SURVEILLANCE REPORT

Weekly influenza surveillance overview

29 April 2011

Main surveillance developments in week 16/2011 (18 – 24 Apr 2011)

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

- The influenza activity of the 2010-11 season is now drawing to a close in European countries.
- For week 16/2011, all 23 countries reporting influenza intensity experienced low activity. Lithuania and the UK (Northern Ireland) reported increasing trends, while 21 countries and the UK (England and Scotland) reported decreasing or unchanging trends.
- During week 16/2011, of four influenza viruses detected in sentinel specimens, three were influenza B and one was influenza A. For more than a month, influenza B viruses have been detected more frequently than influenza A viruses.
- Two countries reported a total of nine hospitalised cases with a severe acute respiratory infection, of which two were due to influenza infection.

Sentinel surveillance of influenza-like illness (ILI)/ acute respiratory infection (ARI): Low influenza activity was reported by 23 countries. Lithuania and the UK (Northern Ireland) reported increasing trends, while 21 countries and the UK (England and Scotland) reported decreasing or unchanging trends. For more information, **click here**.

Virological surveillance: In week 16/2011, 63 influenza viruses were detected in sentinel and non-sentinel specimens, 22 (35%) were type A and 41 (65%) were type B. The latter virus type was reported as dominant or co-dominant with A(H1N1)2009 virus in three countries. For more information, **click here**.

Hospital surveillance of severe acute respiratory infection (SARI): Two countries reported a total of nine SARI cases, of which two were due to influenza virus infection. For more information, **click here**.

Sentinel surveillance (ILI/ARI)

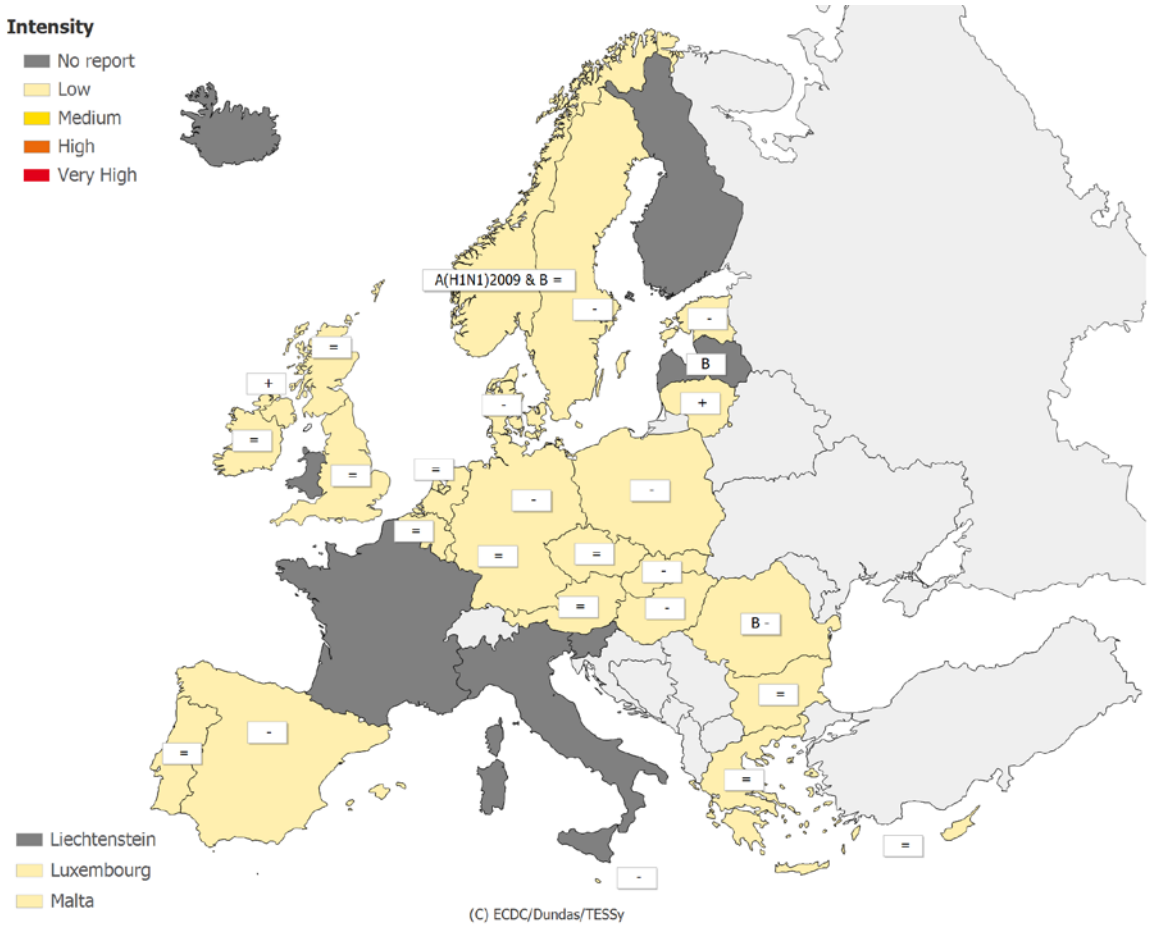
Weekly analysis – epidemiology

During week 16/2011, 23 countries reported intensity data and all of them reported low influenza activity (Table 1, Map 1).

