SURVEILLANCE REPORT

Weekly influenza surveillance overview

13 November 2009

Main surveillance developments in week 45/2009

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

- Twenty countries across EU/EEA are reporting an increasing trend.
- Seven countries are reporting high and very high intensity and 14 report medium intensity.
- Of the SARI patients notified by six countries, 76% needed ventilatory support and 36 % had no underlying condition.

Sentinel surveillance of influenza like illness (ILI)/ acute respiratory illness (ARI): Bulgaria, Iceland, Ireland, Norway and Sweden reported very high levels of intensity. Poland and the UK (Northern Ireland) reported high levels of intensity and 14 countries reported medium intensity. For more information **click here.**

Virological surveillance: Sentinel physicians collected 2 978 respiratory specimens, of which 1 283 (43%) were positive for influenza virus. All 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 will be adjusted and presented in a new form at a later date.

Hospital surveillance of severe acute respiratory infection (SARI): Seven hundred and sixty-two SARI cases were reported of which twenty-two (36%) 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 (ILI/ARI)

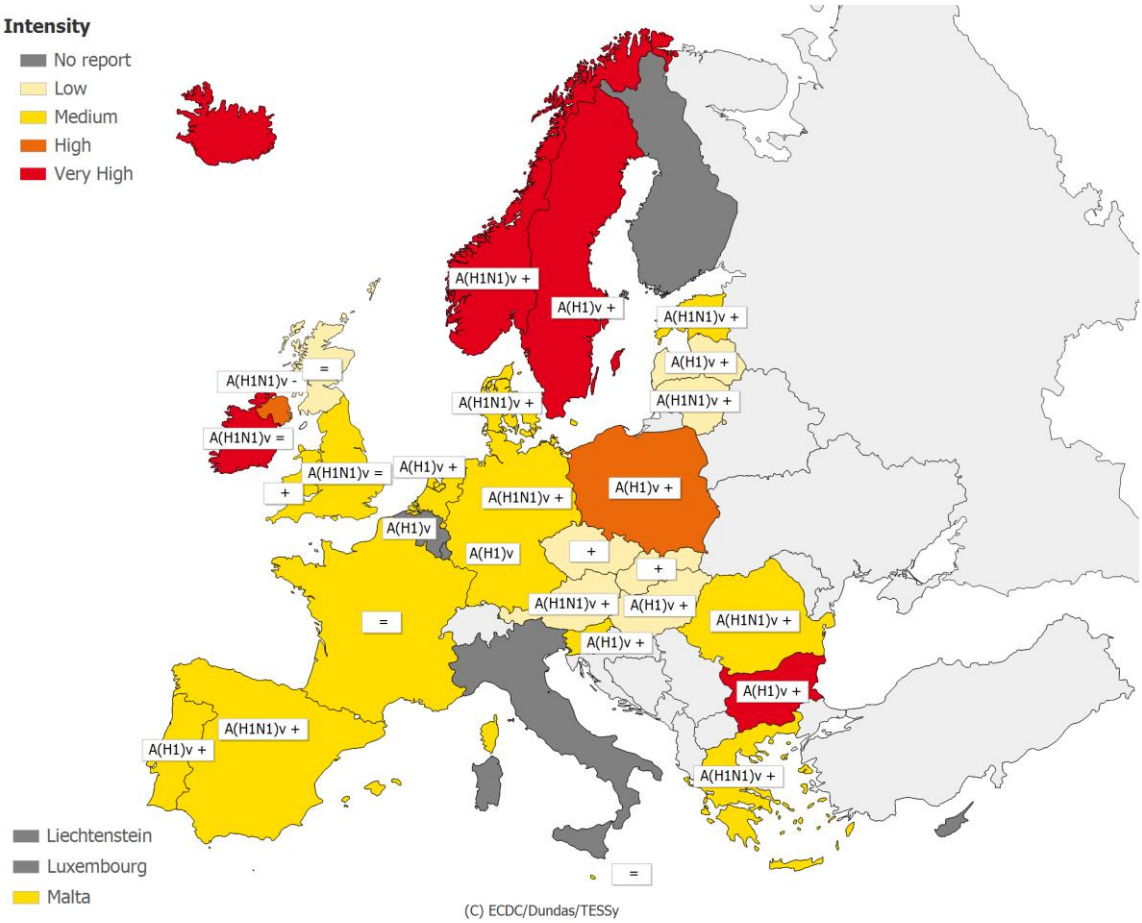
Weekly analysis – epidemiology

For week 45/2009, 28 countries reported epidemiological data. For the activity intensity indicator—national network levels for ILI and/or ARI—Bulgaria, Iceland, Ireland, Norway and Sweden reported very high intensity. Poland and the UK (Northern Ireland) reported high intensity, 14 countries reported medium intensity and seven countries reported low intensity.

For the geographic spread indicator, increases were noted compared to the previous week with 12 countries reporting widespread activity. Four countries reported regional activity. Ten countries reported sporadic or no activity. Twenty countries reported an increasing trend of influenza activity, of which the following six countries did not mention an increasing trend in week 44: the Czech Republic, Denmark, Greece, Hungary, Latvia and Slovenia.Three countries, Belgium, Iceland and the UK (Northern Ireland), reported decreasing trends. For definitions of the intensity and geographic spread indicators, click here.

From week 40/2009 to week 45/2009, influenza activity above baseline levels has been reported in 24 countries, with 20 of these showing an increasing trend in week 45. 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 45/2009

