SURVEILLANCE REPORT

# Weekly influenza surveillance overview

8 April 2011

## Main surveillance developments in week 13/2011 (28 Mar – 03 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 epidemic of 2010/11 in Europe is subsiding.
- Twenty-four EU/EEA countries experienced influenza activity of low intensity and in all 28 reporting EU/EEA countries trends were unchanging or decreasing.
- For the third week, more influenza B viruses than influenza A viruses were reported. Of the detected influenza viruses, 32.6% were of type A, and 67.4% were of type B. The latter virus type was dominant or co-dominant with influenza virus A(H1N1)2009 in eleven countries.
- Three countries notified 22 cases with severe acute respiratory infection, of which five were associated with influenza infection.

**Sentinel surveillance of influenza-like illness (ILI)/ acute respiratory infection (ARI)**: Twenty-four of the 28 reporting countries experienced influenza activity of low intensity while three countries reported medium intensity. Sixteen countries reported decreasing trends. For more information, **click here...**

**Virological surveillance:** Of the 344 influenza viruses detected, 32.6% were type A and 67.4% were type B. Since week 40/2010, 97.6% of subtyped influenza A viruses were A(H1N1)2009. For more information, **click here...**

**Hospital surveillance of severe acute respiratory infection (SARI):** Of 22 cases with severe respiratory disease reported by three countries, four had confirmed infection by influenza A virus and one by influenza B virus. For more information, **click here...**

# Sentinel surveillance (ILI/ARI)

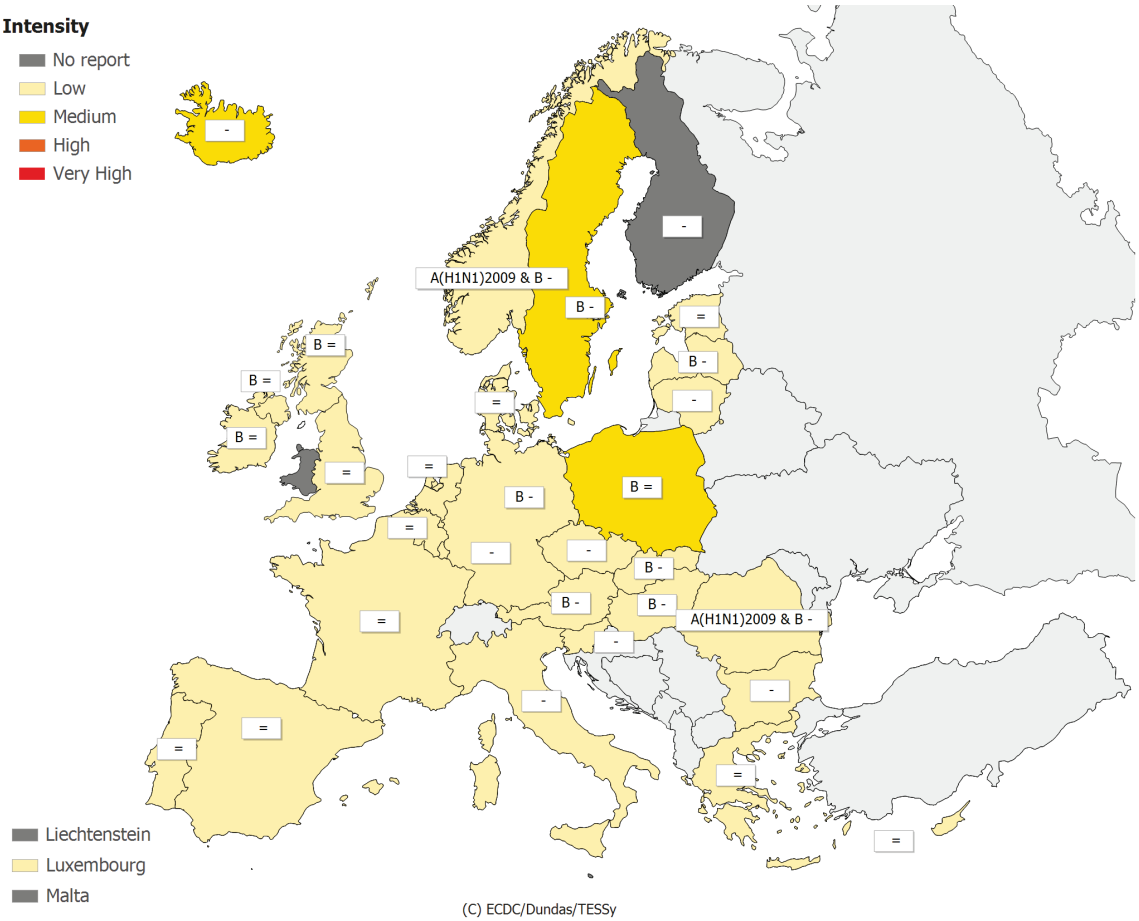
## Weekly analysis – epidemiology

During week 13/2011, 28 countries reported clinical data. Iceland, Poland and Sweden reported medium intensity, while low intensity was reported by twenty-four countries. No country reported high intensity levels of ILI/ARI. (Map 1, Table 1).