For the geographical spread indicator, 23 countries reported (Table 1, Map 2). Local activity was reported by Lithuania and sporadic activity was reported by 12 countries, including the UK (England only). Ten countries, and the UK (Northern Ireland and Scotland), notified no activity: this is seven more than in the previous week.

Lithuania and the UK (Northern Ireland) reported increasing trends, while 21 countries and the UK (England and Scotland) reported decreasing or unchanging trends (Table 1, Map 2).

Map 1: Intensity for week 16/2011

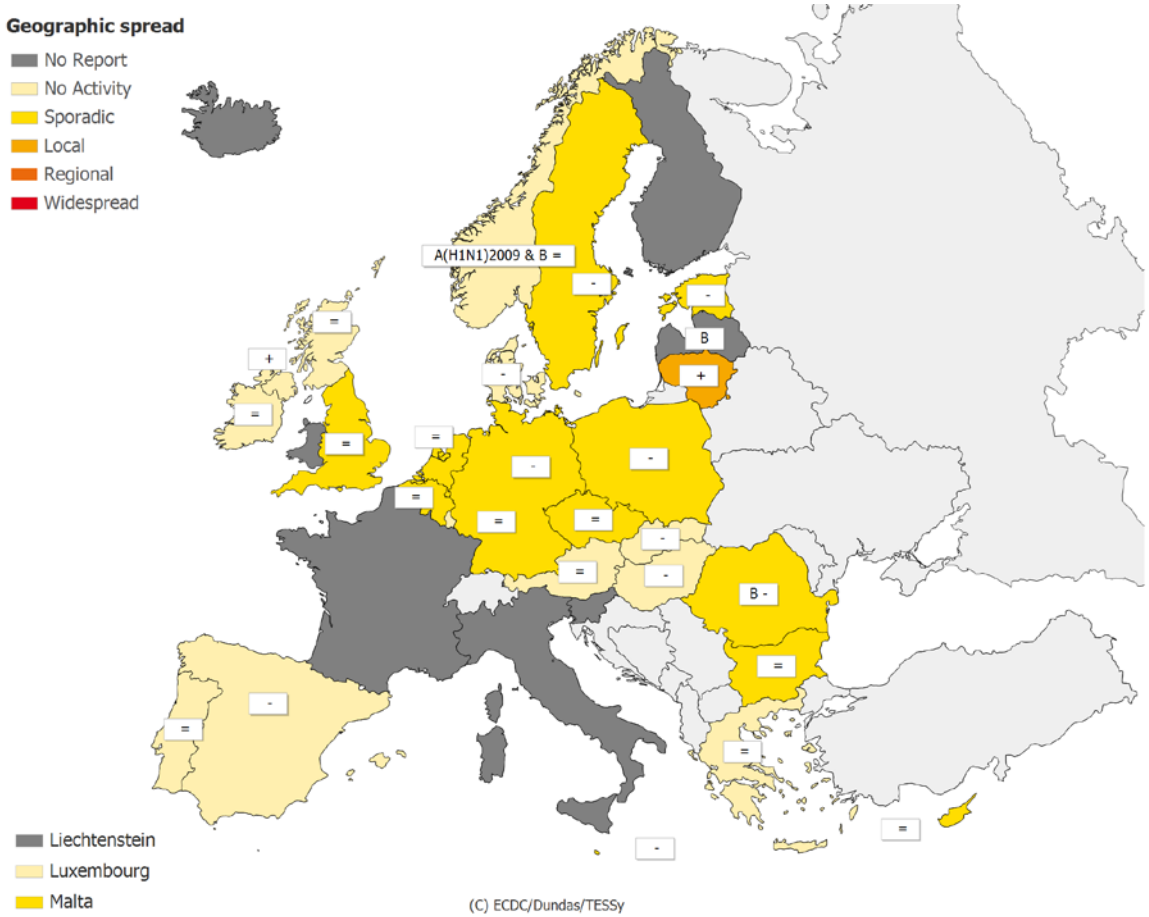


* A type/subtype is reported as dominant when > 40 % of all samples are positive for the type/subtype.

Legend:

No report	Intensity level was not reported	**+**	Increasing clinical activity
Low	No influenza activity or influenza at baseline levels	**-**	Decreasing clinical activity
Medium	Usual levels of influenza activity	**=**	Stable clinical activity
High	Higher than usual levels of influenza activity	**A(H1N1) 2009 & B**	Type B and Type A, Subtype (H1N1)2009
Very high	Particularly severe levels of influenza activity	**B**	Type B

Map 2: Geographic spread for week 16/2011



* A type/subtype is reported as dominant when at least ten samples have been detected as influenza positive in the country and of those > 40 % are positive for the type/subtype.

Legend:

No report	Activity level was not reported
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)

+	Increasing clinical activity
-	Decreasing clinical activity
=	Stable clinical activity
A(H1N1) 2009 & B	Type B and Type A, Subtype (H1N1)2009
B	Type B

