

SURVEILLANCE REPORT

Weekly influenza surveillance overview

11 December 2009

Main surveillance developments in week 49/2009 (30 November — 06 December)

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

- Most countries are witnessing medium influenza intensity with only nine reporting high to very high levels. In the majority of countries activity is widespread.
- Thirteen countries have reported decreasing rates of influenza-like illness for at least the last two weeks.
- The proportion of influenza-positive sentinel samples continues to decline, but A(H1N1)v still accounts for 99% of all subtyped viruses in sentinel patients.
- Oseltamivir resistance was found in one percent of influenza pandemic viruses tested in the countries reporting to EISN.

Sentinel surveillance of influenza like-illness (ILI)/ acute respiratory illness (ARI): In week 49/2009, Lithuania reported very high intensity. Estonia, Greece, Latvia, Luxembourg, Norway, Poland, Slovenia and Sweden reported high intensity and the remaining 17 countries reported medium intensity. Twenty-four countries indicated a stable or decreasing trend. For more information, [click here](#).

Virological surveillance: Sentinel physicians collected 2620 respiratory specimens, of which 835 (32%) were positive for influenza virus. This represents a decrease of 17% compared to the peak (49%) in week 44. Of the 12 555 viruses detected by sentinel networks since week 40/2009, 12 452 (99%) were A(H1N1)v. For more information, [click here](#).

Aggregate numbers of pandemic H1N1 2009 deaths: For more information, [click here](#).

Hospital surveillance of severe acute respiratory infection (SARI): Of the 102 SARI cases reported in week 49/2009, 31 (30%) required ICU admission and 8 (8%) ventilatory support. Twenty SARI cases (20%) had no underlying condition. For more information, [click here](#).

Qualitative reporting: For more information, [click here](#).

Sentinel surveillance (ILI/ARI)

Weekly analysis – epidemiology

In week 49/2009, 26 countries reported epidemiological data. For the activity intensity indicator—a comparison with baseline national network levels for ILI and/or ARI—Lithuania reported very high intensity. Estonia, Greece, Latvia, Luxembourg, Norway, Poland, Slovenia and Sweden reported high intensity and the remaining 17 countries reported medium intensity.

For the geographic spread indicator, 17 countries (Belgium, Denmark, Estonia, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, Slovenia and Sweden) reported widespread activity. Five countries and the UK (England and Scotland) reported regional activity, three reported local activity, and the UK (Northern Ireland) reported sporadic activity.

For the trend indicator, two countries reported increasing activity, 17 countries and the UK (England and Northern Ireland) reported decreasing activity. Six countries and the UK (Scotland) reported stable activity. For definitions of the intensity and geographic spread indicators, [click here](#).

Since week 40/2009, all of the countries reporting data to EISN have experienced influenza activity above baseline levels. Thirteen countries (Belgium, Bulgaria, Denmark, Germany, Iceland, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden and the UK (Northern Ireland and Scotland)) have observed decreasing ILI/ARI rates for at least the last two weeks, with Belgium, Iceland, Ireland and the UK (Scotland) reaching levels below those registered in week 40.

During the 2009/10 season, most countries started to report influenza activity above baseline levels earlier than in recent seasons. In addition, peak incidence of ILI and/or ARI have generally been higher this season. In all countries collecting information on the age of the patients, individuals younger than 15 years are the most affected age group.

