SURVEILLANCE REPORT

Weekly influenza surveillance overview

October 20 2009

Main surveillance developments in week 41/2009

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

- Seven EU countries (Belgium, Ireland, Malta, Spain, Sweden, UK (Northern Ireland and Wales)) are currently reporting influenza intensity activity above baseline levels. This is extraordinary for this period of the year.
- Influenza A(H1N1)v virus continues to account for the majority of virus detections.
- Sixteen countries reported increasing intensity activity as compared to week 40.

Sentinel surveillance of influenza like illness (ILI) / acute respiratory illness (ARI): Ireland and the UK (Northern Ireland) reported high intensity activity and Belgium, Malta, Spain, Sweden and UK (Wales) reported medium intensity activity this week. Belgium, Ireland, the Netherlands and United Kingdom (England and Wales) reported widespread activity. Eleven countries reported increasing intensity activity as compared to week 40. For more information **click here.**

Virological surveillance A total of 1415 sentinel specimens were tested during week 41, of which 28% were positive for influenza virus. All the type A subtyped positive sentinel specimens were identified as influenza virus A(H1N1)v. For more information **click here.**

Aggregate numbers of pandemic H1N1 2009: Nine countries reported 2549 newly diagnosed probable and confirmed cases of influenza A(H1N1)v. For more information **click here.**

Hospital surveillance of severe acute respiratory infection (SARI): Forty-four additional cases were reported during week 41/2009. For more information **click here.**

Qualitative reporting: No qualitative indicator data are available yet given the normal functioning of the routine surveillance systems. For more information **click here.**

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).

Sentinel surveillance (ILI/ARI)

Weekly analysis – epidemiology

For week 41/2009, 24 countries reported epidemiological data. For the intensity activity indicator—national network levels for ILI and/or ARI— Ireland and the UK (Northern Ireland) reported high intensity activity and Belgium, Malta, Spain, Sweden and the UK (Wales) reported medium intensity activity. All other countries reported low intensity.

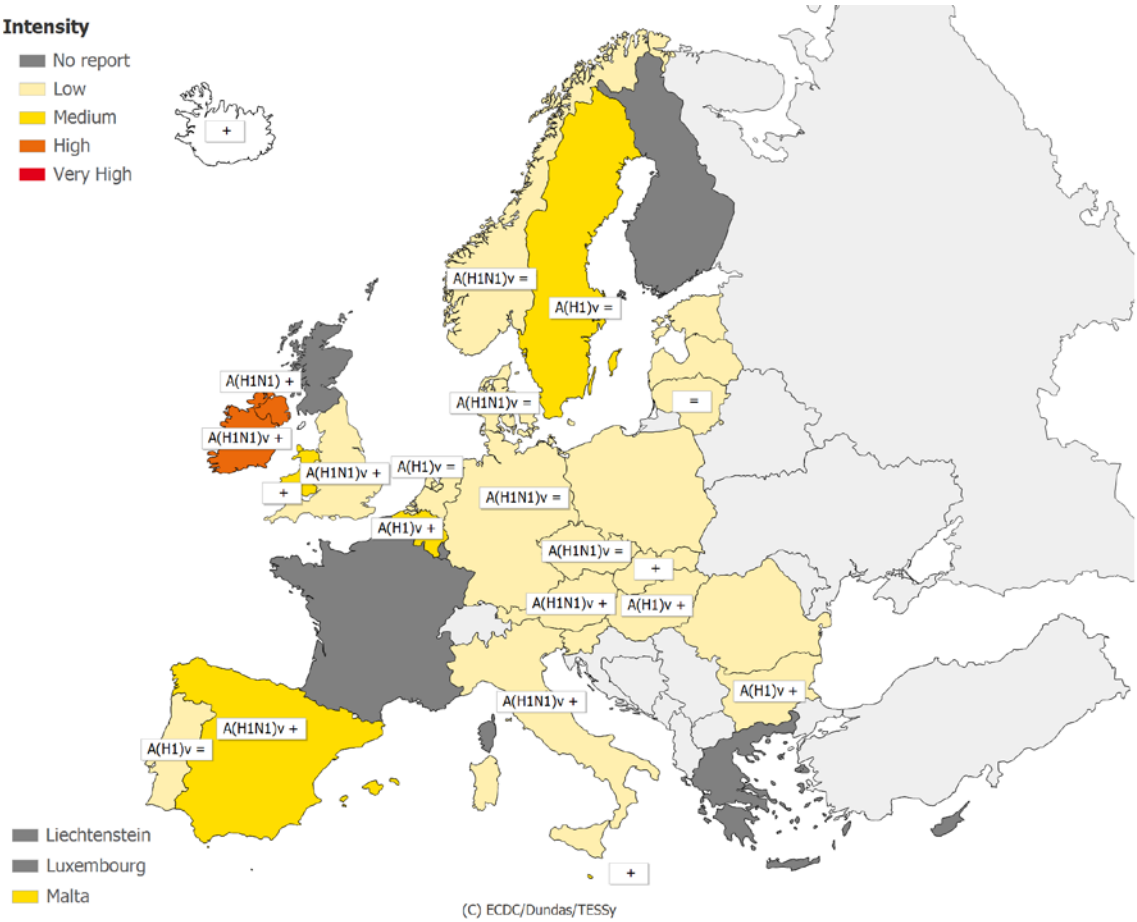
For the geographic spread indicator, Belgium, Ireland, the Netherlands and the UK (England and Wales) reported widespread activity; Austria, Malta, Spain and Sweden reported regional activity; Norway reported local activity and 14 countries reported sporadic or no activity. Sixteen countries reported an increasing trend of influenza activity as compared to week 40.