Table 1: Epidemiological and virological overview by country, week 16/2011

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	No activity	Stable	0	None	0.0	-	-	Graphs	Graphs
Belgium	Low	Sporadic	Stable	5	None	0.0	7.0	1125.6	Graphs	Graphs
Bulgaria	Low	Sporadic	Stable	-	None	0.0	-	407.2	Graphs	Graphs
Cyprus	Low	Sporadic	Stable	-	-	0.0	-*	-*	Graphs	Graphs
Czech Republic	Low	Sporadic	Stable	-	-	0.0	18.2	679.7	Graphs	Graphs
Denmark	Low	No activity	Decreasing	1	None	0.0	4.0	-	Graphs	Graphs
Estonia	Low	Sporadic	Decreasing	15	None	6.7	6.8	252.5	Graphs	Graphs
Finland				-	-	0.0	-	-		
France				-	-	0.0	-	-		
Germany	Low	Sporadic	Decreasing	8	None	0.0	-	485.0	Graphs	Graphs
Greece	Low	No activity	Stable	-	-	0.0	37.0	-	Graphs	Graphs
Hungary	Low	No activity	Decreasing	8	None	0.0	26.1	-	Graphs	Graphs
Iceland				0	-	0.0	-	-	Graphs	Graphs
Ireland	Low	No activity	Stable	1	None	0.0	3.1	-	Graphs	Graphs
Italy				7	None	0.0	-	-	Graphs	Graphs
Latvia				0	B	0.0	-	-	Graphs	Graphs
Lithuania	Low	Local	Increasing	0	None	0.0	1.9	291.2	Graphs	Graphs
Luxembourg	Low	No activity	Stable	1	-	0.0	-*	-*	Graphs	Graphs
Malta	Low	Sporadic	Decreasing	-	None	0.0	-*	-*	Graphs	Graphs
Netherlands	Low	Sporadic	Stable	4	None	0.0	10.2	-	Graphs	Graphs
Norway	Low	No activity	Stable	0	A(H1N1)2009 & B	0.0	11.7	-	Graphs	Graphs
Poland	Low	Sporadic	Decreasing	0	None	0.0	19.6	-	Graphs	Graphs
Portugal	Low	No activity	Stable	0	None	0.0	0.0	-	Graphs	Graphs
Romania	Low	Sporadic	Decreasing	6	B	50.0	2.2	618.0	Graphs	Graphs
Slovakia	Low	No activity	Decreasing	2	None	0.0	96.6	1152.6	Graphs	Graphs
Slovenia				0	None	0.0	-	-	Graphs	Graphs
Spain	Low	No activity	Decreasing	8	None	0.0	3.0	-	Graphs	Graphs
Sweden	Low	Sporadic	Decreasing	0	None	0.0	2.7	-	Graphs	Graphs
UK - England	Low	Sporadic	Stable	3	None	0.0	3.0	292.1	Graphs	Graphs
UK - Northern Ireland	Low	No activity	Increasing	0	-	0.0	13.4	341.9	Graphs	Graphs
UK - Scotland	Low	No activity	Stable	6	None	0.0	5.9	209.4	Graphs	Graphs
UK - Wales				-	-	0.0	-	-		
Europe				75		5.3				Graphs

**Incidence per 100 000 is not calculated for these countries as no population denominator is provided.*
Note: Liechtenstein is not reporting to the European Influenza Surveillance Network

Description of the system

Surveillance is based on nationally organised 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 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 16/2011, 24 countries reported virological data. Sentinel physicians collected 75 specimens, of which four (5.3%) tested positive for influenza virus.

For the sixth consecutive week, the number of influenza B virus detections was higher than that for influenza A viruses. Of the 63 influenza viruses detected during week 16/2011 in sentinel and non-sentinel specimens, 22 (35%) were type A and 41 (65%) were type B. Due to the low number of influenza virus detections, only three countries reported either a dominant type or co-dominant types. In these countries, influenza B virus was reported as dominant or co-dominant with A(H1N1)2009 virus.

Since week 40/2010, of 56 810 influenza detections in sentinel and non-sentinel specimens, 37 746 (66.4%) have been influenza A and 19 064 (33.6%) influenza B viruses. Of 27 210 influenza A viruses sub-typed, 26 519 (97.5%) were A(H1)2009, and 691 (2.5%) were A(H3) viruses (Table 2). Trends in virological detections since week 40/2010 are shown in Figures 1 to 3.

Since week 40/2010, 4 411 influenza viruses from sentinel and non-sentinel specimens have been characterised antigenically (Figure 4): 2210 as A/California/7/2009 (H1N1)-like; 1880 as B/Brisbane/60/2008-like (Victoria lineage); 174 as B/Florida/4/2006-like (Yamagata lineage); 145 as A/Perth/16/2009 (H3N2)-like; and two as B/Bangladesh/3333/2007-like (Yamagata lineage).

Since week 40/2010, Denmark, Germany, Ireland, Italy, the Netherlands, Norway, Spain and the UK have reported antiviral resistance data to TESSy (Table 3). Ninety-two (2.9%) of 3 201 influenza A(H1)2009 viruses tested were resistant to oseltamivir but all viruses tested remained sensitive to zanamivir. All the resistant viruses carried the NA H275Y substitution. Sixteen of 65 resistant viruses, in patients with known exposure to antivirals, were from patients who had not been treated with oseltamivir. These patients were probably infected with resistant viruses carrying the NA H275Y substitution.

More details on circulating viruses can be found in the March report prepared by the Community Network of Reference Laboratories (CNRL) coordination team.

In week 16/2011, respiratory syncytial virus detections continued to decline in the 11 countries reporting (Figure 5).