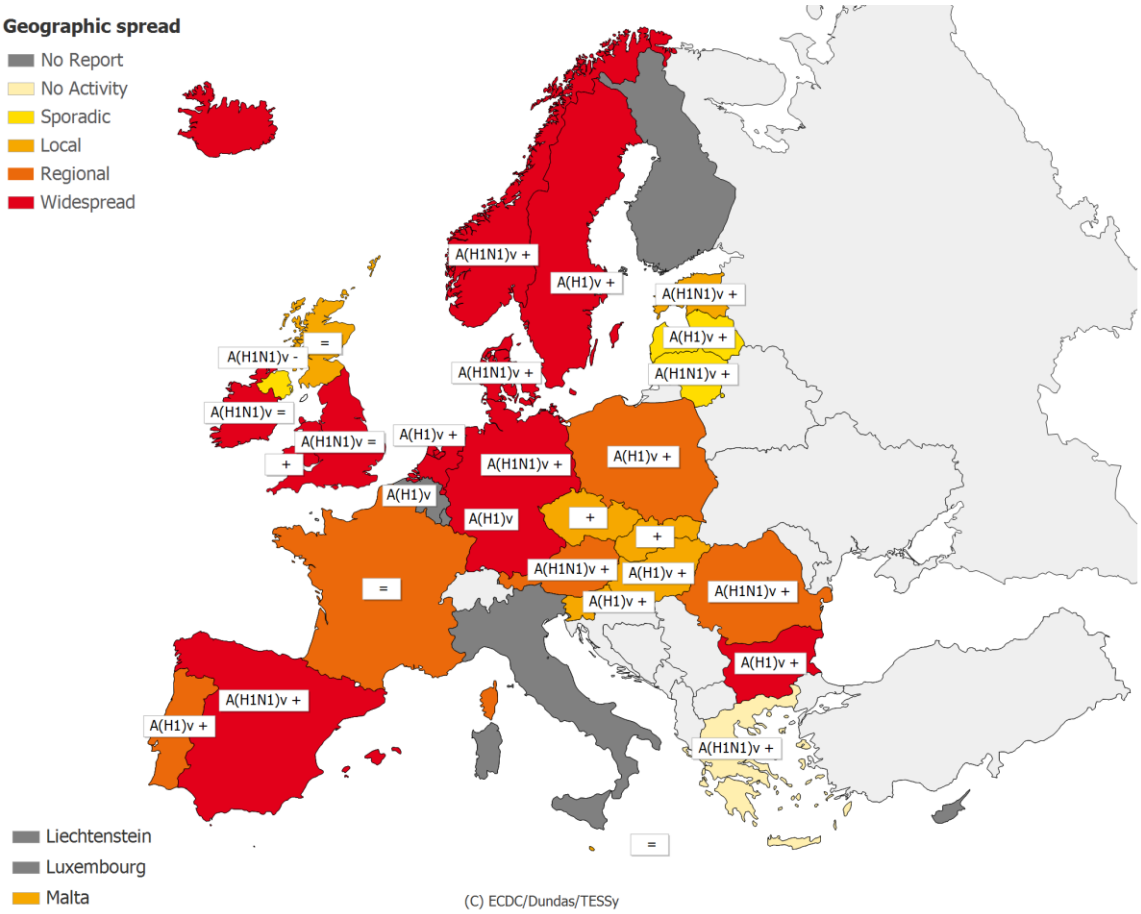


* A type/subtype is reported as dominant when > 40 % of all samples are positive for the type/subtype.

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 45/2009



* 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	Increasing	64	A(H1N1)v	17.2	-	20.2	Graphs	Graphs
Belgium	Medium	Widespread	Decreasing	217	A(H1)v	67.7	488.8	1536.0	Graphs	Graphs
Bulgaria	Very High	Widespread	Increasing	0	A(H1)v	-	-	2636.9	Graphs	Graphs
Czech Republic	Low	Local	Increasing	0	-	-	55.3	1120.3	Graphs	Graphs
Denmark	Medium	Widespread	Increasing	38	A(H1N1)v	57.9	197.2	0.0	Graphs	Graphs
Estonia	Medium	Local	Increasing	36	A(H1N1)v	61.1	13.9	288.0	Graphs	Graphs
France	Medium	Regional	Stable	0	-	-	-	1743.2	Graphs	Graphs
Germany	Medium	Widespread	Increasing	345	A(H1N1)v	49.0	-	1501.1	Graphs	Graphs
Greece	Medium	No activity	Increasing	48	A(H1N1)v	69.7	162.5	-	Graphs	Graphs
Hungary	Low	Local	Increasing	86	A(H1)v	15.1	167.4	-	Graphs	Graphs
Iceland	Very High	Widespread	Decreasing	109	None	27.5	249.7	-	Graphs	Graphs
Ireland	Very High	Widespread	Stable	109	A(H1N1)v	35.8	174.8	-	Graphs	Graphs
Latvia	Low	Sporadic	Increasing	3	A(H1)v	100.0	0.9	949.3	Graphs	Graphs
Lithuania	Low	Sporadic	Increasing	14	A(H1N1)v	64.3	4.5	532.4	Graphs	Graphs