For the definitions of the intensity and geographic spread indicators, click here.

From week 16/2009 until week 41/2009, influenza activity above baseline levels has been reported in the following locations: the UK (England) reported medium activity in week 26/2009 which rose to high activity in weeks 28–30, then decreased to medium levels in week 32 and to low levels in week 33; Ireland reported medium activity in week 30/2009 which then rose to high levels in week 38/2009; the UK (Northern Ireland) reported medium activity since week 31/2009; Norway reported medium activity in week 34/2009 which then decreased to low levels in week 37; Sweden reported medium activity in week 35/2009 which then decreased to low levels in week 38; Malta reported medium activity since week 36/2009; Belgium and Spain both reported medium activity since week 39/2009.

In most locations where influenza activity rose above baseline levels so far, the most affected age groups are those aged 5–14 and 15–64 years. Data on activity reported in August is, however, difficult to interpret due to summer holidays affecting routine surveillance functions. As of week 40/2009, sentinel systems have started the traditional influenza surveillance season, which will allow for a better comparison with historical data.

Map 1: Intensity for week 41/2009

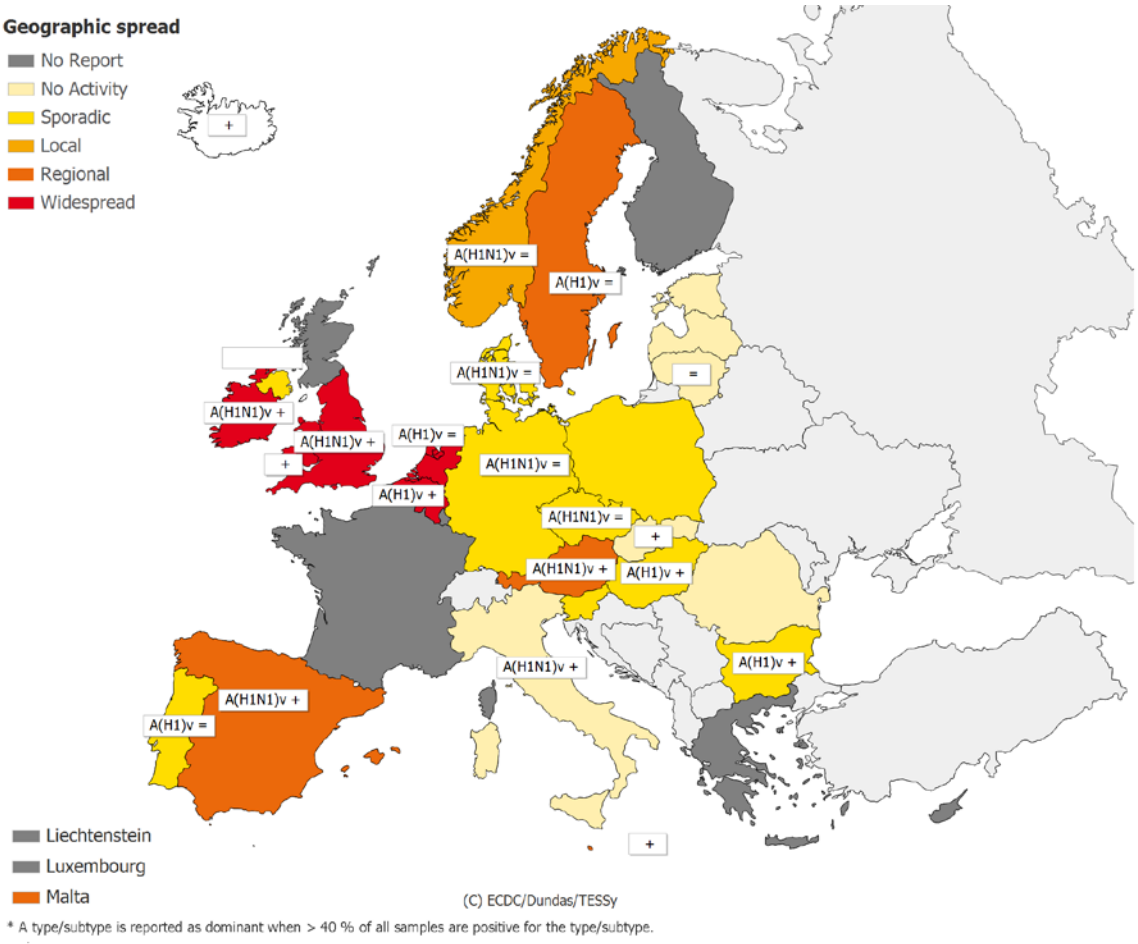


* A type/subtype is reported as dominant when > 40 % of all samples are positive for the type/subtype.

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)	Type A, Subtype H1N1
		A(H1N1)v	Type A, Subtype H1N1v