Table 2: Weekly and cumulative influenza virus detections by type, subtype and surveillance system, weeks 40/2010–16/2011

	Current Period		Season	
Virus type/subtype	Sentinel	Non-sentinel	Sentinel	Non-sentinel
Influenza A	1	21	8354	29392
A(H1)2009	1	7	7441	19078
A (subtyping not performed)	0	14	692	9844
A (not subtypable)	0	0	0	0
A (H3)	0	0	221	470
A (H1)	0	0	0	0
Influenza B	3	38	5542	13522
Total Influenza	**4**	**59**	**13896**	**42914**

Note: A(H1)2009, A(H3) and A(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 40/2010–16/2011

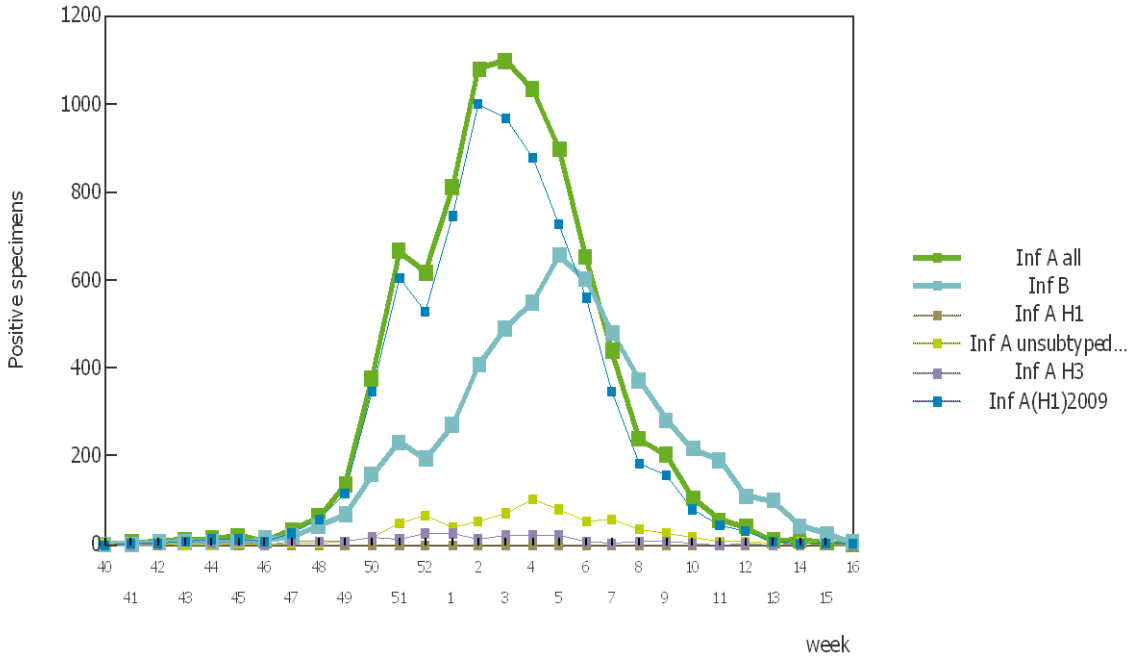


Figure 2: Number of non-sentinel specimens positive for influenza by type, subtype and week of report, weeks 40/2010–16/2011

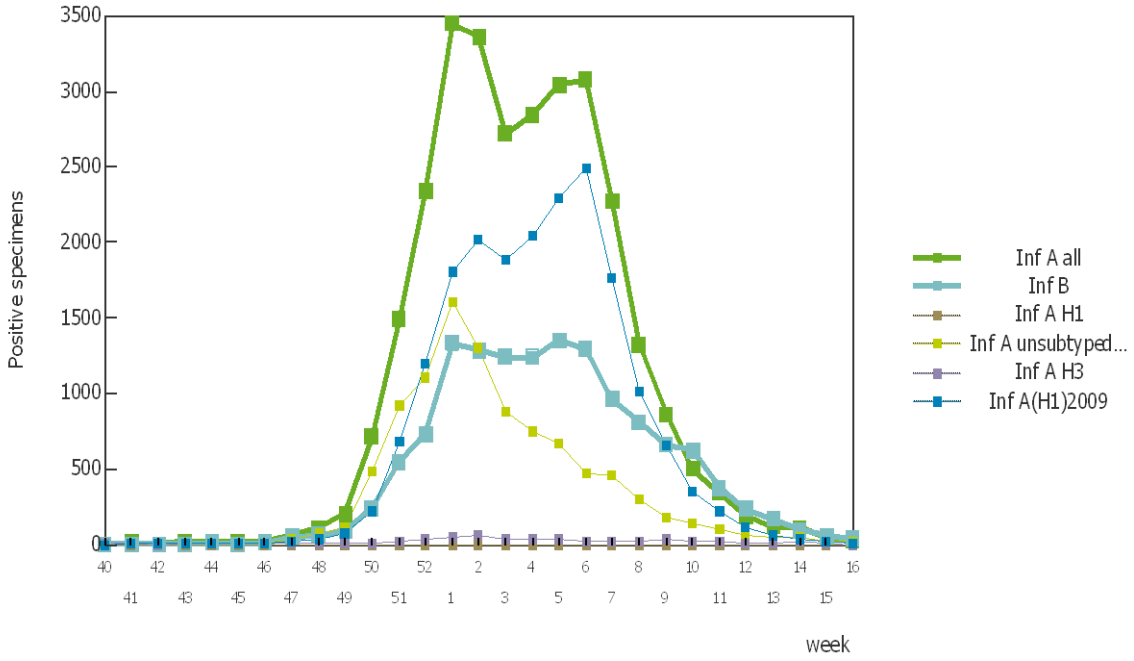


Figure 3: Proportion of sentinel samples positive for influenza, weeks 40/2010–16/2011

