

SURVEILLANCE REPORT

Weekly influenza surveillance overview

6 November 2009

Main surveillance developments in week 44/2009

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

- Pandemic influenza continues to spread across Europe. Of the six countries reporting high influenza activity, four are new and for the first time, four others reported an increasing trend (out of 16).
- Pandemic A(H1N1) is the dominant strain circulating, while seasonal strains, mostly A(H3N2) and influenza B, are only sporadic.
- The percentage of influenza positive sentinel specimens further increased since last week and is now at 48%.
- Of the 492 SARI patients notified by five countries between weeks 40 and 44/2009, 60% needed ventilator support and 50% had no underlying condition.

Sentinel surveillance of influenza like illness (ILI)/ acute respiratory illness (ARI): Iceland and Ireland reported very high levels of intensity while Bulgaria, Italy, the Netherlands, Norway, Sweden and the UK (Northern Ireland) reported high levels of intensity. Eight countries reported medium activity, ten reported widespread activity and four reported regional activity. For more information [click here](#).

Virological surveillance: Sentinel physicians collected 2 466 respiratory specimens, of which 1 178 (48%) were positive for influenza virus. Influenza A(H1N1)v virus accounted for more than 99% of all influenza A sub-typed viruses. For more information [click here](#).

Hospital surveillance of severe acute respiratory infection (SARI): Four hundred and ninety-two SARI cases were reported from week 40–44/2009, of which 83 (50%) had no known underlying medical condition. For more information [click here](#).

Aggregate numbers of pandemic (H1N1) 2009 cases and deaths (weekly analysis) : As most of the countries stopped counting total number of cases, the aggregated reporting will be adjusted and will be presented in a new format from next week.

Qualitative reporting: No qualitative indicator data are available yet. For more information [click here](#).

Sentinel surveillance (ILI/ARI)