Map 1: Intensity for week 49/2009



* 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 49/2009

Geographic spread

- No Report
- No Activity
- Sporadic
- Local
- Regional
- Widespread



- Liechtenstein
- Luxembourg
- Malta

(C) ECDC/Dundas/TESSy

* 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(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	Decreasing	42	A(H1N1)v	64.3	-	33.4	Graphs	Graphs
Belgium	Medium	Widespread	Decreasing	64	A(H1)v	35.9	158.4	1327.0	Graphs	Graphs
Bulgaria	Medium	Local	Decreasing	0	A(H1)v	-	-	830.1	Graphs	Graphs
Cyprus				0	-	-	-	-		
Czech Republic	Medium	Regional	Stable	42	A(H1)v	71.4	305.1	1548.7	Graphs	Graphs
Denmark	Medium	Widespread	Decreasing	7	A(H1)v	0.0	218.1	0.0	Graphs	Graphs
Estonia	High	Widespread	Stable	105	A(H1N1)v	27.6	66.5	806.8	Graphs	Graphs
Finland				0	-	-	-	-		
France	Medium	Widespread	Stable	0	-	-	-	3117.1	Graphs	Graphs
Germany	Medium	Widespread	Decreasing	179	A(H1N1)v	47.5	-	1240.7	Graphs	Graphs
Greece	High	Widespread	Stable	62	A(H1N1)v	83.8	394.7	-	Graphs	Graphs
Hungary	Medium	Widespread	Increasing	121	A(H1)v	54.6	429.5	-	Graphs	Graphs
Iceland	Medium	Local	Decreasing	23	None	4.4	31.6	-	Graphs	Graphs
Ireland	Medium	Regional	Decreasing	41	A(H1N1)v	22.0	60.4	-	Graphs	Graphs
Italy	Medium	Widespread	Decreasing	47	A(H1N1)v	19.2	373.1	-	Graphs	Graphs
Latvia	High	Widespread	Decreasing	0	A(H1)v	-	207.4	1508.4	Graphs	Graphs
Lithuania	Very High	Widespread	Decreasing	37	A(H1)v	48.7	275.2	1165.5	Graphs	Graphs
Luxembourg	High	Widespread	Decreasing	71	A(H1)v	31.0	5532.8	16393.4	Graphs	Graphs
Malta				0	-	-	-	-		
Netherlands	Medium	Widespread	Decreasing	30	A(H1)v	23.3	61.0	-	Graphs	Graphs
Norway	High	Widespread	Decreasing	22	A(H1N1)v	40.9	195.9	-	Graphs	Graphs
Poland	High	Widespread	Decreasing	237	A(H1)v	23.2	290.3	-	Graphs	Graphs
Portugal	Medium	Widespread	Stable	18	A(H1)v	38.9	68.0	-	Graphs	Graphs
Romania	Medium	Regional	Decreasing	68	A(H1N1)v	41.2	7.1	1168.4	Graphs	Graphs
Slovakia	Medium	Local	Increasing	14	A(H1)v	50.0	440.6	2162.1	Graphs	Graphs
Slovenia	High	Widespread	Stable	52	A(H1)v	65.4	211.8	1488.7	Graphs	Graphs
Spain	Medium	Regional	Decreasing	416	A(H1N1)v	29.1	150.9	-	Graphs	Graphs
Sweden	High	Widespread	Decreasing	55	A(H1)v	14.6	9.2	-	Graphs	Graphs
UK - England	Medium	Regional	Decreasing	514	A(H1N1)v	26.3	33.1	464.0	Graphs	Graphs
UK - Northern Ireland	Medium	Sporadic	Decreasing	11	A(H1N1)v	18.2	74.9	437.6	Graphs	Graphs
UK - Scotland	Medium	Regional	Stable	342	A(H1N1)v	21.4	20.2	344.8	Graphs	Graphs
UK - Wales				0	-	-	-	-		
Europe				2620		31.9				Graphs

Description of the system

This surveillance is based on nationally organized sentinel networks of physicians, mostly general practitioners (GPs), covering at least 1 to 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 the national level are also reported.

Virological surveillance

Weekly analysis – virology

In week 49/2009, 25 countries reported virological data. Sentinel physicians collected 2620 respiratory specimens, of which 835 (32%) were positive for influenza virus (Tables 1 & 2). This represents a decrease of 17% compared to the peak (49%) observed in week 44. In addition, 4673 non-sentinel source specimens (e.g. specimens collected for diagnostic purposes in hospitals) were reported positive for influenza virus, representing a 63% decrease since a peak (12 520) in week 46 and suggesting a declining number of hospitalised influenza cases. Of the 12 555 viruses detected by sentinel networks and subtyped since week 40/2009, 12 452 (99%) were A(H1N1)v. Table 2 shows the distribution of sentinel and non-sentinel specimens by type and subtype; Figures 1–3 show the temporal trends of virological detections.