Map 2: Geographic spread for week 41/2009



* 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)	Type A, Subtype 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	11	A(H1N1)v	0.0	-	6.9	Graphs	Graphs
Belgium	Medium	Widespread	Increasing	253	A(H1)v	36.8	229.3	1750.3	Graphs	Graphs
Bulgaria	Low	Sporadic	Increasing	0	A(H1)v	-	-	740.9	Graphs	Graphs
Czech Republic	Low	Sporadic	Stable	46	A(H1N1)v	2.2	19.9	810.5	Graphs	Graphs
Denmark	Low	Sporadic	Stable	1	A(H1N1)v	100.0	61.0	0.0	Graphs	Graphs
Estonia	Low	No activity	Stable	0	None	-	2.1	262.4	Graphs	Graphs
Germany	Low	Sporadic	Stable	58	A(H1N1)v	17.2	-	1032.6	Graphs	Graphs
Greece				4	None	0.0	-	-	Graphs	Graphs
Hungary	Low	Sporadic	Increasing	41	A(H1)v	14.6	166.0	-	Graphs	Graphs
Iceland	Unknown	Unknown	Increasing	-	-	-	165.7	-	Graphs	Graphs
Ireland	High	Widespread	Increasing	90	A(H1N1)v	36.7	97.1	-	Graphs	Graphs
Italy	Low	No activity	Increasing	0	A(H1N1)v	-	145.6	-	Graphs	Graphs
Latvia	Low	No activity	Increasing	1	None	0.0	0.0	753.4	Graphs	Graphs
Lithuania	Low	No activity	Stable	-	-	-	0.1	424.8	Graphs	Graphs
Malta	Medium	Regional	Increasing	-	-	-	10278.1	-	Graphs	Graphs
Netherlands	Low	Widespread	Stable	33	A(H1)v	15.2	-	-	Graphs	Graphs
Norway	Low	Local	Stable	18	A(H1N1)v	22.2	87.4	-	Graphs	Graphs
Poland	Low	Sporadic	Increasing	30	None	6.7	68.8	-	Graphs	Graphs
Portugal	Low	Sporadic	Stable	2	A(H1)v	0.0	8.4	-	Graphs	Graphs
Romania	Low	No activity	Increasing	37	None	8.1	4.2	869.8	Graphs	Graphs
Slovakia	Low	No activity	Increasing	-	-	-	169.2	1513.5	Graphs	Graphs
Slovenia	Low	Sporadic	Stable	17	None	5.9	5.7	884.4	Graphs	Graphs
Spain	Medium	Regional	Increasing	385	A(H1N1)v	32.5	98.4	-	Graphs	Graphs
Sweden	Medium	Regional	Stable	78	A(H1)v	34.6	8.9	-	Graphs	Graphs
UK - England	Low	Widespread	Increasing	240	A(H1N1)v	21.3	29.1	408.8	Graphs	Graphs
UK - Northern Ireland	High	Sporadic	Increasing	70	A(H1N1)	57.1	222.6	324.0	Graphs	Graphs
UK - Wales	Medium	Widespread	Increasing	-	-	-	62.4	-	Graphs	Graphs
Europe				1415		28.3			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 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 41/2009, 22 countries reported virological data. Sentinel physicians collected 1415 respiratory specimens, of which 402 (28%) were positive for influenza virus (Table 1). In addition, 1095 non-sentinel source specimens (e.g. specimens collected for diagnostic purposes in hospitals) were reported positive for influenza virus. Table 2 shows the distribution of sentinel and non-sentinel specimens by type and subtype; figures 1–3 show the temporal trends. The proportion of positive sentinel specimens passed 25% again, a level seen usually during winter epidemics.

Cumulative characterizations for the 2008/09 season, weeks 40/2008-41/2009

Based on the antigenic and/or genetic characterisation of 6877 influenza viruses reported from week 40/2008 to week 41/2009, 4784 (70%) were reported as A/Brisbane/10/2007 (H3N2)-like, 250 (4%) as A/Brisbane/59/2007 (H1N1)-like, 57 (<1%) as B/Florida/4/2006-like (B/Yamagata/16/88 lineage), 1400 (20%) as B/Malaysia/2506/2004-like or B/Brisbane/60/2008-like (B/Victoria/2/87 lineage) and 386 (6%) as A/California/7/2009 (H1N1)v-like. Figure 4 shows the results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates since week 40/2008.

Among the reported A(H1N1)v viruses tested so far, all were sensitive to oseltamivir and zanamivir but resistant to M2 inhibitors. Reports from other sources confirm that resistance of the A(H1N1)v virus to neuraminidase inhibitors remains very rare.