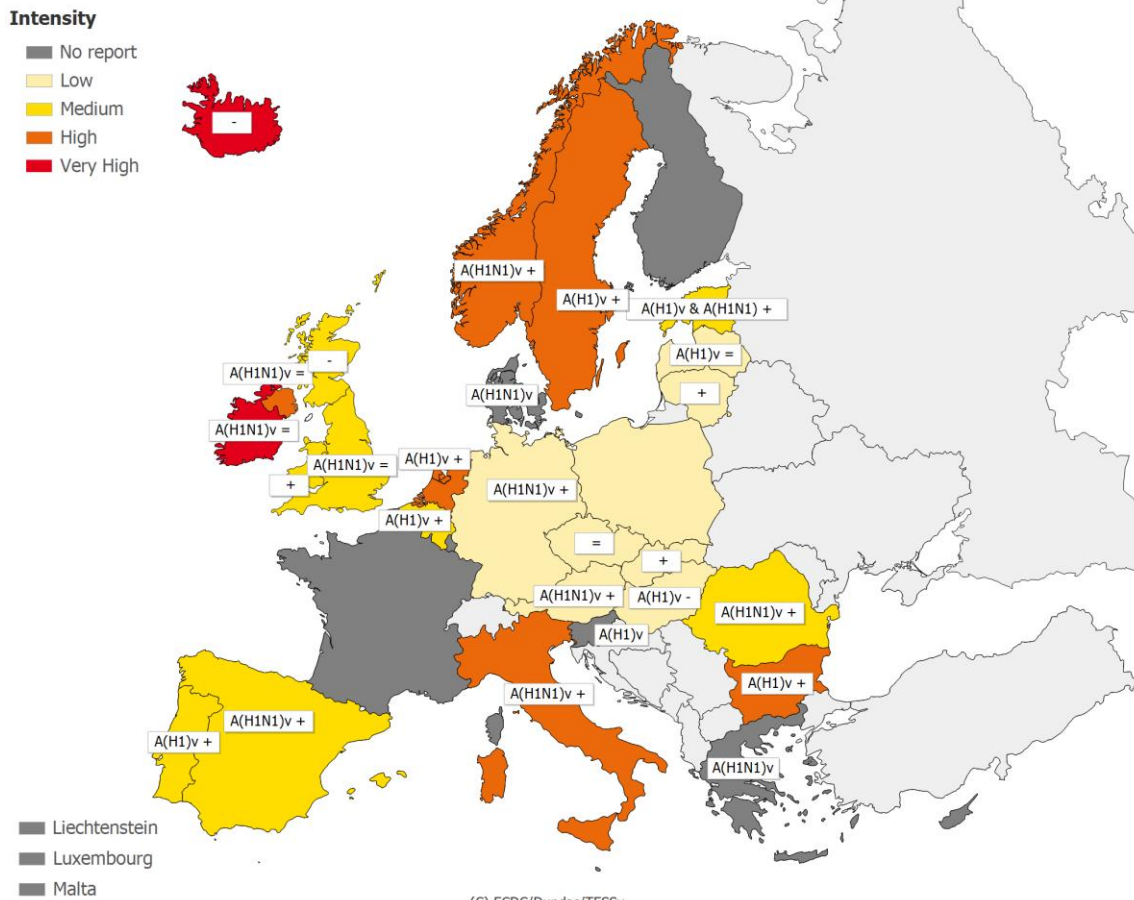
Weekly analysis – epidemiology

For week 44/2009, 24 countries reported epidemiological data. For the intensity indicator—national network levels for ILI and/or ARI—Iceland and Ireland reported very high intensity, while Bulgaria, Italy, the Netherlands, Norway, Sweden and the UK (Northern Ireland) reported high activity. Belgium, Estonia, Portugal, Romania, Spain and the UK (England, Scotland and Wales) reported medium activity. All other countries reported low intensity. In countries reporting with very high activity, the most affected age group was 0–15 year-olds.

For the geographic spread indicator, an increase was noted from the previous week with the following countries reporting widespread activity: Belgium, Iceland, Ireland, Italy, the Netherlands, Norway, Spain, Sweden and the UK (England and Wales). Austria, Bulgaria, and the UK (Scotland) reported regional activity. All other countries reported sporadic or no activity. Sixteen countries reported an increasing trend of influenza activity compared to seventeen in the previous week. Of the countries reporting an increasing trend this week, four—Austria, Estonia, Portugal and Romania—reported it for the first time. Hungary, Iceland and the UK (Scotland) reported a decreasing trend. For the definitions of the intensity and geographic spread indicators, [click here](#).

From week 40/2009 to week 44/2009, 17 countries reported influenza activity above baseline levels, with 11 of these still seeing an increasing trend in week 44. In most countries where influenza activity has risen above baseline levels to date, the most affected age group includes those younger than 15 years.