Based on the antigenic and/or genetic characterisation of 562 influenza viruses reported from week 40/2009 to week 49/2009, 558 (99%) were reported as A/California/7/2009 (H1N1)v-like and four (<1%) as A/Brisbane/10/2007 (H3N2)-like. Figure 4 shows the results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates since week 40/2009.

All influenza A(H1N1)v viruses tested so far have been resistant to M2 inhibitors. Oseltamivir resistance was detected in 13 of the 913 viruses tested and reported to EISN so far, whereas resistance to zanamivir was not detected in any of the 291 strains tested (Table 3).

Specimens have been tested for respiratory syncytial virus (RSV) in 11 countries reporting to EISN. Overall RSV detections are increasing (Figure 5) as expected at this time of the year and countries should be on the alert for this virus.

Table 2: Weekly and cumulative influenza virus detections by type, subtype and surveillance system, weeks 40/2009–49/2009

Virus type/subtype	Current Week		Season	
	Sentinel	Non-sentinel	Sentinel	Non-sentinel
Influenza A	833	4669	13148	60901
A (pandemic H1N1)	771	3946	12452	50967
A (subtyping not performed)	52	718	593	9469
A (not subtypable)	0	0	50	278
A (H3)	0	2	4	32
A (H1)	10	3	49	155
Influenza B	2	4	45	61
Total Influenza	835	4673	13193	60962

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 40/2009–49/2009

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

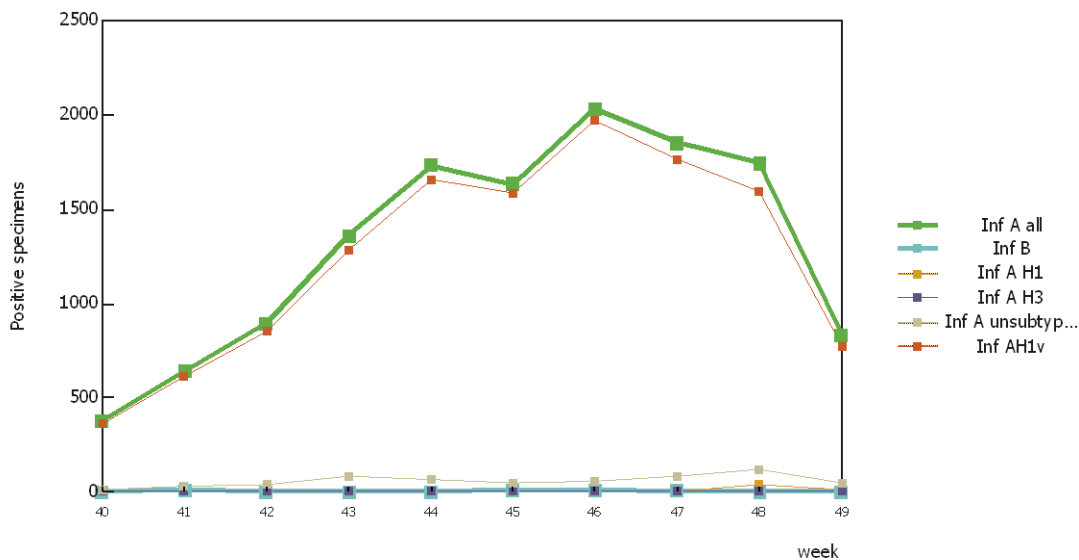


Figure 2: Number of non-sentinel specimens positive for influenza by type, subtype and week of report, weeks 40/2009–49/2009