Table 2: Weekly and cumulative influenza virus detections by type, subtype and surveillance system, weeks 16-41/2009

	Current Week		Season	
Virus type /subtype	Sentinel	Non-sentinel	Sentinel	Non-sentinel
Influenza A	402	1095	3268	24511
A (pandemic H1N1)	371	933	3041	16846
A (subtyping not performed)	29	157	157	7222
A (not subtypable)	2	1	2	32
A (H3)	0	4	50	294
A (H1)	0	0	18	108
Influenza B	0	0	143	364
Total Influenza	**402**	**1095**	**3411**	**24877**

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 16-41/2009

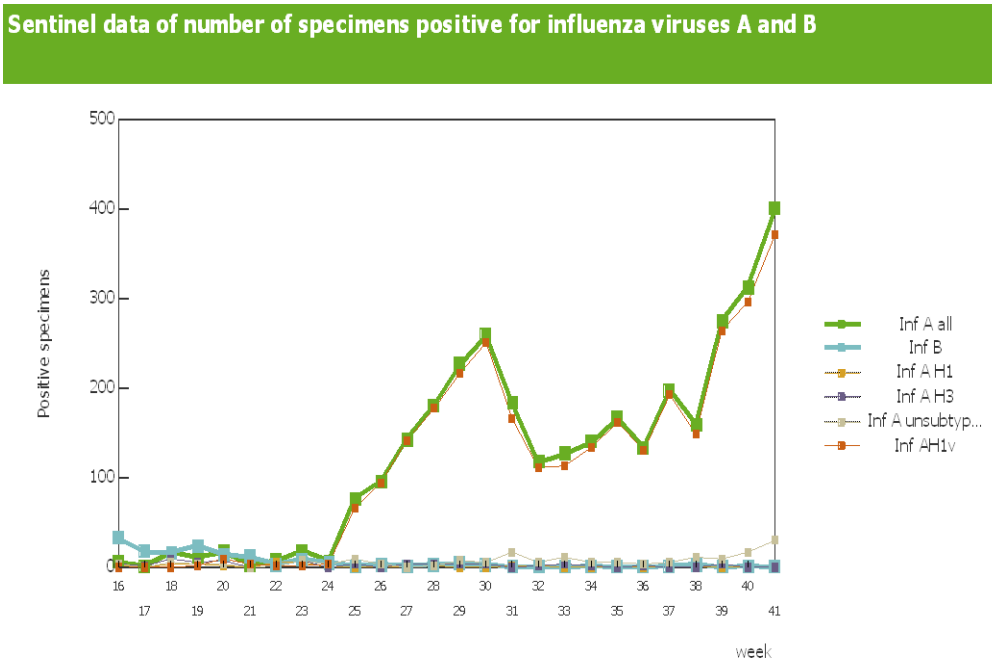


Figure 2: Number of non-sentinel specimens positive for influenza by type, subtype and week of report, weeks 16-41/2009

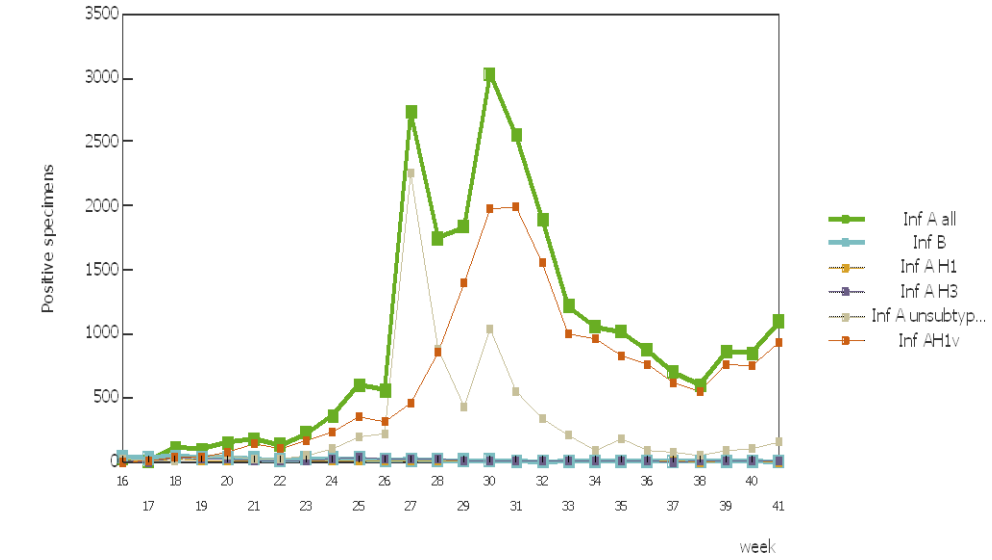


Figure 3: Proportion of sentinel samples positive for influenza, weeks 16-41/2009