Four countries (Germany, Iceland, Lithuania and Sweden) reported regional activity, while 22 countries reported sporadic or local activity. No activity was reported by Portugal and Denmark (Map 2, Table 1).

Sixteen countries reported decreasing trends during week 13/2011. Unchanging trends were seen in twelve countries. No increasing trends were reported (Maps 1 and 2, Table 1).

## Map 1: Intensity for week 13/2011

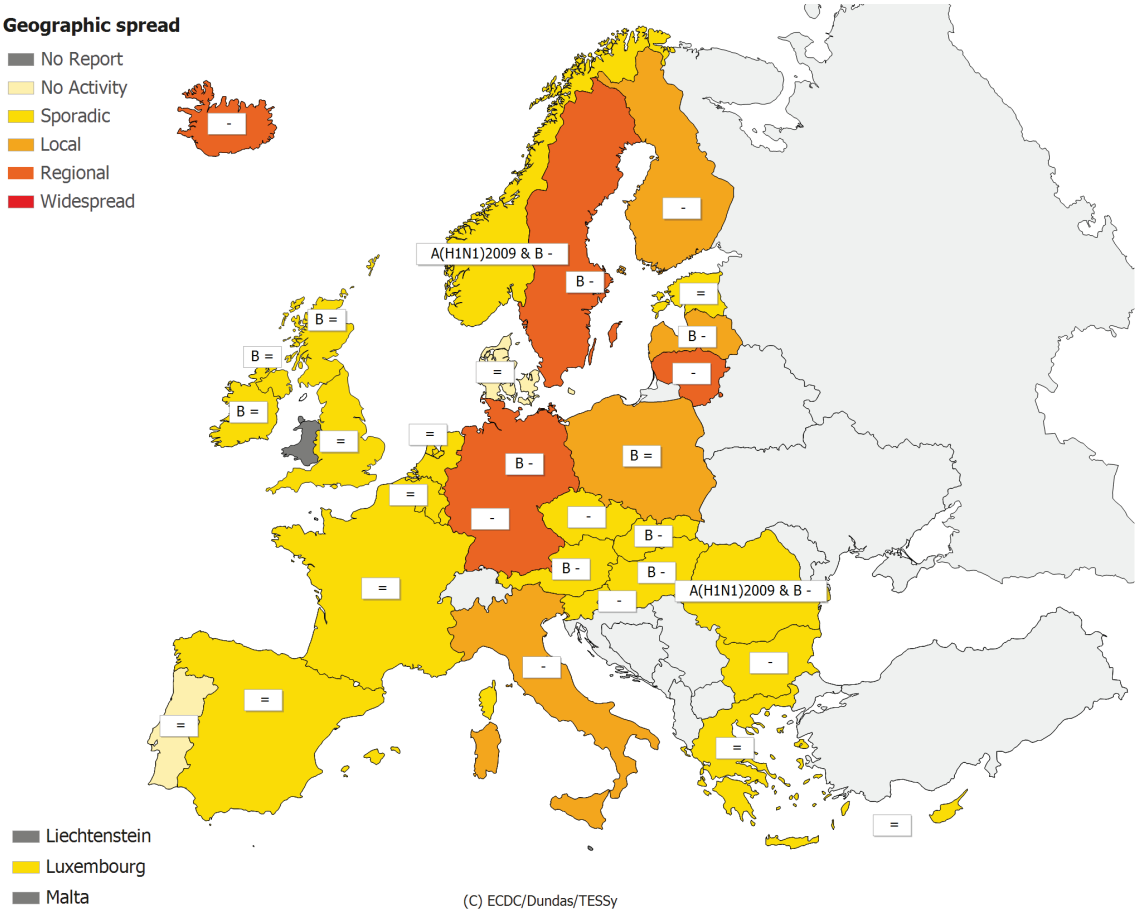



* A type/subtype is reported as dominant when > 40 % of all samples are positive for the type/subtype.

Legend:

| | | | |
|---|---|---|---|
| **No report** | Intensity level was not reported | **-** | Decreasing clinical activity |
| **Low** | No influenza activity or influenza at baseline levels | **+** | Increasing 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 13/2011




* 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) |

| | |
|---|---|
| **-** | Decreasing clinical activity |
| **+** | Increasing 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 13/2011**