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

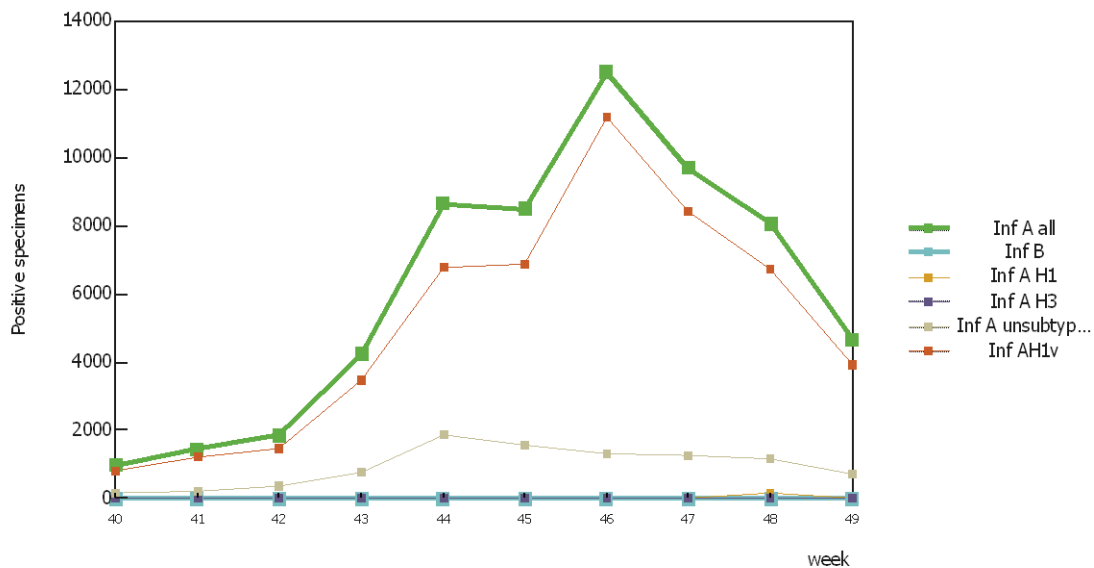


Figure 3: Proportion of sentinel samples positive for influenza, weeks 40/2009–49/2009

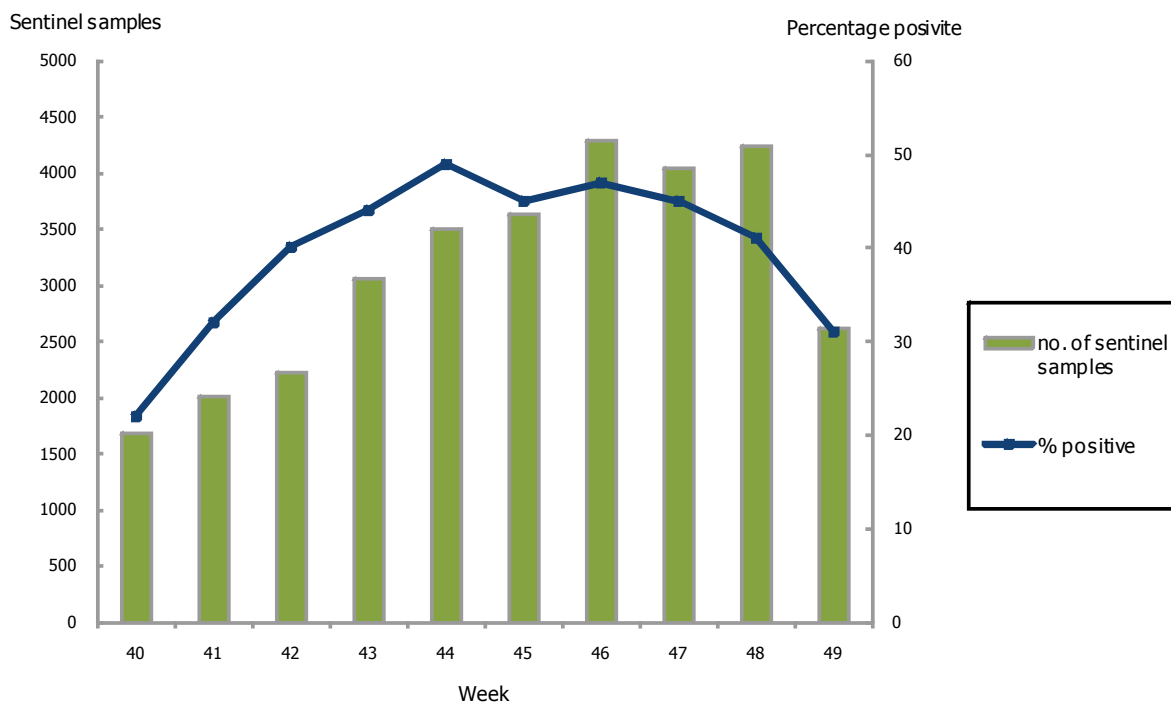


Figure 4: Results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates since week 40/2009