Map 1: Intensity for week 44/2009

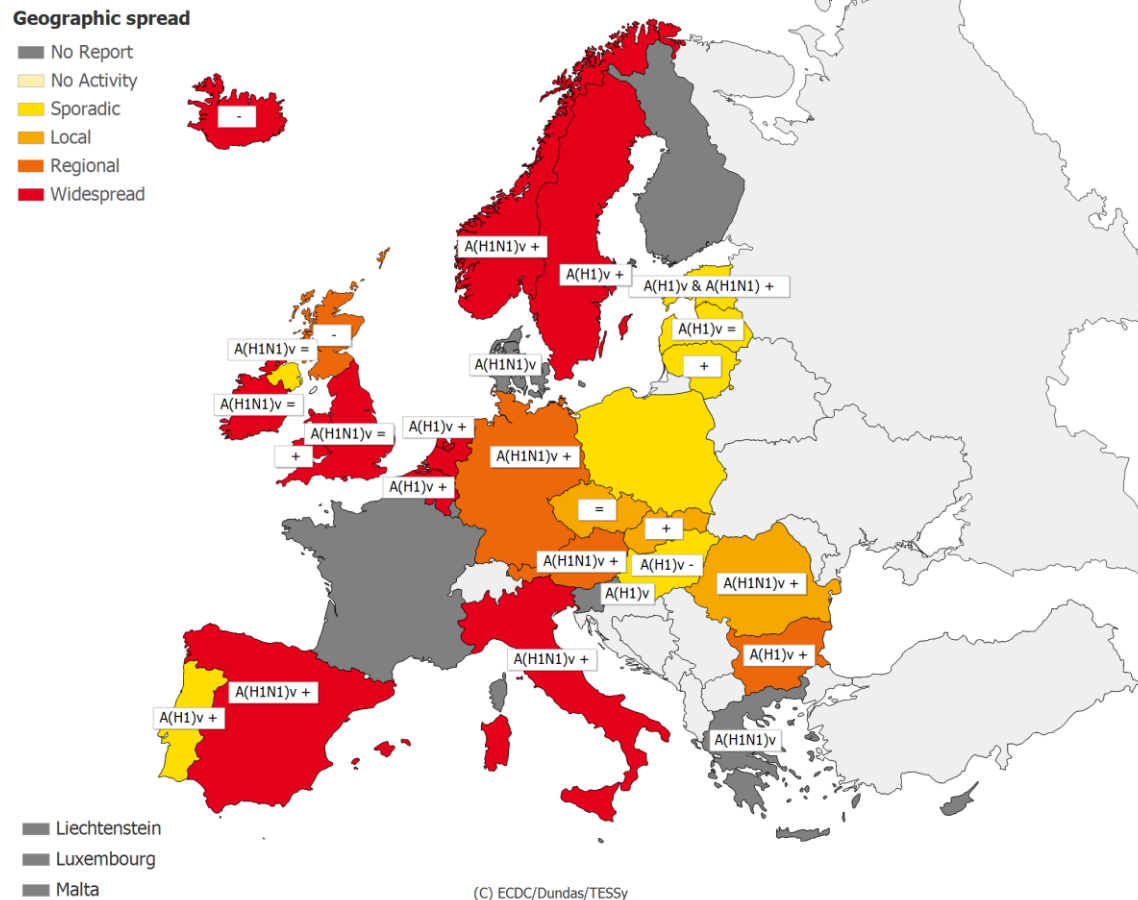


* A type/subtype is reported as dominant when > 40 % of all samples are positive for the type/subtype.

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(H1)v & A(H1N1)	Type A, Subtype H1v and H1N1
		A(H1N1)v	Type A, Subtype H1N1v