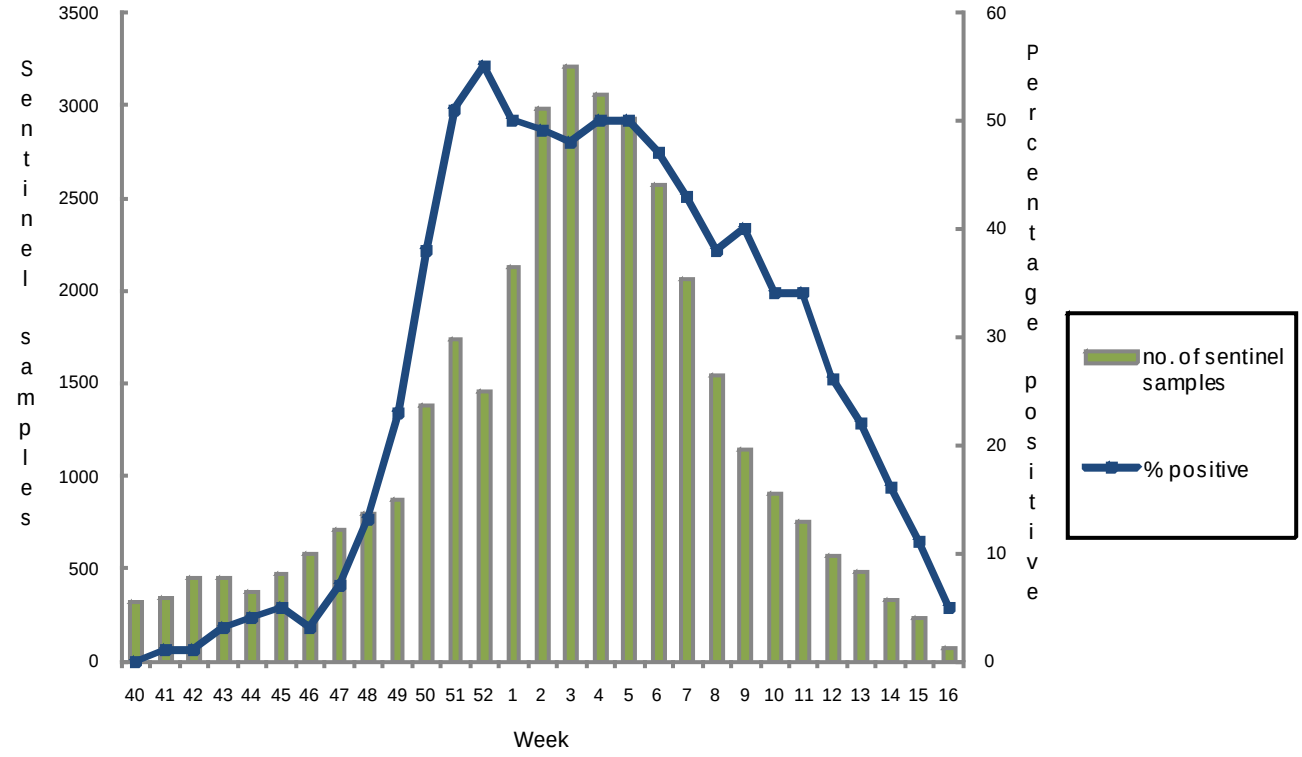


Figure 4: Results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates, weeks 40/2010–16/2011