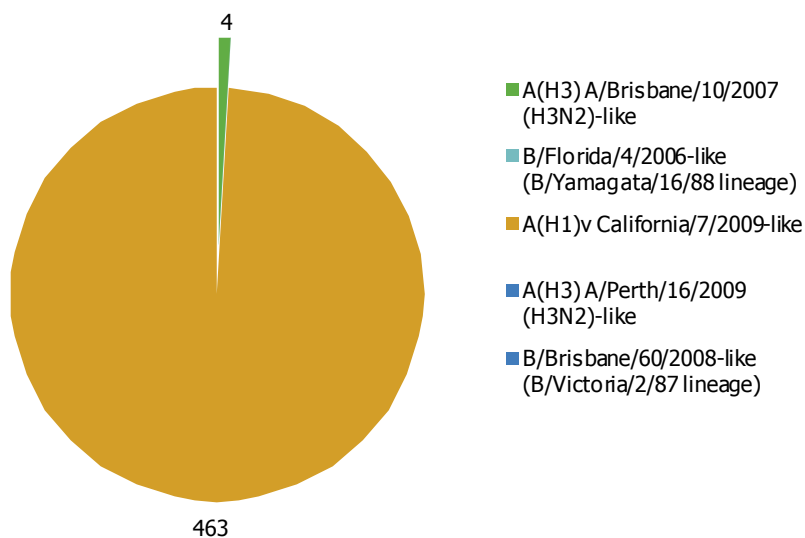
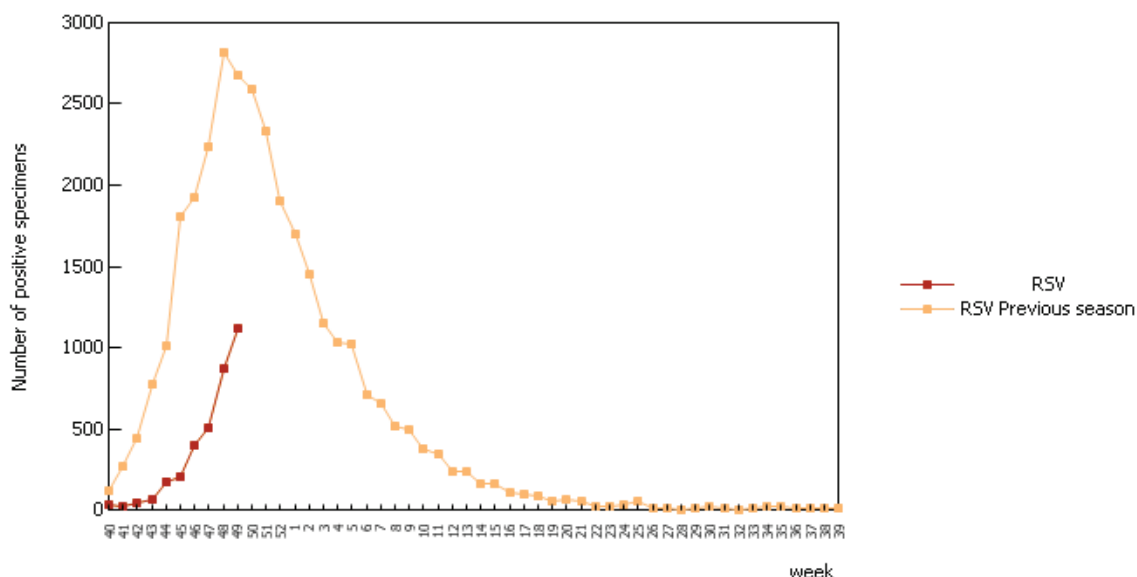