Map 2: Geographic spread for week 44/2009



* 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)	-	Decreasing clinical activity
Sporadic	Isolated cases of laboratory confirmed influenza infection	+	Increasing clinical activity
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)	=	Stable clinical activity
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)	A(H1)v	Type A, Subtype H1v
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)	A(H1)v & A(H1N1)	Type A, Subtype H1v and H1N1
		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	17	A(H1N1)v	11.8	-	9.1	Graphs	Graphs
Belgium	Medium	Widespread	Increasing	218	A(H1)v	74.8	811.9	2077.6	Graphs	Graphs
Bulgaria	High	Regional	Increasing	0	A(H1)v	-	-	1499.9	Graphs	Graphs
Czech Republic	Low	Local	Stable	0	-	-	35.7	877.9	Graphs	Graphs
Denmark				2	A(H1N1)v	100.0	-	-	Graphs	Graphs
Estonia	Medium	Sporadic	Increasing	10	A(H1)v & A(H1N1)	30.0	5.9	260.7	Graphs	Graphs
Germany	Low	Regional	Increasing	152	A(H1N1)v	39.5	-	1213.1	Graphs	Graphs
Greece				7	A(H1N1)v	14.3	-	-	Graphs	Graphs
Hungary	Low	Sporadic	Decreasing	54	A(H1)v	7.4	127.2	-	Graphs	Graphs
Iceland	Very High	Widespread	Decreasing	190	-	29.0	421.3	-	Graphs	Graphs
Ireland	Very High	Widespread	Stable	80	A(H1N1)v	57.5	178.5	-	Graphs	Graphs
Italy	High	Widespread	Increasing	4	A(H1N1)v	25.0	896.3	-	Graphs	Graphs
Latvia	Low	Sporadic	Stable	1	A(H1)v	0.0	0.0	911.8	Graphs	Graphs
Lithuania	Low	Sporadic	Increasing	0	-	-	1.3	492.3	Graphs	Graphs
Netherlands	High	Widespread	Increasing	79	A(H1)v	41.8	-	-	Graphs	Graphs
Norway	High	Widespread	Increasing	66	A(H1N1)v	43.9	439.4	-	Graphs	Graphs
Poland	Low	Sporadic	Increasing	28	None	25.0	86.7	-	Graphs	Graphs
Portugal	Medium	Sporadic	Increasing	17	A(H1)v	58.8	56.5	-	Graphs	Graphs
Romania	Medium	Local	Increasing	140	A(H1N1)v	36.4	1.8	904.2	Graphs	Graphs
Slovakia	Low	Local	Increasing	0	-	-	248.7	1729.9	Graphs	Graphs
Slovenia				18	A(H1)v	27.8	-	-	Graphs	Graphs
Spain	Medium	Widespread	Increasing	761	A(H1N1)v	60.8	292.0	-	Graphs	Graphs
Sweden	High	Widespread	Increasing	142	A(H1)v	43.0	17.5	-	Graphs	Graphs
UK - England	Medium	Widespread	Stable	439	A(H1N1)v	39.5	37.7	429.3	Graphs	Graphs
UK - Northern Ireland	High	Sporadic	Stable	41	A(H1N1)v	85.4	222.0	347.8	Graphs	Graphs
UK - Scotland	Medium	Regional	Decreasing	0	-	-	45.6	400.7	Graphs	Graphs
UK - Wales	Medium	Widespread	Increasing	0	-	-	59.0	-	Graphs	Graphs
Europe				2466		47.8			Graphs	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 ILI, 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 national the level are also reported.

Virological surveillance

Weekly analysis – virology

In week 44/2009, 26 countries reported virological data. Sentinel physicians collected 2 466 respiratory specimens, of which 1 178 (48%) were positive for influenza virus (Table 1). In addition, 5 921 non-sentinel source specimens (e.g. specimens collected for diagnostic purposes in hospitals) were reported positive for influenza virus. Aside from A(pandemic H1N1) virus, there were only one influenza A(H3N2), one seasonal A(H1N1) and five B influenza viruses identified. 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 gradually increased to its highest level (48%) this week, which is comparable to the highest proportion during the peak week of previous season. So far, 14 antigenically characterised strains were reported as A(H1)v California/7/2009-like.

Of the 30 influenza A(H1N1)v isolates tested in this new season so far, all turned out to be susceptible to oseltamivir and zanamivir (Table 3).

Table 2: Weekly and cumulative influenza virus detections by type, subtype and surveillance system, weeks 40/2009–44/2009

Virus type/subtype	Current Week		Season	
	Sentinel	Non-sentinel	Sentinel	Non-sentinel
Influenza A	1177	5917	4440	14000
A (pandemic H1N1)	1121	4282	4215	10778
A (subtyping not performed)	55	1634	220	3198
A (not subtypable)	0	0	3	7
A (H3)	0	1	1	16
A (H1)	1	0	1	1
Influenza B	1	4	14	18
Total Influenza	1178	5921	4454	14018