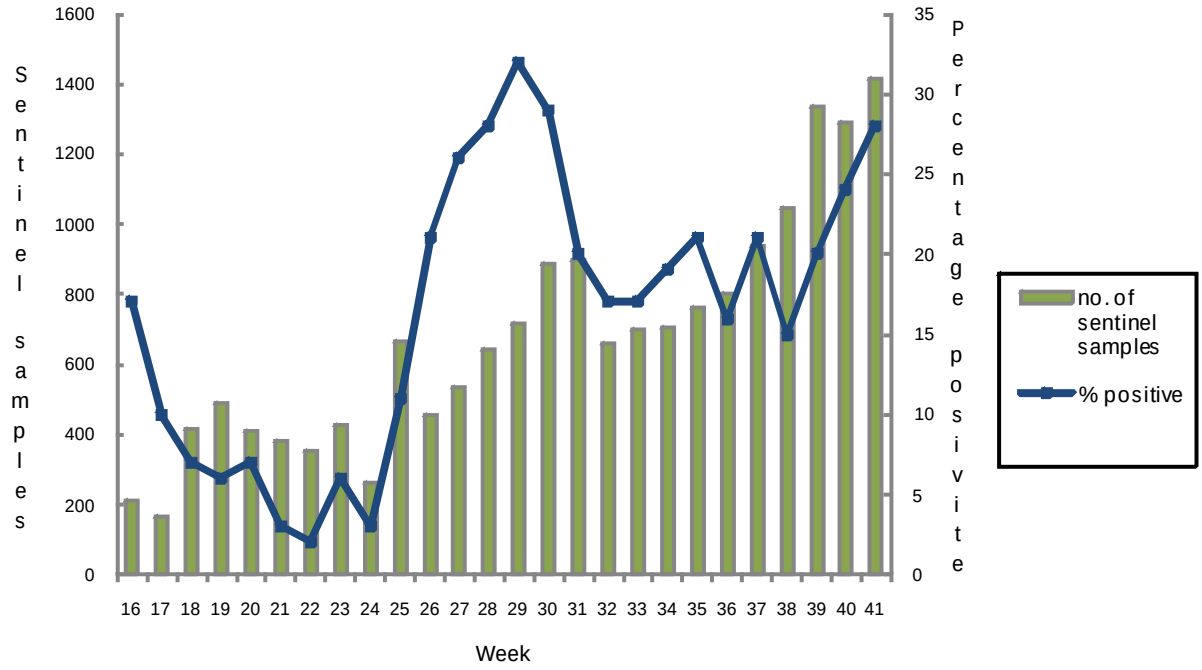


Figure 4: Results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates since week 40, 2008