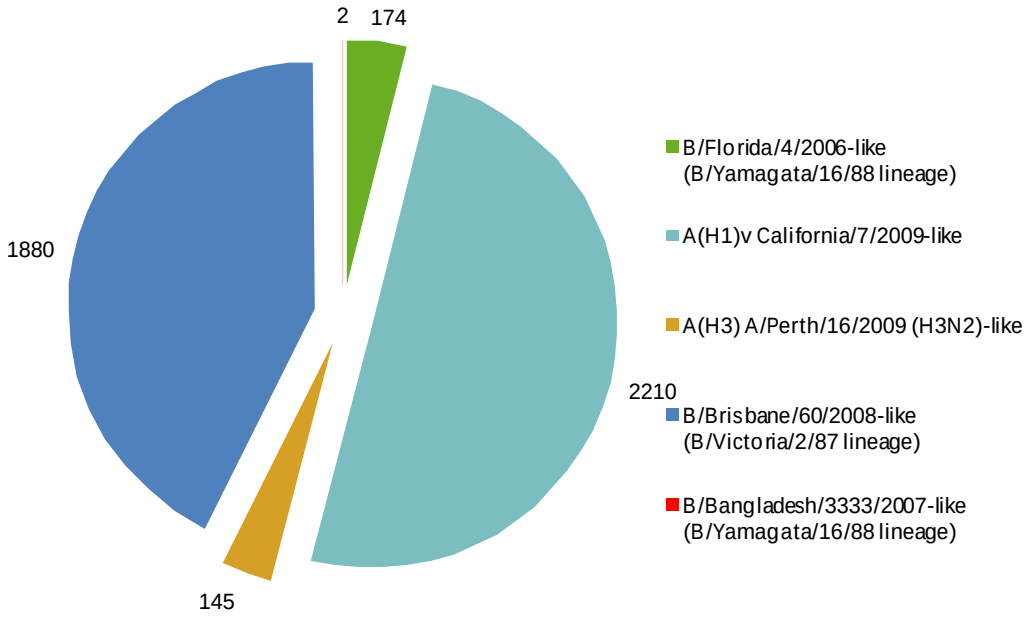
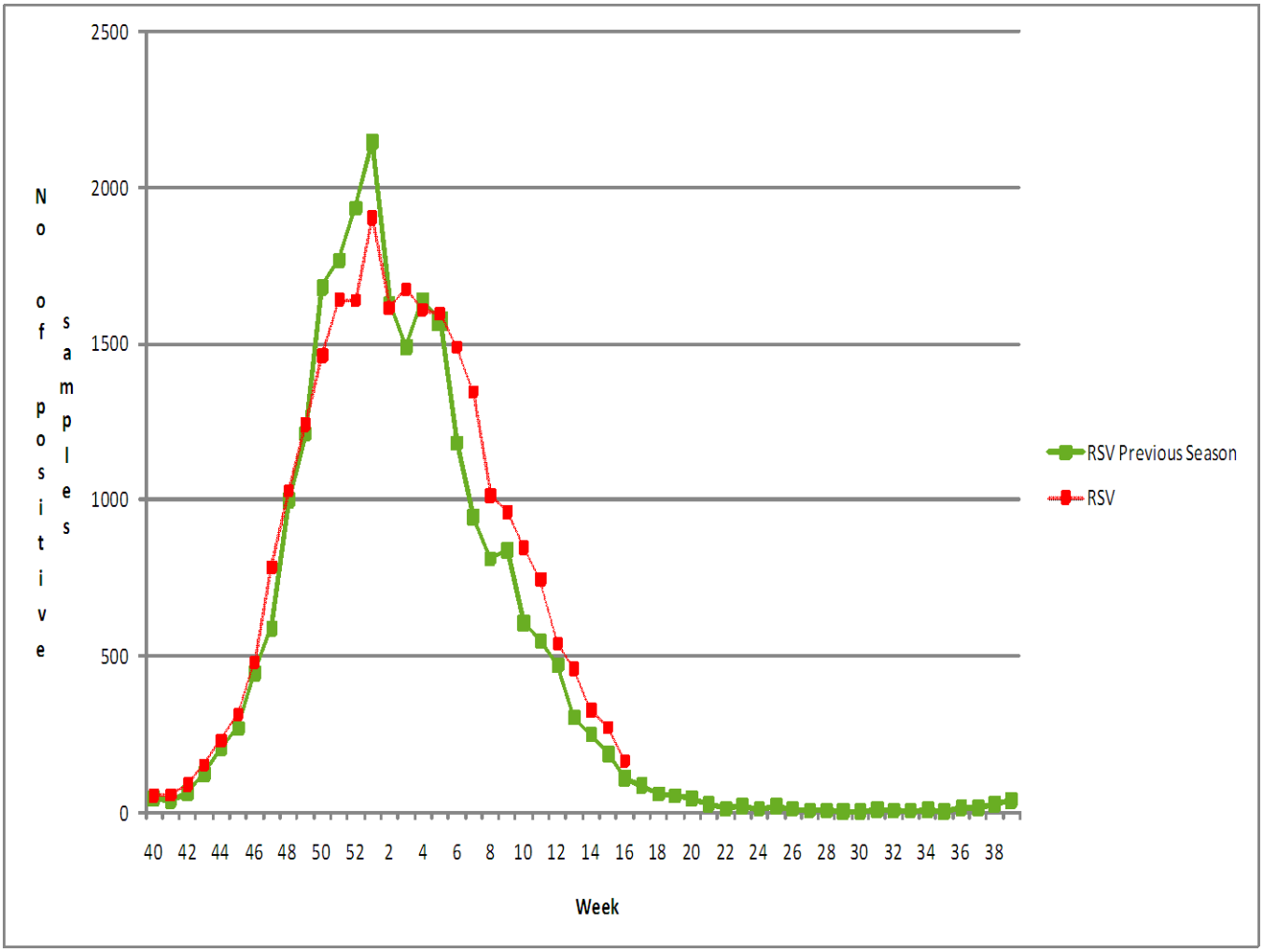


Table 3: Antiviral resistance by influenza virus type and subtype, weeks 40/2010–16/2011

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(H3)	9	0	9	0	10	10(100)
A(H1)	0	0	0	0	0	0
A(H1)2009	3201	92 (2.9)	3201	0	197	197 (100)
B	346	0	340	0	NA*	NA*

* NA – not applicable, as M2 inhibitors do not act against influenza B viruses. Data are from single location (e.g. H275Y only) or multiple location mutation analysis (full sequencing) and/or phenotypic characterisation (IC50 determination). Therefore, data should be interpreted in this context.

Figure 5: Respiratory syncytial virus (RSV) detections, sentinel and non-sentinel, weeks 40/2010–16/2011



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

During week 16/2011, Romania and Slovakia reported nine SARI cases. Since week 40/2010, 4 816 SARI cases have been reported by 10 countries (Table 4).

Of the 3 471 hospitalised cases with confirmed influenza infection reported since week 40/2010, 3 170 (91.3%) were type A and 301 (8.7%) type B. Of 2 790 sub-typed influenza viruses, 2 768 (99.2%) were A(H1)2009 and 22 (0.8%) were A(H3) (Table 6).

Since week 40/2010, 1 931 SARI cases have been admitted to ICU, of which at least 1 027 (53.2%) needed ventilation (Table 7).