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 40/2009–44/2009

Sentinel data of number of specimens positive for influenza viruses A and B

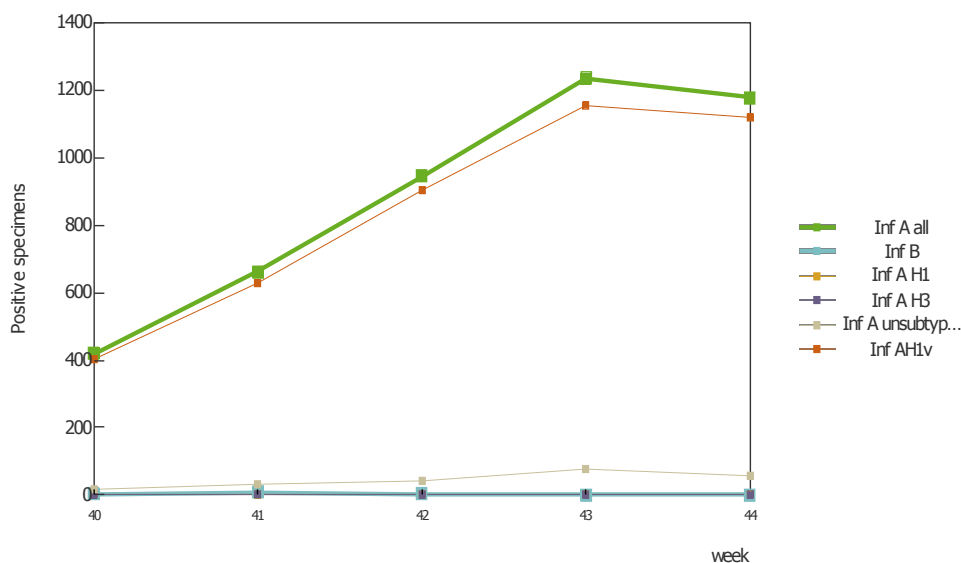


Figure 2: Number of non-sentinel specimens positive for influenza by type, subtype and week of report, weeks 40/2009–44/2009

Non-sentinel data of number of specimens positive for influenza viruses A and B

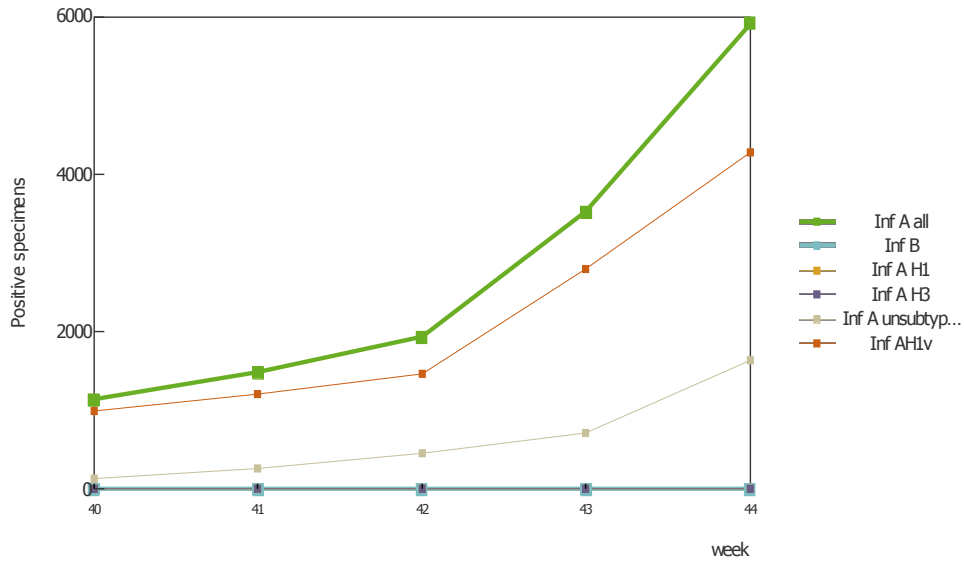


Figure 3: Proportion of sentinel samples positive for influenza, weeks 40/2009-44/2009