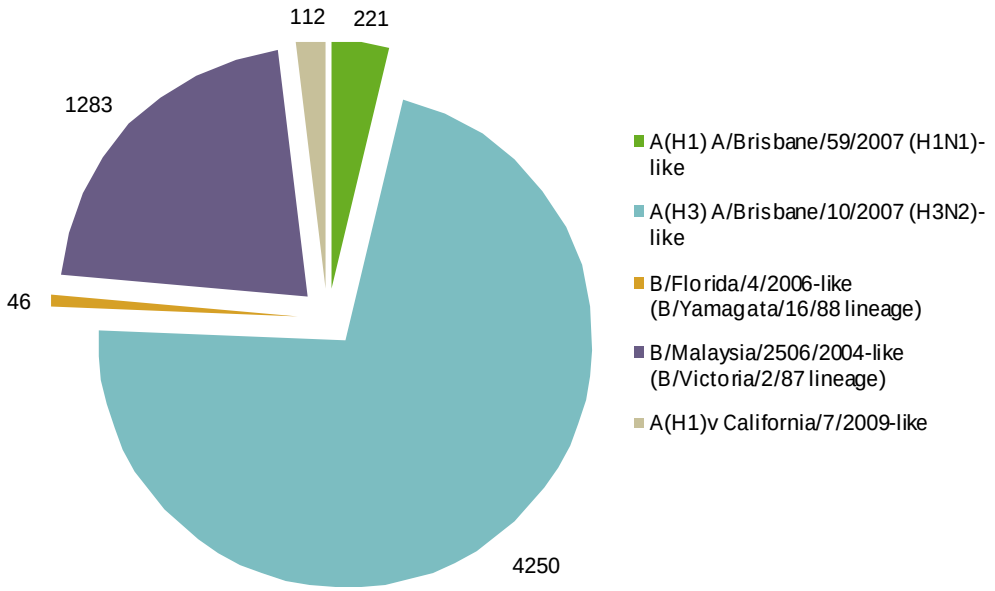


Table 3: Antiviral resistance by influenza virus type and subtype, weeks 40/2008–41/2009

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)	647	0	606	0	703	703 (100%)
A(H1N1)	284	279 (98%)	284	0	131	2 (<1%)
A(H1N1)v	599	0	487	0	110	110 (100%)
B	117	0	113	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.

Aggregate numbers of pandemic (H1N1) 2009 cases and deaths

Weekly analysis — cases and deaths

During week 41/2009, nine countries reported 2549 newly diagnosed probable and confirmed cases of influenza A(H1N1)v . Three deaths were reported by Malta. The cumulative number of reported cases since the April 2009 in EU/EEA Member States totals 47294, of which 63 are known to have died.

Discrepancies with the ECDC daily pandemic A(H1N1) 2009 update are due to unsynchronized reporting related to the ongoing transition to TESSy.

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

	Current week		Cumulate	
Country	Cases	Death	Cases	Death
Austria	-	-	330	0
Belgium	-	-	126	0
Bulgaria	-	-	72	0
Cyprus	-	-	297	0
Czech Republic	5	0	278	0
Denmark	-	-	562	0
Estonia	0	0	68	0
Finland	-	-	222	0
France	-	-	464	0
Germany	-	-	16835	0
Greece	-	-	1839	1
Hungary	-	-	151	1
Iceland	-	-	417	0
Ireland	281	0	1895	4
Italy	1211	0	1829	0
Latvia	-	-	57	0
Lithuania	-	-	51	0
Luxembourg	-	-	0	0
Malta	328	3	718	5
Netherlands	-	-	1121	4
Norway	159	0	1223	2
Poland	1	0	166	0
Portugal	-	-	2624	0
Romania	8	0	549	0
Slovakia	-	-	125	0
Slovenia	-	-	217	0
Spain	-	-	1308	4
Sweden	93	0	1584	2
United Kingdom	463	0	12166	40
Total	**2549**	**3**	**47294**	**63**

Countries shaded with grey are not recommending laboratory tests for all suspect cases, therefore comparisons in time or betw een 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 this data.

Hospital surveillance (SARI)

Weekly analysis – SARI

During week 41/2009, Malta reported 32 cases of SARI and one death among the cases and the Netherlands reported 12 cases of SARI. A total of 63 SARI cases have been reported to date by Malta and the Netherlands. Of the cases reported during week 41/2009, 10 had onset of disease in week 40/2009.