Of 3 477 patients for whom information was available, 39.4% had no prior underlying condition and obesity, morbid or not, was the most common underlying condition (Figure 7).

Table 4: Cumulative number of SARI cases, weeks 40/2010 - 16/2011

Country	Number of 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
Romania	435	6.78	30	0.47	6413821
Finland	81		16		
Belgium	934				
Spain	1405		164		
Malta	55	13.3	1	0.24	413609
Slovakia	203	3.73	21	0.39	5435273
Austria	373		12		
France	790		144		
Ireland	122		23		
Portugal	418		45		
Total	4816		456		

Figure 6: Number of SARI cases by week of onset, weeks 40/2010–16/2011

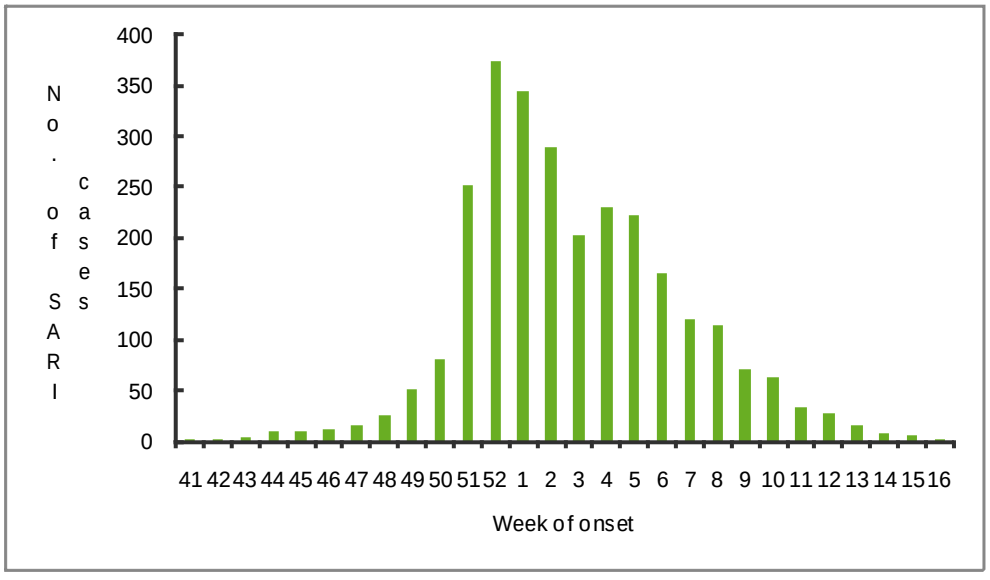


Table 5: Number of SARI cases by age and gender, weeks 40/2010–16/2011

Age groups	Male	Female	Unknown
Under 2	351	257	5
2-17	376	337	7
18-44	607	584	2
45-59	680	488	2
>=60	600	470	3
Unknown	32	14	1
Total	2646	2150	20

Table 6: Number of SARI cases by influenza type and subtype, week 16/2011

Virus type/subtype	Number of cases during current week	Cumulative number of cases since the start of the season
Influenza A	2	3170
A(H1)2009	1	2768
A(subtyping not performed)	1	380
A(H3)		22
Influenza B		301
Other Pathogen		39
Unknown	7	1306
Total	9	4816

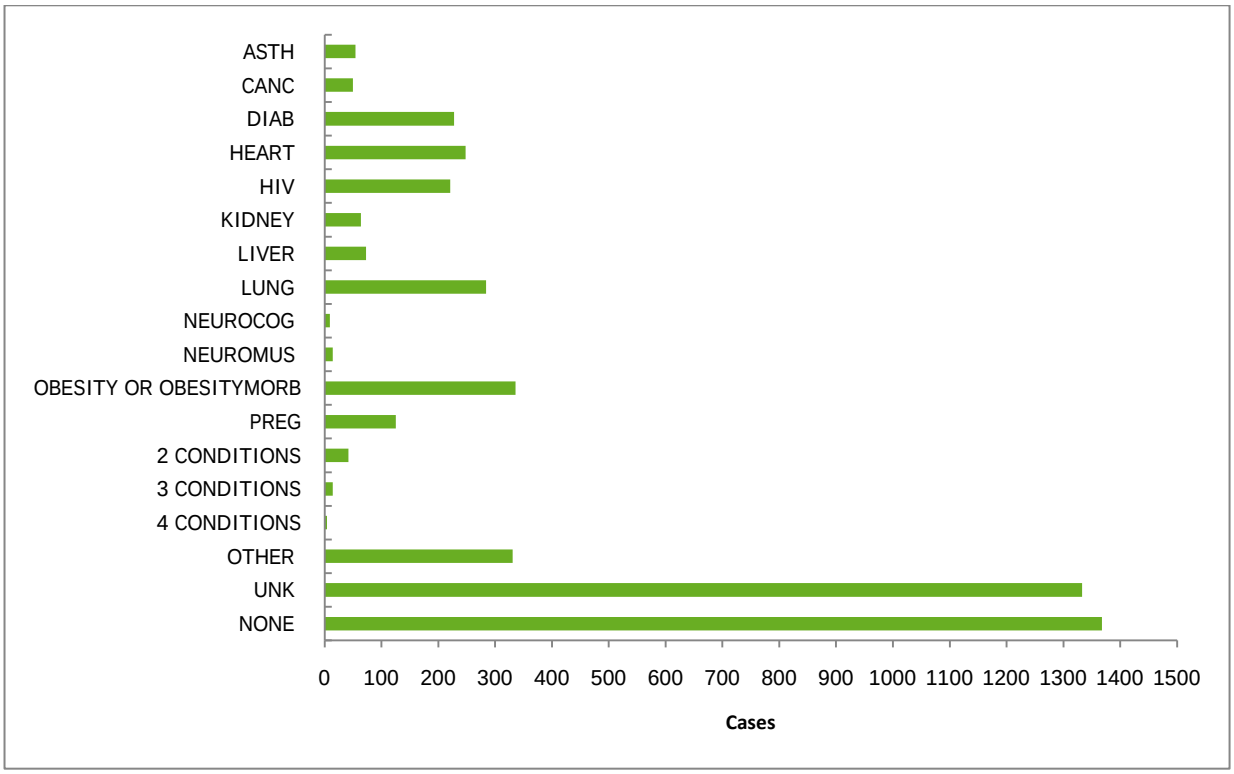
Table 7: Number of SARI cases by level of care and respiratory support, weeks 40/2010–16/2011