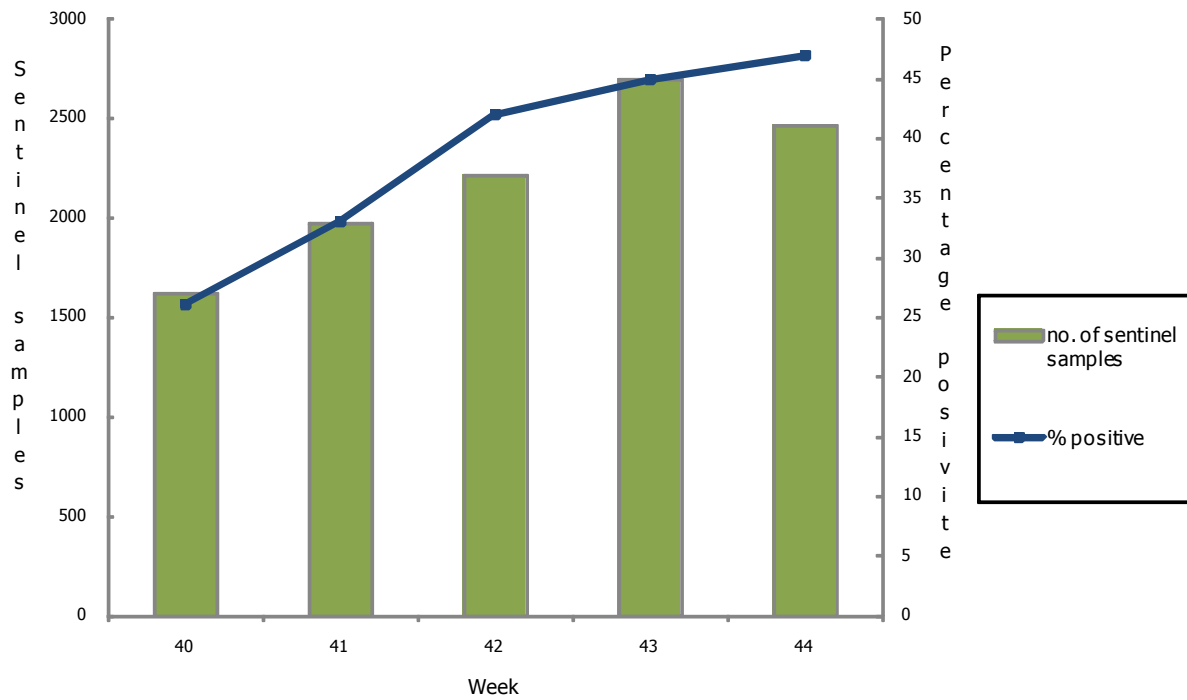


Table 3: Antiviral resistance by influenza virus type and subtype, weeks 40/2009–44/2009

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	30	0	30	0	0	0
B	0	0	0	0		

Description of the system

According to the nationally defined sampling strategy, sentinel physicians take nasal or pharyngeal swabs from patients with ILI, 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 cases and deaths

Weekly analysis — cases and deaths

As most of the countries stopped counting total number of cases, the aggregated reporting will be adjusted and will be presented in a new format from next week.

Hospital surveillance (SARI)

Weekly analysis – SARI

In week 44/2009, 179 SARI cases were reported. Since this surveillance commenced, five EU countries have reported 492 cases including 11 fatalities (2.2%). Apart from the current week, the trend in the number of SARI cases has been steadily increasing since week 36, most probably due to improved reporting.

The male/female ratio in week 44 was higher than 1 in all age groups except in those 18–44 years (ratio = 0.6), in which 15 pregnancies were reported. In total, 78% of cases are aged less than 45 years (Table 5). Since the beginning of the season, the majority (95.9%) of SARI cases related to influenza infection have been caused by the pandemic virus (Table 6). Of SARI patients reported during the current week, 30% received oseltamivir (Table 7), but it is too early for any conclusion to be made regarding the potential benefits from antiviral drugs.