Table 3: Antiviral resistance by influenza virus type and subtype, weeks 40/2009–49/2009

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	913	13 (1%)	291	0	64	64 (100%)
B	0	0	0	0		

Figure 5: Respiratory syncytial virus (RSV) detections (sentinel and non-sentinel), weeks 40/2009–49/2009



Comments on virological data provided by countries in week 49/2009

The Netherlands By week 50 in the Netherlands, 11 patients were diagnosed with a mixture of oseltamivir resistant and wild-type A(H1N1)v influenza viruses in one respiratory specimen during oseltamivir therapy, indicating resistance emerged during therapy and not by infection with a resistant virus. Nine of the patients were immunosuppressed due to chemotherapy/immunosuppressive therapy, of which four died. Contact tracing identified no cases of onward transmission of the oseltamivir-resistant viruses.

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

In week 49/2009, 11 countries reported 86 new deaths. Since the beginning of the pandemic, 611 deaths have been reported.

Table 4: Aggregate numbers of pandemic H1N1 2009 deaths

Country	Deaths reported in week 49	Cumulative deaths since start of season
Austria	-	0
Belgium	-	0
Bulgaria	0	29
Cyprus	-	0
Czech Republic	15	27
Denmark	-	0
Estonia	1	3
Finland	-	0
France	-	92
Germany	13	94
Greece	17	33
Hungary	10	23
Iceland	0	2
Ireland	0	19
Italy	-	1
Latvia	-	10
Lithuania	4	6
Luxembourg	-	1
Malta	0	3
Netherlands	10	47
Norway	2	27
Poland	-	9
Portugal	-	0
Romania	9	12
Slovakia	-	0
Slovenia	5	10
Spain	-	4
Sweden	0	17
United Kingdom	0	142
Total	86	611

Countries shaded with grey are not recommending laboratory tests for all suspect cases, therefore comparisons in time or between 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. As countries are retrospectively updating their weekly numbers of deaths and the system calculates the cumulative values based on the current status, weekly numbers of deaths published in previous WISO editions may not always add up to the cumulative totals.

Hospital surveillance – severe acute respiratory infection (SARI)

Weekly analysis – SARI

During week 49/2009, 102 SARI cases were reported of whom 17 had symptom onset during the same week. Since the beginning of this surveillance, seven EU countries have reported 2539 SARI cases including 107 fatalities (Table 5).

Of the 102 SARI cases reported in week 49, 31 (30%) required ICU admission and 8 (8%) ventilatory support (Table 9). Twenty SARI cases (20%) had no underlying condition (Figure 7).

Detailed information on SARI cases reported during week 49 is described in Tables 6–12.

Table 5: Cumulative number of SARI cases, weeks 40/2009 – week 49/2009

Country	Number of SARI cases	Incidence of SARI cases per 100 000 population	Number of fatal cases reported	Incidence of fatal cases per 100 000 population	Estimated population covered
Austria	9		9		
Belgium	1445	13.5			10666866
Cyprus	9		1		
France	469		71		
Malta	28	6.8			413609
Netherlands	524	3.2	23	0.1	16521505
Romania	55	4.3	3	0.2	1268418
Total	2539	15.4	107	0.1*	16521505