Luxembourg				57	A(H1)v	43.9	-	-	Graphs	Graphs
Malta	Medium	Local	Stable	0	-	-	8745.5	-	Graphs	Graphs
Netherlands	Medium	Widespread	Increasing	92	A(H1)v	46.7	-	-	Graphs	Graphs
Norway	Very High	Widespread	Increasing	64	A(H1N1)v	57.8	683.3	-	Graphs	Graphs
Poland	High	Regional	Increasing	154	A(H1)v	13.0	125.1	-	Graphs	Graphs
Portugal	Medium	Regional	Increasing	19	A(H1)v	57.9	59.2	-	Graphs	Graphs
Romania	Medium	Regional	Increasing	337	A(H1N1)v	28.2	3.6	1228.8	Graphs	Graphs
Slovakia	Low	Local	Increasing	0	-	-	325.0	2098.9	Graphs	Graphs
Slovenia	Medium	Local	Increasing	49	A(H1)v	0.0	17.1	1043.7	Graphs	Graphs
Spain	Medium	Widespread	Increasing	683	A(H1N1)v	61.1	343.1	-	Graphs	Graphs
Sweden	Very High	Widespread	Increasing	184	A(H1)v	33.7	26.7	-	Graphs	Graphs
UK - England	Medium	Widespread	Stable	211	A(H1N1)v	32.8	36.0	438.1	Graphs	Graphs
UK - Northern Ireland	High	Sporadic	Decreasing	59	A(H1N1)v	45.8	221.0	374.8	Graphs	Graphs
UK - Scotland	Low	Local	Stable	0	-	-	49.4	374.6	Graphs	Graphs
UK - Wales	Medium	Widespread	Increasing	0	-	-	65.8	-	Graphs	Graphs
Europe				2978		43.2				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 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 levels are also reported.