Forty-eight SARI patients needed intensive care treatment in week 44/2009, of whom 60% needed ventilator assistance (Table 8).

Eighty-three (50%) of 166 SARI cases reported in week 44 had no known underlying medical condition; 17 (10%) were pregnant and 19 (11%) had a chronic lung disease (Table 10).

Table 4: Cumulative number of SARI cases, weeks 40/2009–44/2009

Country	Number of sentinel sites	Estimated population covered	Geographical coverage (national, regional)	Estimated notification rate (in the covered geographic area)	Number of cases	Number of fatal cases reported
Cyprus			Unknown		1	
France			Unknown		411	10
Malta			Unknown		11	
Netherlands			Unknown		60	
Romania			Unknown		9	1
Total					492	11

Figure 4: Number of SARI cases by week of onset, weeks 36/2009–44/2009

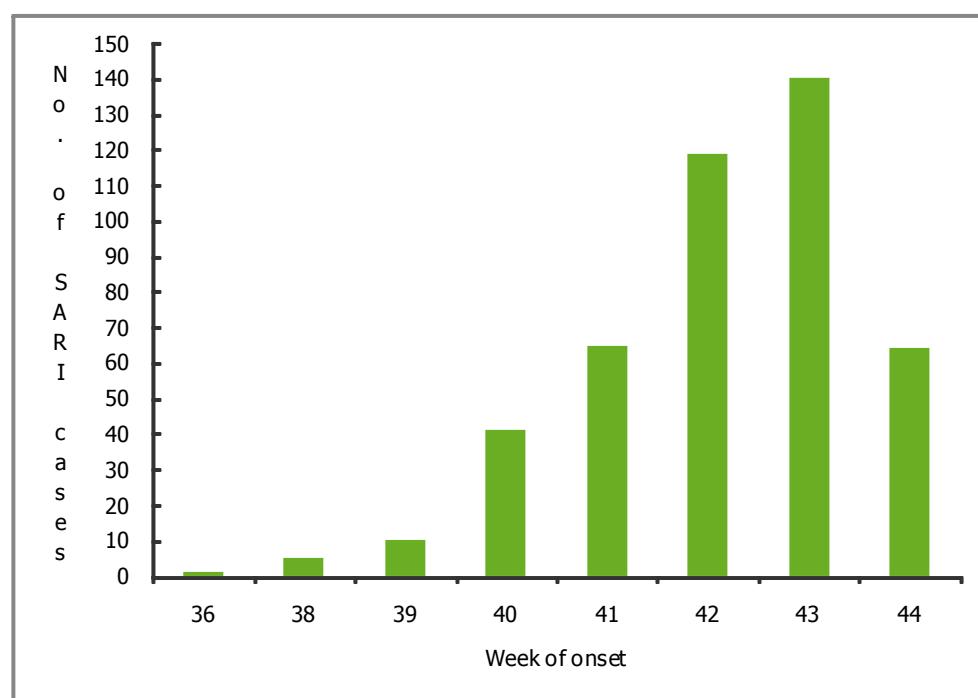


Table 5: Number of SARI cases by age and gender, week 44/2009

Age groups	Male	Female	Other (e.g., transsexual)	Unknown
Under 2	15	14		
2-17	22	16		
18-44	24	40		
45-59	13	10		
>=60	12	3		
Total	86	83		

Table 6: Number of SARI cases by influenza type and subtype, week 44/2009

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		2 (0.4 %)
A (pandemic H1N1)	167 (98.8 %)	472 (95.9 %)
A(subtyping not performed)		1 (0.2 %)
A(H3)		
A(H1)		1 (0.2 %)
A(H5)		
Influenza B		
Unknown	2 (1.2 %)	18 (3.7 %)
Total	169	492