| 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 | Sporadic | Decreasing | 16 | B | 50.0 | 1.1 | 15.1 | Graphs | Graphs |
| Belgium | Low | Sporadic | Stable | 6 | None | 0.0 | 37.1 | 1533.9 | Graphs | Graphs |
| Bulgaria | Low | Sporadic | Decreasing | 5 | None | 0.0 | - | 589.2 | Graphs | Graphs |
| Cyprus | Low | Sporadic | Stable | - | - | 0.0 | -* | -* | Graphs | Graphs |
| Czech Republic | Low | Sporadic | Decreasing | - | - | 0.0 | 49.0 | 917.9 | Graphs | Graphs |
| Denmark | Low | No activity | Stable | 12 | None | 0.0 | 59.8 | - | Graphs | Graphs |
| Estonia | Low | Sporadic | Stable | 21 | None | 9.5 | 10.0 | 353.8 | Graphs | Graphs |
| Finland | Unknown (no information available) | Local | Decreasing | 28 | None | 10.7 | - | - | Graphs | Graphs |
| France | Low | Sporadic | Stable | 32 | None | 9.4 | - | 1288.7 | Graphs | Graphs |
| Germany | Low | Regional | Decreasing | 52 | B | 50.0 | - | 831.6 | Graphs | Graphs |
| Greece | Low | Sporadic | Stable | 1 | None | 0.0 | 63.4 | - | Graphs | Graphs |
| Hungary | Low | Sporadic | Decreasing | 37 | B | 45.9 | 63.1 | - | Graphs | Graphs |
| Iceland | Medium | Regional | Decreasing | 0 | - | 0.0 | 39.0 | - | Graphs | Graphs |
| Ireland | Low | Sporadic | Stable | 9 | B | 22.2 | 7.1 | - | Graphs | Graphs |
| Italy | Low | Local | Decreasing | 20 | - | 5.0 | 109.5 | - | Graphs | Graphs |
| Latvia | Low | Local | Decreasing | 0 | B | 0.0 | -* | -* | Graphs | Graphs |
| Lithuania | Low | Regional | Decreasing | 1 | - | 0.0 | 21.1 | 372.7 | Graphs | Graphs |
| Luxembourg | Low | Sporadic | Decreasing | 4 | - | 25.0 | -* | -* | Graphs | Graphs |
| Malta | | | | - | - | 0.0 | - | - | | |
| Netherlands | Low | Sporadic | Stable | 6 | None | 16.7 | 23.3 | - | Graphs | Graphs |
| Norway | Low | Sporadic | Decreasing | 1 | A(H1N1)2009 & B | 0.0 | 37.9 | - | Graphs | Graphs |
| Poland | Medium | Local | Stable | 24 | B | 29.2 | 71.9 | - | Graphs | Graphs |
| Portugal | Low | No activity | Stable | 2 | None | 0.0 | 9.1 | - | Graphs | Graphs |
| Romania | Low | Sporadic | Decreasing | 13 | A(H1N1)2009 & B | 0.0 | 16.5 | 856.4 | Graphs | Graphs |
| Slovakia | Low | Sporadic | Decreasing | 9 | B | 22.2 | 192.9 | 1566.4 | Graphs | Graphs |
| Slovenia | Low | Sporadic | Decreasing | 1 | None | 100.0 | 1.2 | 927.5 | Graphs | Graphs |
| Spain | Low | Sporadic | Stable | 73 | None | 11.0 | 21.6 | - | Graphs | Graphs |
| Sweden | Medium | Regional | Decreasing | 9 | B | 11.1 | 9.6 | - | Graphs | Graphs |
| UK - England | Low | Sporadic | Stable | - | - | 0.0 | 7.7 | 431.7 | Graphs | Graphs |
| UK - Northern Ireland | Low | Sporadic | Stable | 3 | B | 0.0 | 13.5 | 397.7 | Graphs | Graphs |
| UK - Scotland | Low | Sporadic | Stable | 16 | B | 18.8 | 2.3 | 233.4 | Graphs | Graphs |
| UK - Wales | | | | - | - | 0.0 | - | - | | |
| Europe | | | | 401 | | 21.4 | | | | 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

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 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 13/2011, 25 countries and the UK (Northern Ireland and Scotland) reported virological data. Sentinel physicians collected 401 specimens of which 21.4% tested positive for influenza virus (Tables 1 and 2, Figure 3).

Of the 344 influenza viruses detected in sentinel and non-sentinel specimens during week 13/2011, 112 (32.6%) were type A and 232 (67.4%) were type B. Influenza B virus was reported as dominant by eight countries and the UK (Northern Ireland and Scotland) and co-dominant with A(H1N1)2009 by two countries. For the third consecutive week this season, the proportion of influenza B viruses was higher overall than that of influenza A viruses and for the first week, its proportion reached over 60% and is therefore considered dominant (Table 1). Eleven countries reported no dominant type and none reported influenza virus type A as the dominant virus.

Since week 40/2010, of the 56 254 influenza detections in sentinel and non-sentinel specimens, 37 505 (66.7%) were influenza A and 18 749 (33.3%) were influenza B viruses. Of 27 078 influenza A viruses subtyped, 26 422 (97.6%) were A(H1N1)2009 virus and 656 (2.4%) were A(H3) viruses (Table 2). Trends of virological detections since week 40/2010 are shown in Figures 1–3.