Virological surveillance

Weekly analysis – virology

In week 45/2009, 23 countries reported virological data. Sentinel physicians collected 2 978 respiratory specimens, of which 1 274 (43%) were positive for influenza A virus (Tables1 & 2). In addition, 6 464 non-sentinel source specimens (e.g. specimens collected for diagnostic purposes in hospitals) were reported positive for influenza A virus. Additionally, there were 15 type B influenza virus detections. 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 but remains at a level seen during peaks of previous winter influenza epidemics. To date, 30 antigenically 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 40/2009–45/2009

	Current Week		Season	
Virus type/subtype	Sentinel	Non-sentinel	Sentinel	Non-sentinel
Influenza A	1274	6464	6097	22435
A (pandemic H1N1)	1231	5021	5812	17885
A (subtyping not performed)	43	1443	280	4525
A (not subtypable)	0	0	3	7
A (H3)	0	0	2	17
A (H1)	0	0	0	1
Influenza B	9	6	23	23
Total Influenza	**1283**	**6470**	**6120**	**22458**

Note: A(pandemic H1N1), (H3) and (H1) includes both N-subtyped and non-N-subtyped viruses

Figure 1: Number of sentinel specimens positive for influenza, by type, subtype and by week of report, weeks 40/2009–45/2009

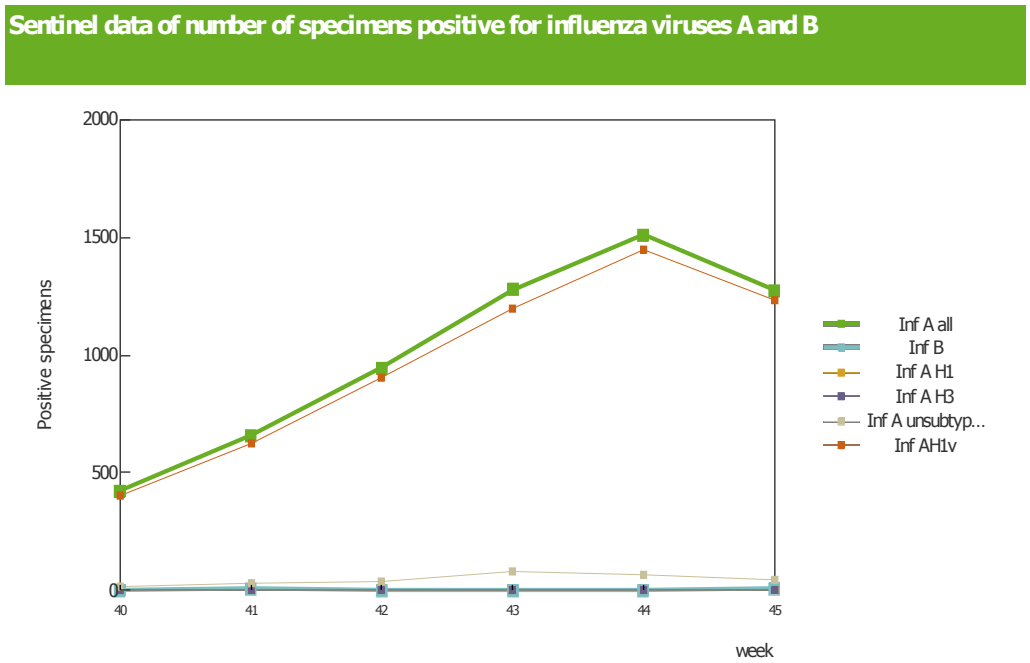


Figure 2: Number of non-sentinel specimens positive for influenza by type, subtype and week of report, weeks 40/2009–45/2009