Table 5: Number of SARI cases by week of onset, weeks 27-41/2009

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
Malta			Unknown		32	1
Netherlands			Unknown		31	
Total					63	1

Figure 5: Number of SARI cases by date of onset, weeks 27-41/2009

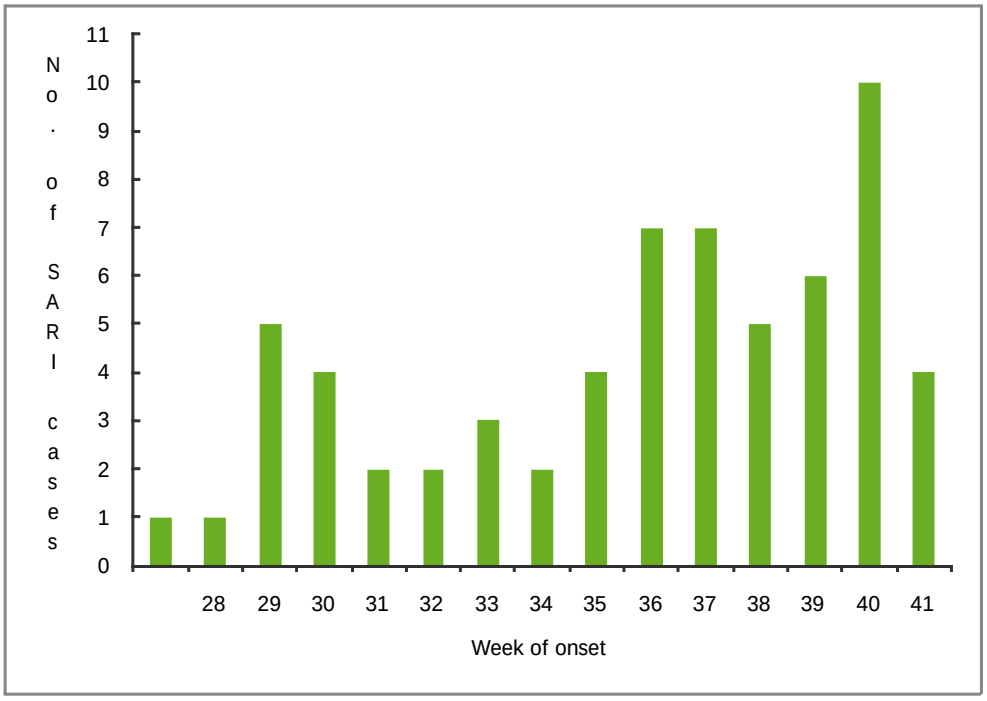


Table 6: Number of SARI cases by influenza type and subtype, weeks 27-41/2009

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		13 (21.3 %)
A (pandemic H1N1)	8 (80.0 %)	42 (68.9 %)
A(subtyping not performed)		13 (21.3 %)
A(H3)		
A(H1)		
A(H5)		
Influenza B		
Unknown	2 (20.0 %)	6 (9.8 %)
Total	10	61

A(pandemic H1N1, A(H3) and A(H1) includes both N-subtyped and not N-subtyped viruses

Table 7: Number of SARI cases by underlying condition and age group, weeks 27-41/2009

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 (25.0%)	
Cancer					1 (50.0%)
Chronic heart disease	1 (100.0%)				
Chronic lung disease		1 (50.0%)		2 (50.0%)	1 (50.0%)
No underlying condition		1 (50.0%)	1 (100.0%)	1 (25.0%)	
Underlying condition unknown				2 (50.0%)	

(1) Without any other underlying condition

Table 8: Number SARI cases by complication and age group, weeks 27-41/2009

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
None		1 (50.0%)	1 (100.0%)	2 (50.0%)	2 (100.0%)
Other (please specify separately)		1 (50.0%)		1 (25.0%)	
Pneumonia (secondary bacterial infection)				1 (25.0%)	
Unknown	1 (100.0%)			2 (50.0%)	

Table 9: Number of SARI by underlying condition by level of care, weeks 27–41/2009

	ICU	Inpatient ward	Other	Unknown
Asthma		1 (14.3%)		
Cancer		1 (14.3%)		
Chronic heart disease	1 (33.3%)			
Chronic lung disease	1 (33.3%)	3 (42.9%)		
No underlying condition	1 (33.3%)	2 (28.6%)		
Underlying condition unknown		2 (28.6%)		

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.