Table 7: Number of SARI cases by antiviral treatment and resistance, week 44/2009

Antiviral treatment	Number (percentage) of patients who received prophylaxis	Number (percentage) of patients who received anti-viral treatment	Number (percentage) of patients with strains resistant to treatment
Oseltamivir	1 (0.0 %)	51 (30.0 %)	
Oseltamivir and Zanamivir		1 (0.0 %)	
Unknown	165 (97.0 %)	115 (68.0 %)	169 (100.0 %)
None	3 (1.0 %)	2 (1.0 %)	
Total	169	169	169

Table 8: Number of SARI cases by level of care and respiratory support, week 44/2009

Respiratory support	ICU	Inpatient ward	Other	Unknown
No respiratory support necessary	1	1		
Oxygen therapy	21			29
Respiratory support given unknown	5		2	89
Ventilator	21			

Table 9: Number of SARI cases by vaccination status, week 44/2009

Vaccination Status	Number Of Cases	Percentage of cases
Not vaccinated	32	18.9
Seasonal vaccination	4	2
Unknown	133	78.7
TOTAL	169	

Table 10: Number of SARI cases by underlying condition and age group, week 44/2009

Underlying condition/risk factor	Infant below 2 years Numbers and percentage	2-17 years Numbers and percentage	18-44 years Numbers and percentage	45-59 years Numbers and percentage	>=60 years Numbers and percentage
Asthma	1	7	11	9	2
Cancer			1	3	
Diabetes			4	3	4
Chronic heart disease	2			2	3
HIV/other immune deficiency			5	2	1
Kidney-related condition			1	1	1
Liver-related condition			1	2	
Chronic lung disease	1	2	4	5	7
Neuromuscular disorder	1	1			
No underlying condition	24	27	25	3	4
Obesity (BMI between 30 and 40)			5	1	
Morbid obesity (BMI above 40)			5		
Pregnancy		2	15		
Underlying condition unknown	28	37	63	23	15

Table 11: Number SARI cases by complication and age group, week 44/2009

Underlying condition/risk factor	Infant below 2 years Numbers and percentage	2-17 years Numbers and percentage	18-44 years Numbers and percentage	45-59 years Numbers and percentage	>=60 years Numbers and percentage
Acute respiratory distress syndrome	2		5	1	1
Encephalitis			1		
Myocarditis			1		
None	23	37	54	20	12
Pneumonia (secondary bacterial infection)	3	1	6	2	2
Sepsis/Multi-organ failure	2				
Unknown	28	37		23	15

Table 12: Number of SARI by underlying condition by level of care, week 44/2009

	ICU	Inpatient ward	Other	Unknown
Asthma	9			21
Cancer	2			2
Diabetes	6			5
Chronic heart disease	4			3
HIV/other immune deficiency	2			6
Kidney-related condition	2			1
Liver-related condition	1			2
Chronic lung disease	9	1	1	8
Neuromuscular disorder	1			1
No underlying condition	16		1	66
Obesity (BMI between 30 and 40)	3			3
Morbid obesity (BMI above 40)	4			1
Pregnancy	5			12
Underlying condition unknown	48			118

Table 13: Number of SARI by underlying condition and level of respiratory support, week 44/2009

	Oxygen therapy	Ventilator support provided	Ventilator support necessary but not available	Respiratory support given unknown
Asthma	16	1		13
Cancer	2	2		
Diabetes	4	3		4
Chronic heart disease	3	1		2
HIV/other immune deficiency	3			5
Kidney-related condition	2			1
Liver-related condition	2			1
Chronic lung disease	10	6		2
Neuromuscular disorder		1		1
No underlying condition	16	7		60
Obesity (BMI between 30 and 40)	2	2		2
Morbid obesity (BMI above 40)	1	3		1
Pregnancy	4	2		11
Underlying condition unknown	50	21		94

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 and Bruno Ciancio. 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).

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