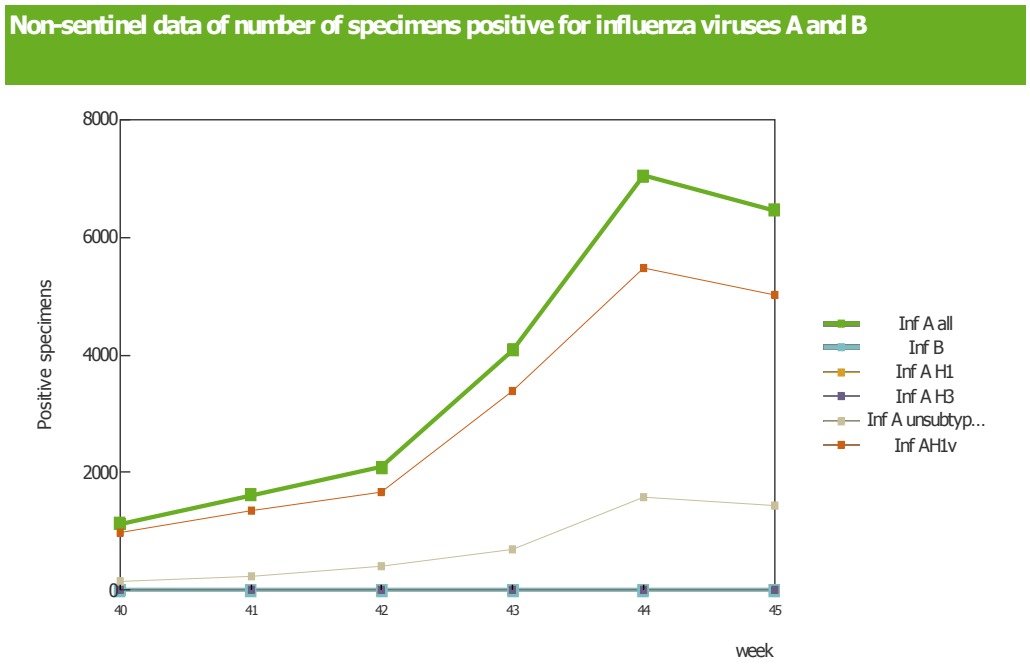


Figure 3: Proportion of sentinel samples positive for influenza, weeks 40/2009–45/2009