Since week 40/2010, 3 640 influenza viruses from sentinel and non-sentinel specimens have been characterised antigenically (Figure 4): 1 842 as A/California/7/2009 (H1N1)-like, 1 522 as B/Brisbane/60/2008-like (Victoria lineage), 138 as A/Perth/16/2009 (H3N2)-like, 136 as B/Florida/4/2006-like (Yamagata lineage) 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. Ninety-one of 1984 influenza A(H1)2009 viruses tested were resistant to oseltamivir but all viruses tested remained sensitive for zanamivir. All the resistant viruses carried the NA H275Y substitution. Seventeen of 55 resistant viruses, from patients for whom exposure to antivirals was known, 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 report prepared by the Community Network of Reference Laboratories (CNRL) coordination team.

In week 13/2011, respiratory syncytial virus detections continued to decline in 14 reporting countries (Figure 5).

**Table 2: Weekly and cumulative influenza virus detections by type, subtype and surveillance system, weeks 40/2010–13/2011**

| | Current Period | | Season | |
|---|---|---|---|---|
| Virus type/subtype | Sentinel | Non-sentinel | Sentinel | Non-sentinel |
| Influenza A | 6 | 106 | 8326 | 29179 |
| A(H1)2009 | 5 | 54 | 7426 | 18996 |
| A (subtyping not performed) | 1 | 46 | 684 | 9743 |
| A (not subtypable) | 0 | 0 | 0 | 0 |
| A (H3) | 0 | 6 | 216 | 440 |
| A (H1) | 0 | 0 | 0 | 0 |
| Influenza B | 80 | 152 | 5433 | 13316 |
| **Total Influenza** | **86** | **258** | **13759** | **42495** |

*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 40/2010–13/2011**

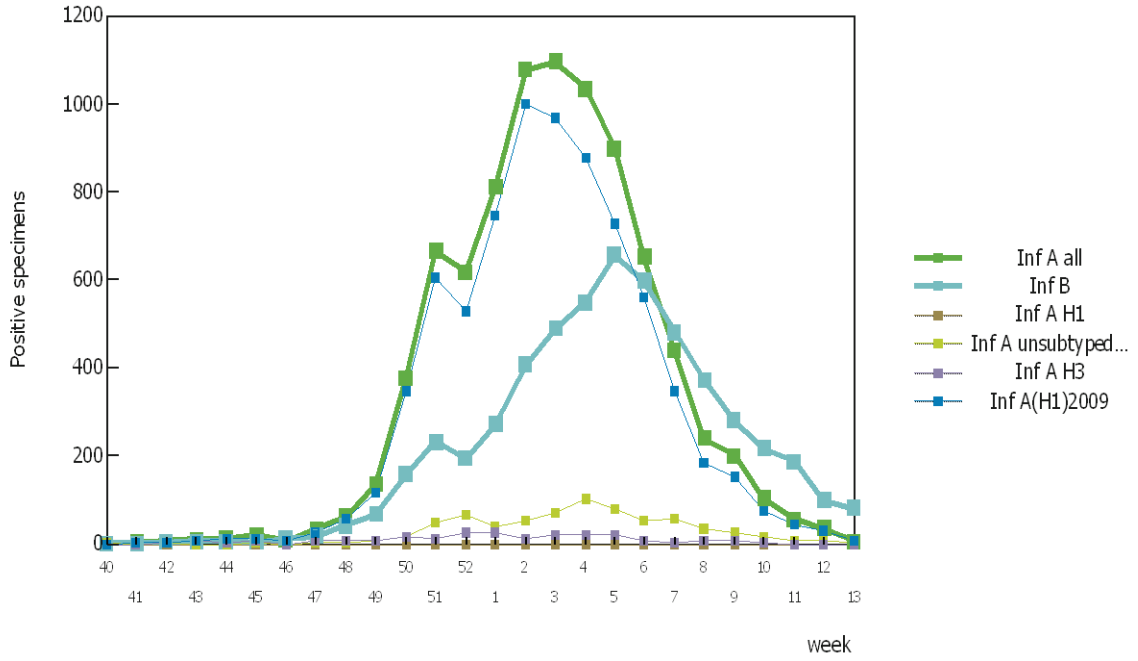



**Figure 2: Number of non-sentinel specimens positive for influenza by type, subtype and week of report, weeks 40/2010–13/2011**