Respiratory support	ICU	Inpatient ward	Other	Unknown
No respiratory support available		1		
No respiratory support necessary	173	470	440	
Oxygen therapy	139	200	385	
Respiratory support given unknown	592	318	765	233
Ventilator	1027	17	6	50

Table 8: Number of SARI cases by vaccination status, weeks 40/2010–16/2011

Vaccination Status	Number Of Cases	Percentage of cases
Both, monovalent 2009 pandemic H1N1 and seasonal 2010 vaccination	126	2.6
Monovalent 2009 pandemic H1N1 vaccinati	50	1
Not vaccinated	2186	45.4
Seasonal 2010 vaccination	259	5
Unknown	2195	45.6
TOTAL	4816	

Figure 7: Number of SARI cases by underlying condition, weeks 40/2010–16/2011



Note: Other represents any underlying condition other than: asthma (ASTH), cancer (CANC), diabetes (DIAB), chronic heart disease (HEART), HIV/other immune deficiency (HIV), kidney-related conditions (KIDNEY), liver-related conditions (LIVER), chronic lung disease (LUNG), neurocognitive disorder (including seizure; NEUROCOG), neuromuscular disorder (NEUROMUS), obesity (BMI between 30 and 40; OBESITY), morbid obesity (BMI above 40; OBESITYMORB) or pregnancy (PREG). NONE is reported if there were no underlying conditions.

Table 9: Number of underlying conditions in SARI cases by age group, weeks 40/2010–16/2011

Underlying condition/risk factor	0-11 months	1-4 years	5-14 years	15-24 years	25-64 years	>=65 years
Asthma	2	8	5	5	40	4
Cancer		1	1		39	12
Diabetes		3	4	3	165	80
Chronic heart disease	16	9	4	7	155	90
HIV/other immune deficiency		7	11	14	146	46
Chronic lung disease	12	19	8	8	172	73
No underlying condition	337	312	131	59	440	67
Obesity (BMI between 30 and 40)		1	3	9	236	32
Pregnancy			1	25	102	
Underlying condition unknown	81	151	70	70	743	212
Other (including all other conditions)	35	33	32	14	300	197

Table 10: Additional clinical complications in SARI cases by age group, weeks 40/2010–16/2011

Additional clinical complications	0-11 months	1-4 years	5-14 years	15-24 years	25-64 years	>=65 years
Acute respiratory distress syndrome	51	94	51	51	654	135
Bronchiolitis	5	2			3	
Encephalitis		1	1	1	2	
Myocarditis					2	1
None	23	29	23	45	151	43
Other (please specify separately)	3	9	6	2	94	25
Pneumonia (secondary bacterial infection	48	115	45	53	929	231
Sepsis/Multi-organ failure	1	1	2		44	9
Unknown	352	296	141	65	752	371

Country comments and specific information concerning hospitalised cases and mortality

This section is compiled from specific comments and published reports available from national websites (if so indicated). They are intended to provide additional information on influenza-associated hospitalisations (including emergency hospital consultations), higher-level care load and mortality.

Spain: Information concerning severe illness due to influenza infection with associated hospital admission comes from a surveillance system developed specifically for this purpose during the 2009/2010 pandemic season. Since week 40/2010 and up to week 16/2011, 1 405 severe, hospitalised, confirmed influenza cases have been reported. Severely affected cases were mostly in the 15-64 year age groups (63%). A total of 16% were less than five years old and 18% were more than 64 years old, with 26% of them having no known risk factors. Of 1 403 cases with outcome information, 164 died (12% with no known risk factors). Of the severe cases, 897 had information available on the status of influenza vaccination for the 2010/2011 season and only 135 (15%) cases had been immunised. Monovalent pandemic 2009 vaccines were reported to have been received for 10% of hospitalised cases. Most of the severe and fatal cases included in the groups recommended for influenza vaccination had not been vaccinated this season.

This report was written by an editorial team at the European Centre for Disease Prevention and Control (ECDC): Eeva Broberg, Flaviu Plata, Phillip Zucs, and René 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, John McCauley and Maria Zambon. On behalf of the EISN members, the bulletin text was reviewed by Bianca Snijders (RIVM Bilthoven, Netherlands) and Thedi Ziegler (National Institute for Health and Welfare, Finland). In addition, the report is reviewed by experts of WHO Regional Office for Europe.