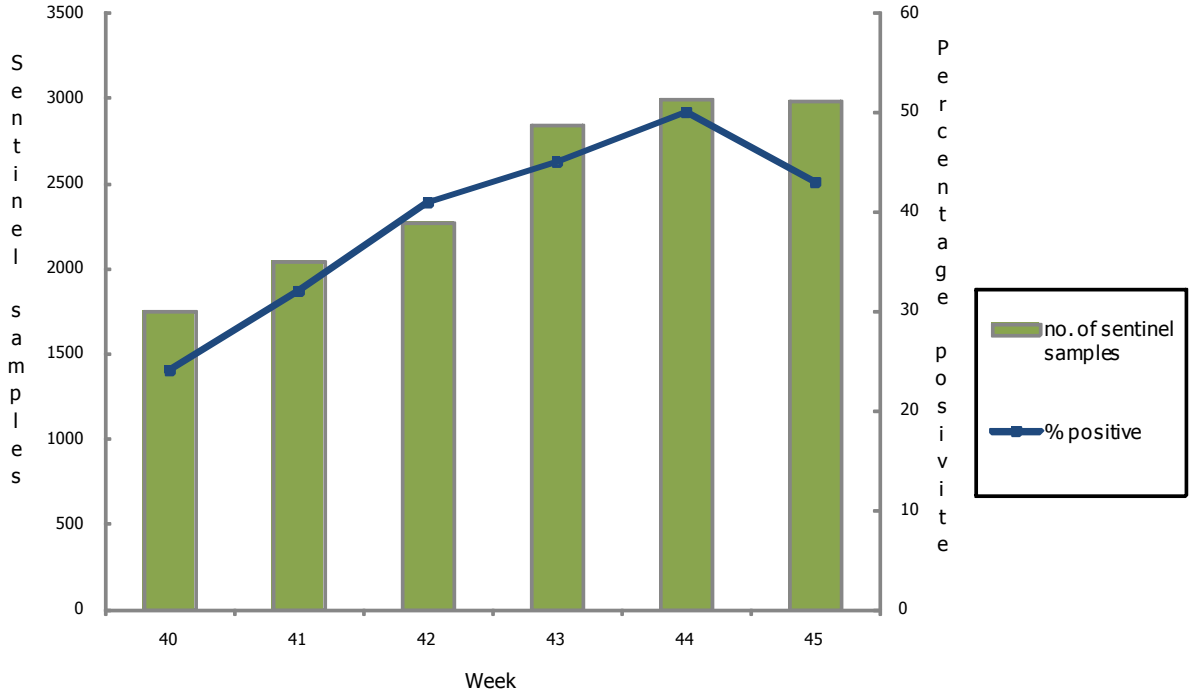


Table 3: Antiviral resistance by influenza virus type and subtype, weeks 40/2009–45/2009

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		

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.

Hospital surveillance – severe acute respiratory infection (SARI)

Weekly analysis – SARI

In week 45/2009, 762 SARI cases were reported. Since the beginning of this surveillance, six EU countries have reported 1 254 cases including 20 fatalities (1.6%. Table 5). Except for the current week, the trend in numbers of SARI cases has been steadily increasing since week 36, most probably due to improved reporting.

The female/male ratio in week 45 was approximately 1 and 78% of cases were younger than 45 years (Table 6). Since the beginning of the season, a large majority of SARI cases related to influenza infection were caused by the pandemic virus (Table 7). Of SARI patients reported during the current week, 31% received oseltamivir (Table 8), but it is too early for any conclusion to be made regarding the potential benefits of such treatment.

Twenty-one SARI patients needed intensive care treatment in week 45, of whom 76% required ventilator assistance (Table 9).

Twenty-two (36%) of the 61 SARI cases reported in week 45 had no known underlying medical condition; five (8%) were pregnant and 17 (28%) had a chronic lung disease or asthma (Table 11).

Table 5: Cumulative number of SARI cases, weeks 40/2009 to week 45/2009

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
Belgium	63	10666866		0	600	
Cyprus					1	
France					436	10
Malta	1	413609		0	15	
Netherlands					191	9
Romania	4	2741		0	11	1
Total				0	1254	20