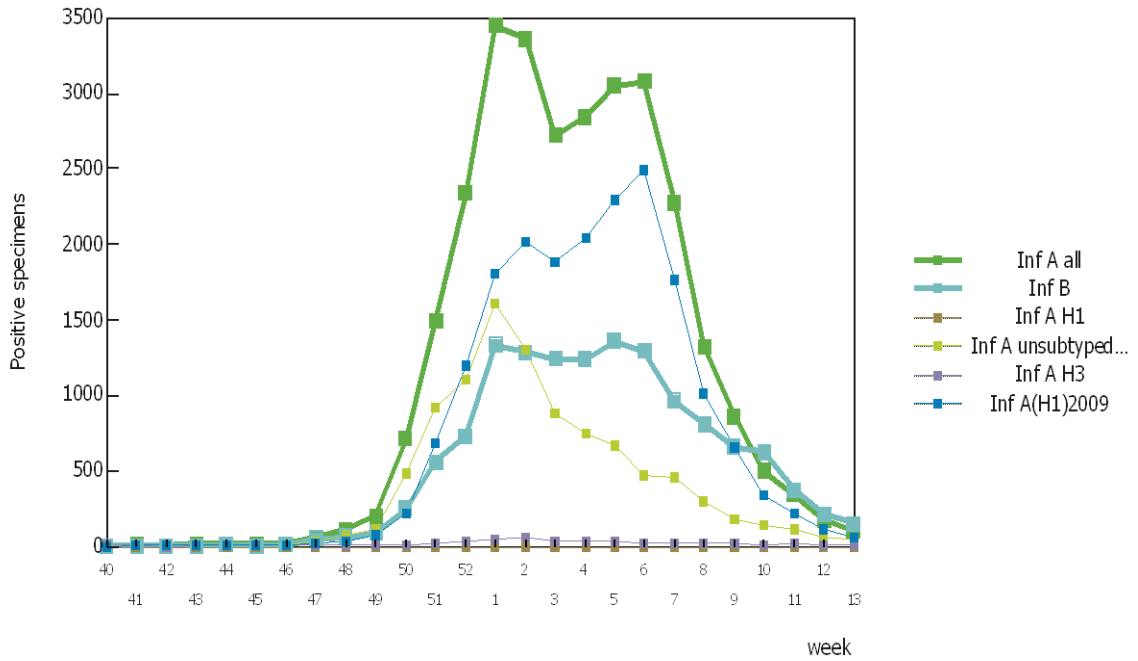


**Figure 3: Proportion of sentinel samples positive for influenza, weeks 40/2010–13/2011**

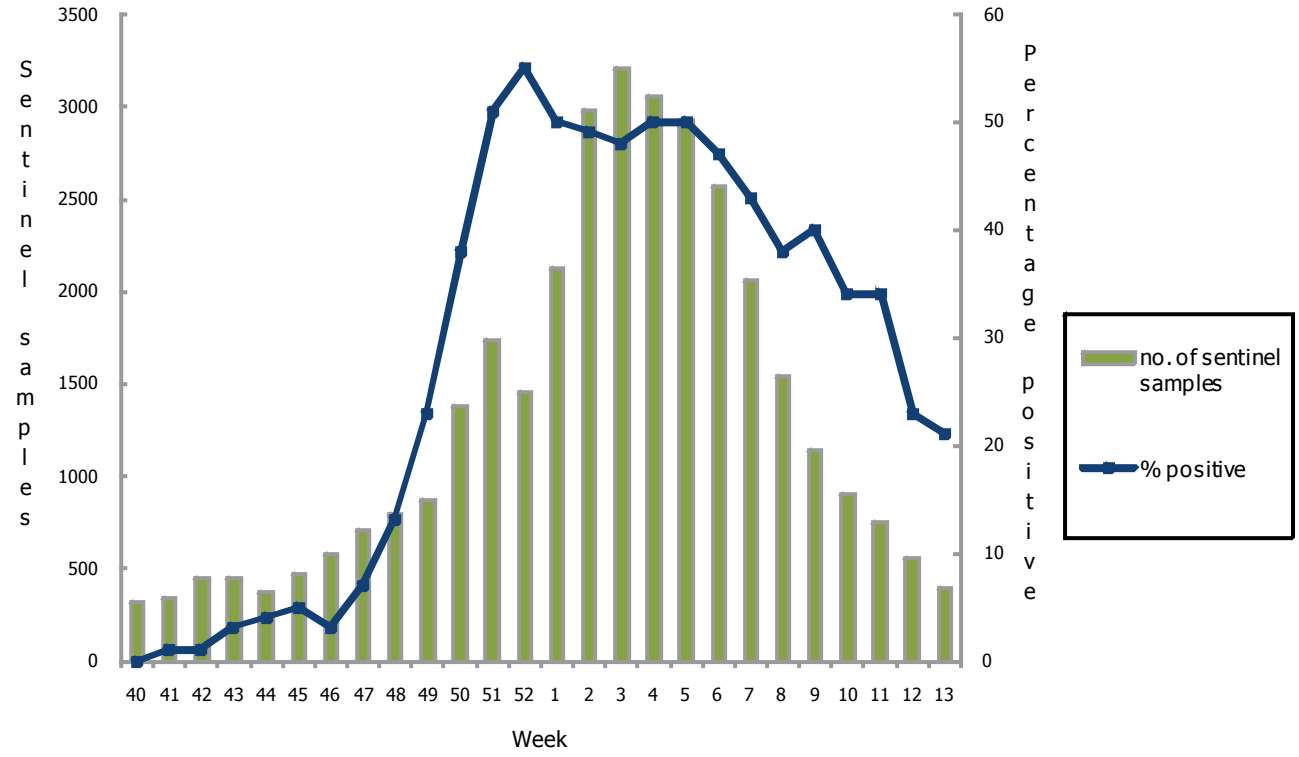



