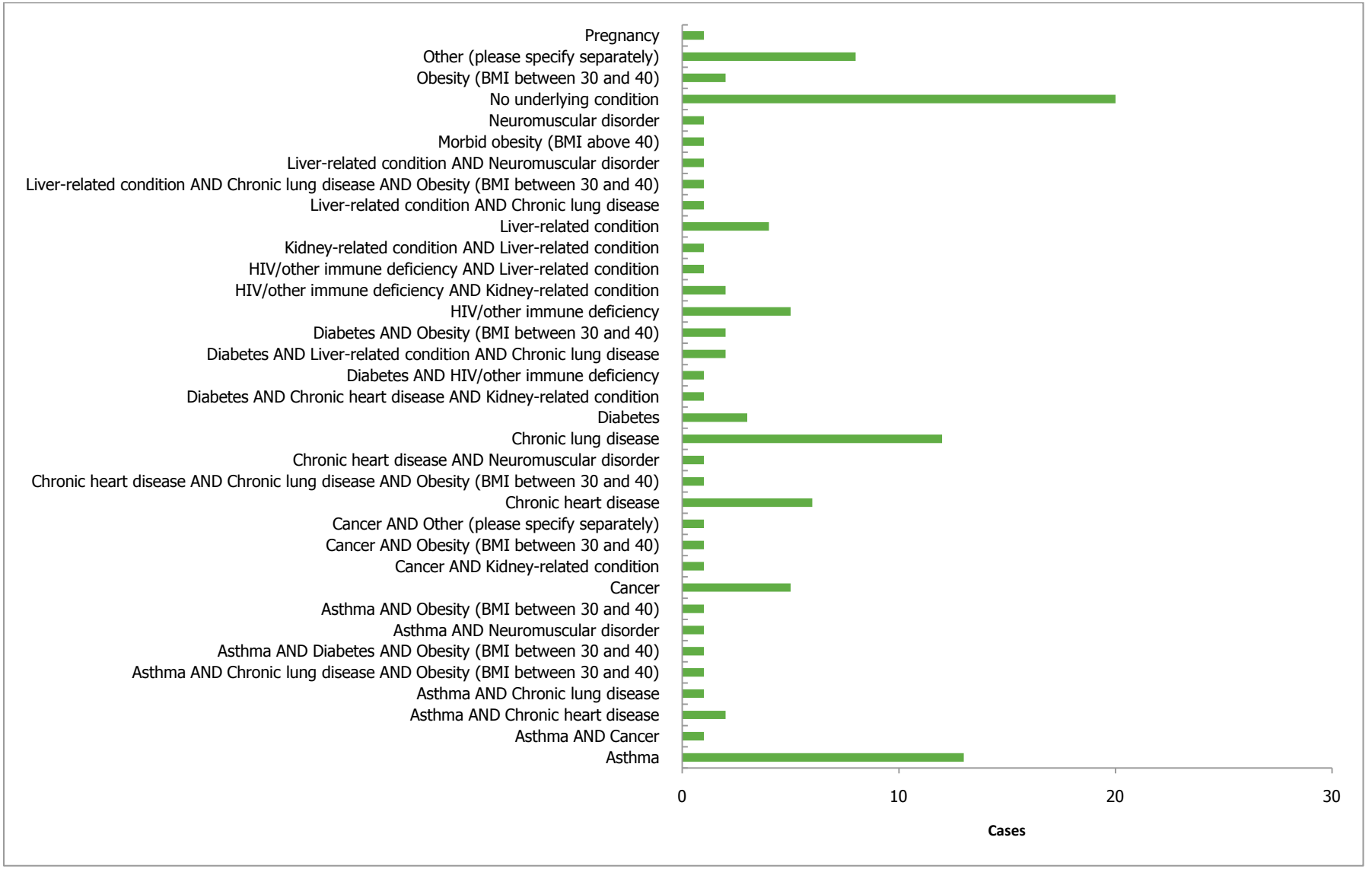

Table 11: Number of underlying conditions in SARI cases by age group, week 47/2009

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		2	8	7	1
Cancer		1	1	1	5
Diabetes				5	4
Chronic heart disease		2	2	2	3
HIV/other immune deficiency				7	2
Kidney-related condition				3	1
Liver-related condition			3	6	1
Chronic lung disease		1	9	7	3
Neuromuscular disorder		2		1	
No underlying condition	2	5	10	1	
Other (please specify separately)		1	3	1	3
Obesity (BMI between 30 and 40)			3	6	1
Morbid obesity (BMI above 40)			1		
Pregnancy			2		
Underlying condition unknown	15	26	37	32	32

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

Table 12: Number of complications in SARI cases by age group, week 47/2009

Underlying condition/risk factor	Infant below 2 years Numbers	2-17 years Numbers	18-44 years Numbers	45-59 years Numbers	>=60 years Numbers
Acute respiratory distress syndrome	1	3	4	1	2
Encephalitis				1	
Myocarditis		1			1
None		1	12	5	2
Other (please specify separately)	1	2	6	1	
Pneumonia (secondary bacterial infection)		3	6	4	6
Sepsis/Multi-organ failure			1	1	1
Unknown	15	26	35	34	32

Note: One case can have more than one complication.

Table 13: Number of underlying conditions in SARI cases by level of care, week 47/2009

	ICU	Inpatient ward	Other	Unknown
Asthma	12	5		1
Cancer	5	2		1
Diabetes	8	1		
Chronic heart disease	7	2		
HIV/other immune deficiency	8	1		
Kidney-related condition	3	1		
Liver-related condition	10			
Chronic lung disease	14	6		
Neuromuscular disorder	3			
No underlying condition	6	12		
Other (please specify separately)		6		2
Obesity (BMI between 30 and 40)	9	1		
Morbid obesity (BMI above 40)	1			
Pregnancy	2			
Underlying condition unknown	79	2		61

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 47/2009

	Oxygen therapy	Ventilator support provided	Ventilator support necessary but not available	Respiratory support given unknown
Asthma	11			2
Cancer	4			2
Diabetes	6	1		1
Chronic heart disease	7			
HIV/other immune deficiency	8			
Kidney-related condition	3			
Liver-related condition	9	1		
Chronic lung disease	12	2		1
Neuromuscular disorder	1			1
No underlying condition	4	1		
Other (please specify separately)				
Obesity (BMI between 30 and 40)	8	1		1
Morbid obesity (BMI above 40)	1			
Pregnancy	1			1
Underlying condition unknown	61	1		78

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 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).