*Based only on data from the Netherlands and Romania

Figure 6: Number of SARI cases by week of onset, week 49/2009

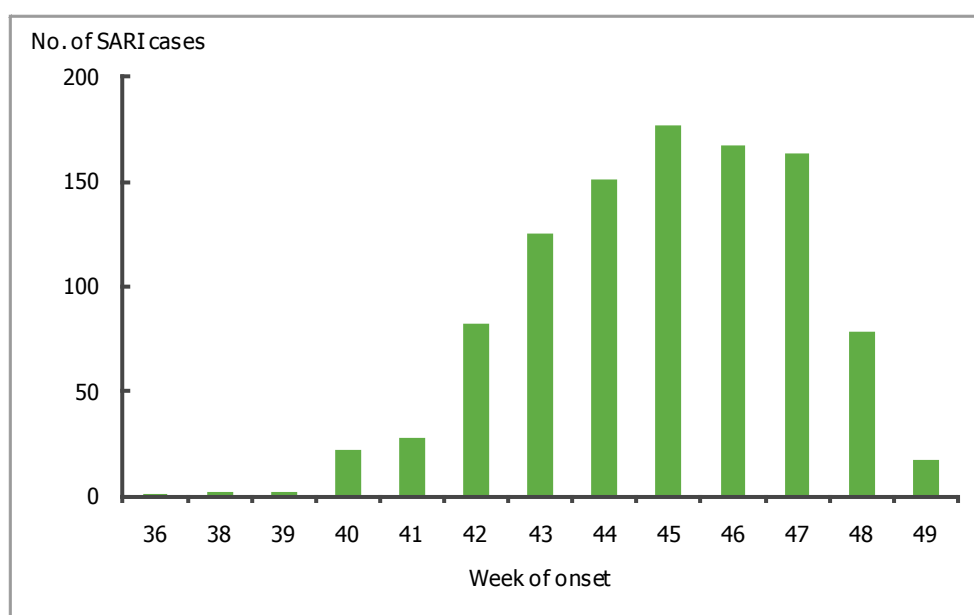


Table 6: Number of SARI cases by age and gender, week 49/2009

Age groups	Male	Female	Other (e.g., transsexual)	Unknown
Under 2	2	2		15
2-17	4	3		11
18-44	5	15		5
45-59	9	13		3
>=60	8	3		4
Total	28	36		38

Table 7: Number of SARI cases by influenza type and subtype, week 49/2009

Virus type/subtype	Number of cases during current week	Cumulative number of cases since the start of the season
Influenza A	54	1040
A (pandemic H1N1)	51	1022
A(subtyping not performed)	2	5
A(H3)		
A(H1)	1	13
A(H5)		
Influenza B		
Unknown	48	1499
Total	102	2539

Table 8: Number of SARI cases by antiviral treatment, week 49/2009

Antiviral treatment	Number of patients who received prophylaxis	Number of patients who received anti-viral treatment
Oseltamivir		27
Oseltamivir and Zanamivir		8
Unknown	76	52
None	26	15
Total	102	102

Table 9: Number of SARI cases by level of care and respiratory support, week 49/2009

Respiratory support	ICU	Inpatient ward	Other	Unknown
No respiratory support necessary	3	18		
Oxygen therapy	18	12		1
Respiratory support given unknown	3		1	38
Ventilator	7	1		

Table 10: Number of SARI cases by vaccination status, in week 49/2009

Vaccination Status	Number Of Cases	Percentage of cases
Both, seasonal and pandemic vaccination	4	3.9
Not full pandemic vaccination	0	0
Not vaccinated	36	35.3
Pandemic vaccination	6	6
Seasonal vaccination	14	13.7
Unknown	42	41
TOTAL	102	