**Figure 4: Results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates, weeks 40/2010–13/2011**

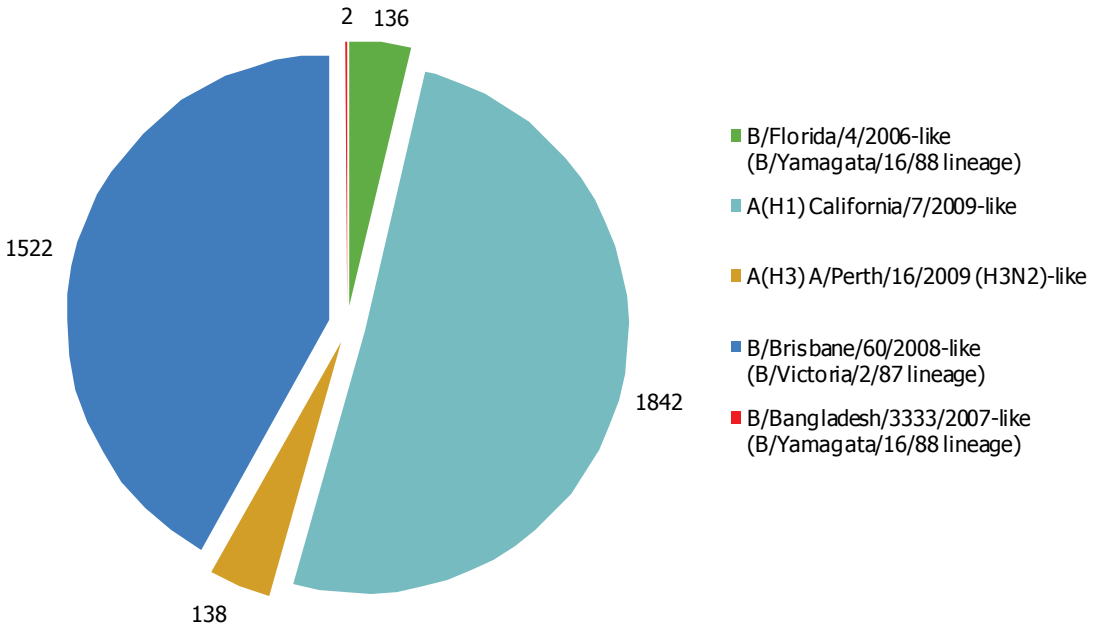
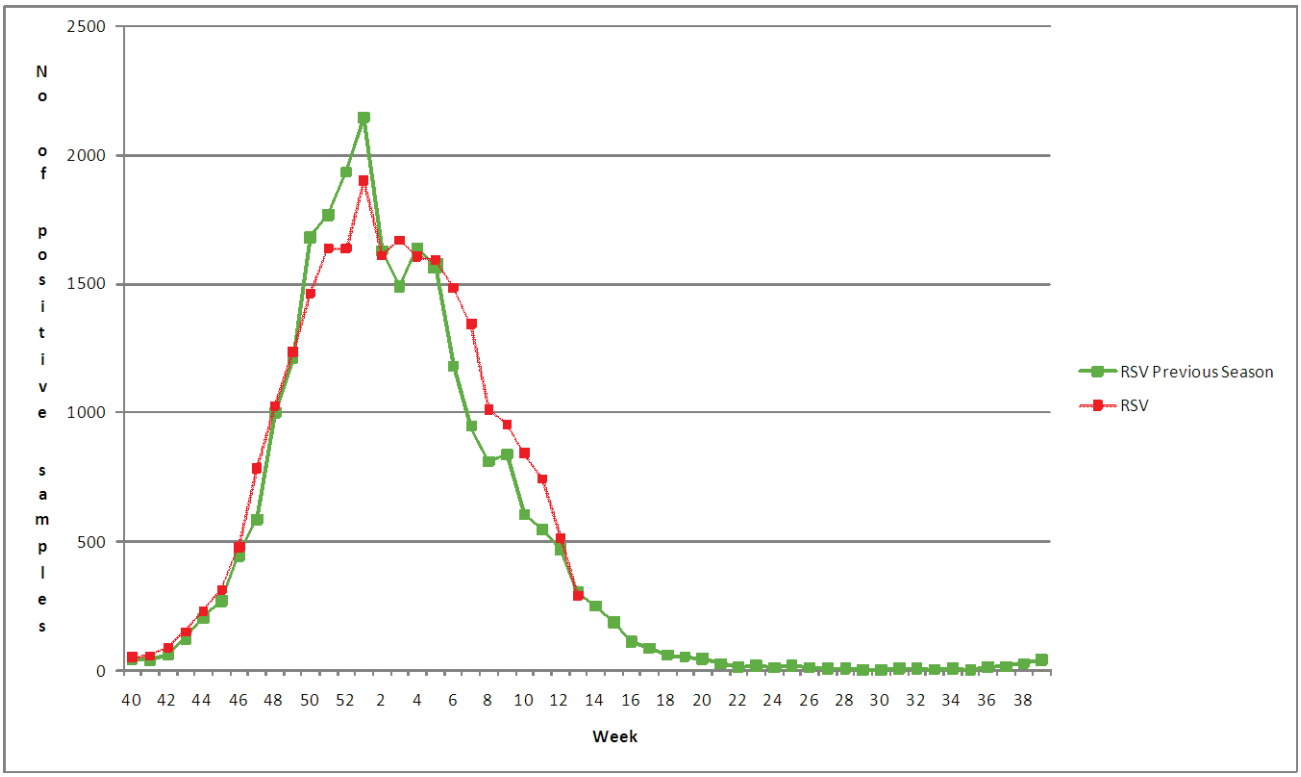