Figure 5: Number of SARI cases by week of onset, as of week 45/2009

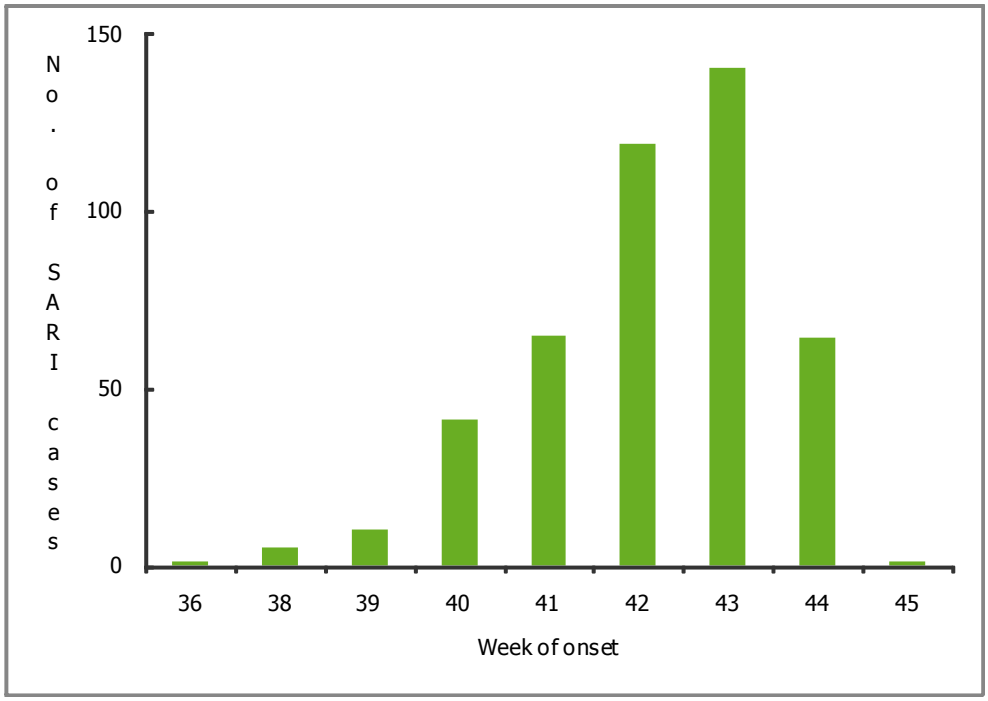


Table 6: Number of SARI cases by age and gender, in week 45/2009

Age groups	Male	Female	Other (e.g., transsexual)	Unknown
Under 2	5	2		
2-17	10	8		8
18-44	9	9		6
45-59	3	5		2
>=60	2	3		1
Total	29	27		17

Table 7: Number of SARI cases by influenza type and subtype, in week 45/2009

Virus type/subtype	Number of cases during current week	Cumulative number of cases since the start of the season
Influenza A	52	632
A (pandemic H1N1)	51	628
A (subtyping not performed)	1	3
A (H3)		
A (H1)		1
A (H5)		
Influenza B		
Unknown	21	622
Total	73	1254

Table 8: Number of SARI cases by antiviral treatment and resistance, in week 45/2009

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		23	
Zanamivir		1	
Unknown	68	40	73
None	5	9	
Total	73	73	73

Table 9: Number of SARI cases by level of care and respiratory support, in week 45/2009

Respiratory support	ICU	Inpatient ward	Other	Unknown
No respiratory support necessary	1	19		2
Oxygen therapy	8	1		5
Respiratory support given unknown	4		2	23
Ventilator	8			

Table 10: Number of SARI cases by vaccination status, in week 45/2009

Vaccination Status	Number Of Cases	Percentage of cases
Both, seasonal and pandemic vaccination	0	0
Not full pandemic vaccination	0	0
Not vaccinated	14	19.2
Pandemic vaccination	0	0
Seasonal vaccination	18	24.7
Unknown	41	56
TOTAL	73	