Figure 7: Number of SARI cases by underlying condition, in week 49/2009

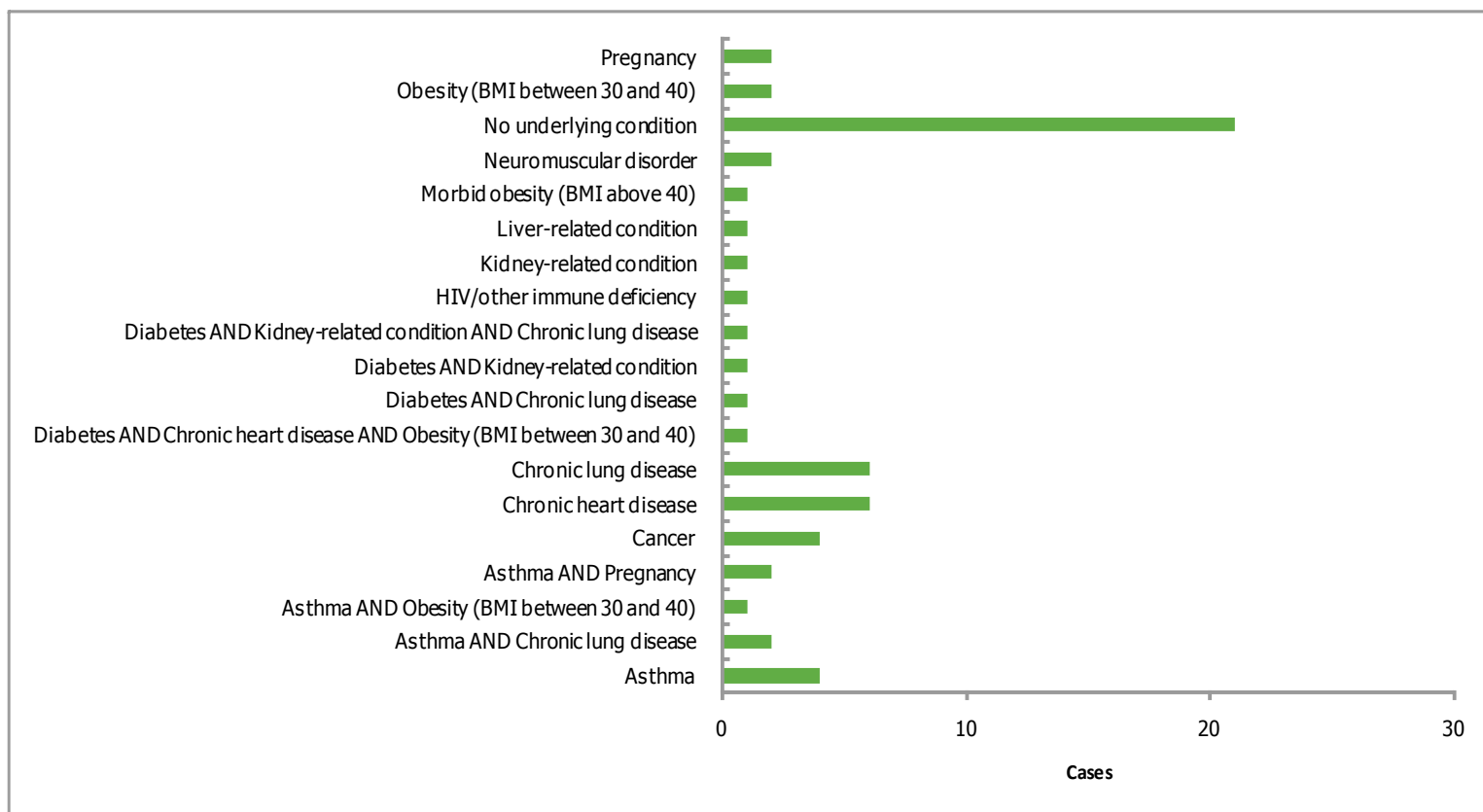


Table 11: Number of underlying conditions in SARI cases by age group, in week 49/2009

Underlying condition/risk factor	Infants below 2 years	2-17 years	18-44 years	45-59 years	>=60 years
Asthma			3	3	1
Cancer				3	1
Diabetes			1	3	1
Chronic heart disease	1		1	5	3
HIV/other immune deficiency				1	
Kidney-related condition			1	1	1
Liver-related condition				1	
Chronic lung disease		1		3	5
Neuromuscular disorder			1		1
No underlying condition	3	4	9	4	
Obesity (BMI between 30 and 40)				3	
Morbid obesity (BMI above 40)			1		
Pregnancy			3		
Underlying condition unknown	15	13	6	4	4

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

Table 12: Additional clinical complications in SARI cases by age group, in week 49/2009

Additional clinical complications	Infants below 2 years	2-17 years	18-44 years	45-59 years	>=60 years
Acute respiratory distress syndrome	1		8	7	3
Bronchiolitis	1				
None	2	3	1	3	2
Other (please specify separately)			3	1	1
Pneumonia (secondary bacterial infection)		1	2	3	2
Sepsis/Multi-organ failure				1	
Unknown	15	14	11	10	7

Note: One case can have more than one complication.

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).

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