**Table 3: Antiviral resistance by influenza virus type and subtype, weeks 40/2010–13/2011**

| 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) | 4 | 0 | 4 | 0 | 2 | 2 (100) |
| A(H1) | 0 | 0 | 0 | 0 | 0 | 0 |
| A(H1)2009 | 1984 | 91 (4.6) | 1984 | 0 | 178 | 178 (100) |
| B | 338 | 0 | 328 | 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), and therefore data should be interpreted in this context.

**Figure 5: Respiratory syncytial virus (RSV) detections, sentinel and non-sentinel, weeks 40/2010–13/2011**




# 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 13/2011, a total of 22 SARI cases were reported to TESSy by Belgium, Romania and Slovakia. Of these 22 SARI cases, four were infected with A(H1N1)2009 influenza virus and one by an influenza B virus. Additionally, Austria, Spain and France reported five severe influenza cases requiring hospitalisation.

Since week 40/2010, 4 738 hospitalised cases with severe respiratory illness were notified, of which 3 127 (66.0%) were due to an influenza virus infection. Of 3 127 influenza virus positive specimens, 2 921 (93.4%) were type A and 206 (6.6%) were type B. Of 2 762 subtyped influenza A viruses, 2 740 (99.2%) were influenza A(H1N1)2009 and the remaining 22 (<1%) were of the H3 subtype (Table 6).

Since week 40/2010, 1 907 admissions to ICU were reported, 1 021 (53.5%) of whom required ventilation (Table 8).

In 3 419 cases with severe respiratory illness with available information, 1 354 (39.6%) had no prior underlying conditions. The two most common associated underlying conditions were obesity (9.7%) and chronic lung condition (8.2%), respectively (Figure 7).

**Table 4: Cumulative number of SARI cases, weeks 40/2010–13/2011**

| 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 |
|---|---|---|---|---|---|
| Finland | 76 | | 13 | | |
| Portugal | 418 | | 45 | | |
| Romania | 417 | 6.5 | 30 | 0.47 | 6413821 |
| Belgium | 922 | | | | |
| Spain | 1380 | | 155 | | |
| Malta | 55 | | 1 | | |
| Slovakia | 188 | 3.46 | 21 | 0.39 | 5433385 |
| Austria | 372 | | 12 | | |
| France | 788 | | 142 | | |
| Ireland | 122 | | 23 | | |
| Total | 4738 | | 442 | | |

**Figure 6: Number of SARI cases by week of onset, weeks 40/2010-13/2011**

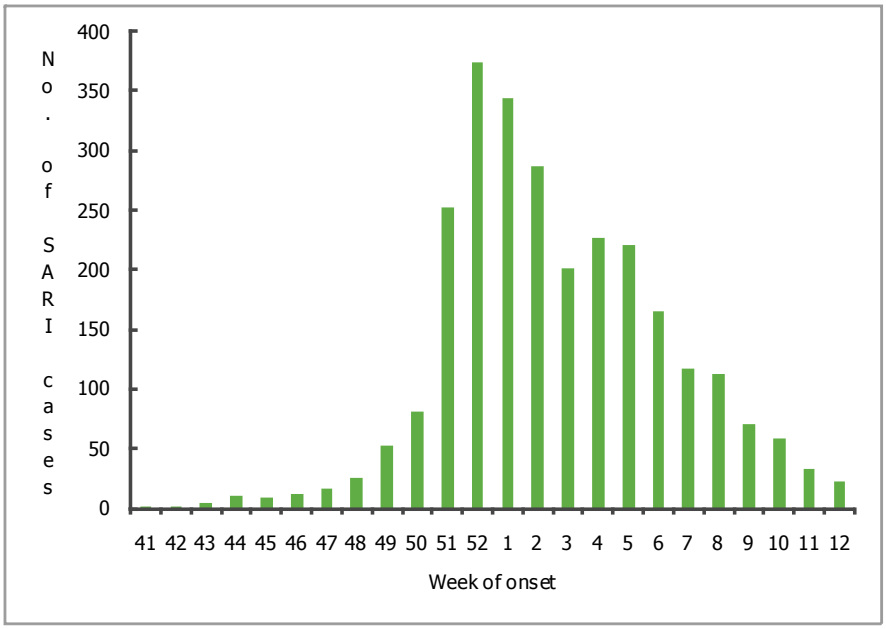


**Table 5: Number of SARI cases by age and gender, weeks 40/2010–13/2011**

| Age groups | Male | Female | Unknown |
|---|---|---|---|
| Under 2 | 344 | 253 | 6 |
| 2-17 | 367 | 327 | 7 |
| 18-44 | 599 | 572 | 2 |
| 45-59 | 674 | 485 | 3 |
| >=60 | 592 | 460 | 3 |
| Unknown | 32 | 12 | |
| Total | 2608 | 2109 | 21 |