Figure 6: Number of SARI cases by underlying condition, in week 45/2009

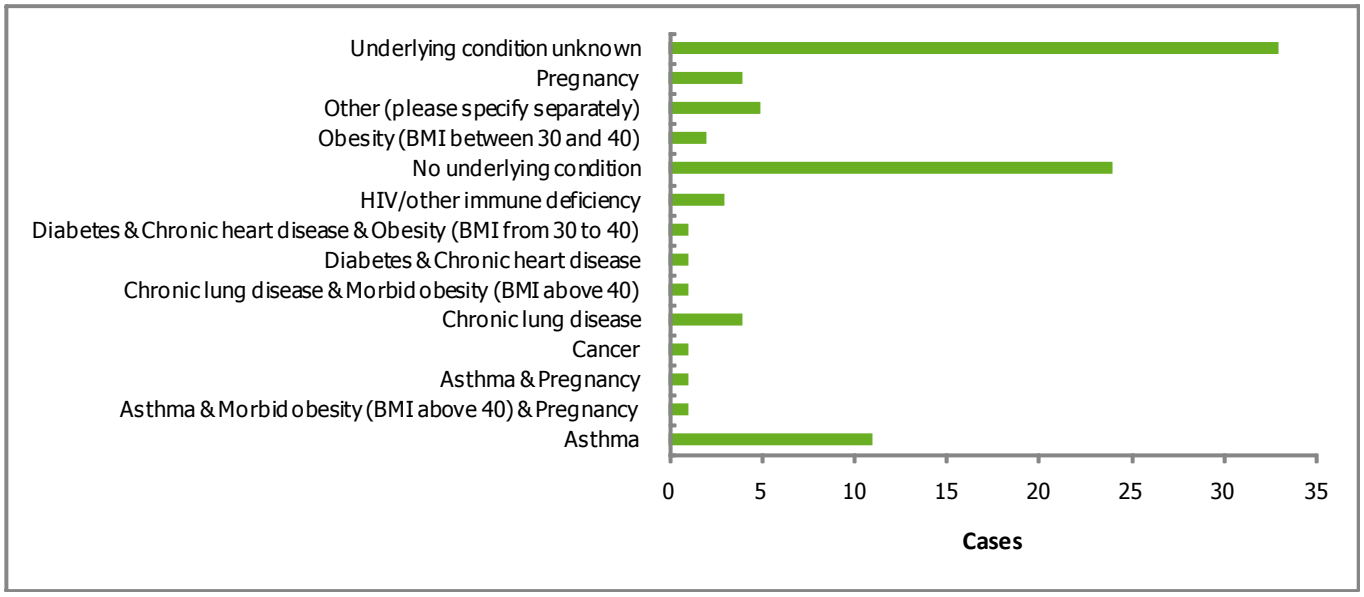


Table 11: Number of SARI cases by underlying condition and age group, in week 45/2009

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		6	6	1	
Cancer				1	
Diabetes					2
Chronic heart disease					2
HIV/other immune deficiency		2		1	
Chronic lung disease	1		2		1
No underlying condition	5	8	4	4	1
Other (please specify separately)		1	1	1	1
Obesity (BMI between 30 and 40)			2		1
Morbid obesity (BMI above 40)			2		
Pregnancy			5		
Underlying condition unknown	6	14	19	4	4

Table 12: Number of SARI cases by complication and age group, in week 45/2009

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			2	1	2
None	7	15	15	3	2
Other (please specify separately)		3		2	1
Pneumonia (secondary bacterial infection)			1	1	1
Unknown	5	13	19	5	4

Table 13: Number of SARI cases by underlying condition by level of care, in week 45/2009

	ICU	Inpatient ward	Other	Unknown
Asthma	5	5		3
Cancer	1			
Diabetes	1			1
Chronic heart disease	1			1
HIV/other immune deficiency	1			2
Chronic lung disease	1	3		
No underlying condition	8	9		5
Other (please specify separately)		3		1
Obesity (BMI between 30 and 40)	2			1
Morbid obesity (BMI above 40)	1			1
Pregnancy	3			2
Underlying condition unknown	16	1	2	28

Table 14: Number of SARI cases by underlying condition and level of respiratory support, in week 45/2009

	Oxygen therapy	Ventilator support provided	Ventilator support necessary but not available	Respiratory support given unknown
Asthma	4			4
Cancer		1		
Diabetes	2			
Chronic heart disease	2			
HIV/other immune deficiency	2	1		
Chronic lung disease		1		
No underlying condition	4	3		5
Other (please specify separately)				
Obesity (BMI between 30 and 40)	1	2		
Morbid obesity (BMI above 40)		1		1
Pregnancy	2			3
Underlying condition unknown	14	5		28

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).