**Table 6: Number of SARI cases by influenza type and subtype, week 13/2011**

| Virus type/subtype | Number of cases during current week | Cumulative number of cases since the start of the season |
|---|---|---|
| Influenza A | 6 | 2921 |
| A(H1)2009 | 6 | 2740 |
| A(subtyping not performed) | | 159 |
| A(H1) | | |
| A(H3) | | 22 |
| Influenza B | 1 | 206 |
| Other Pathogen | 1 | 36 |
| Unknown | 19 | 1575 |
| Total | 27 | 4738 |

**Table 7: Number of SARI cases by antiviral treatment, weeks 40/2010–13/2011**

| Antiviral treatment | Number of patients who received prophylaxis | Number of patients who received anti-viral treatment |
|---|---|---|
| Oseltamivir | 55 | 1733 |
| Zanamivir | 1 | 22 |
| Oseltamivir and Zanamivir | | 11 |
| Other (or combinations with other) | 113 | 118 |
| Unknown | 3303 | 2531 |
| None | 1266 | 323 |
| Total | 4738 | 4738 |

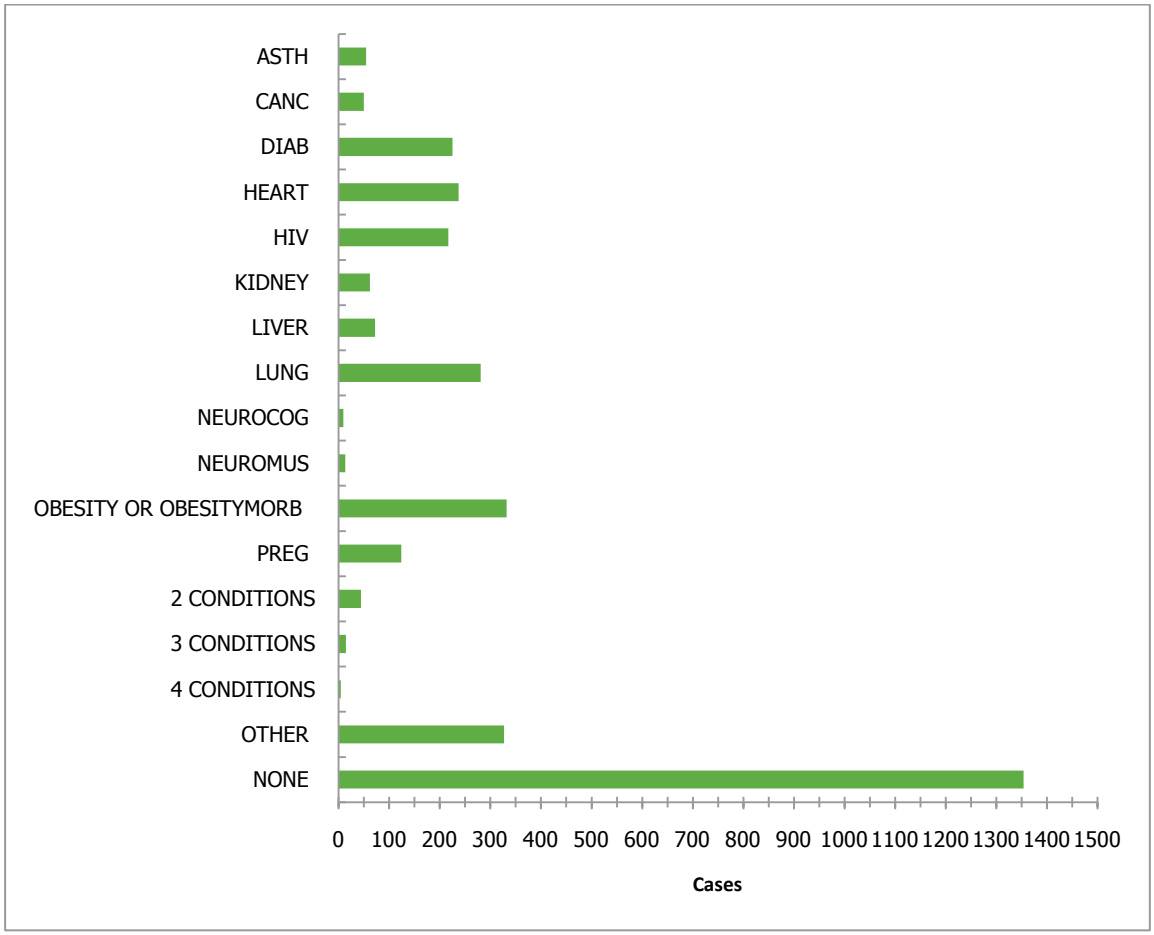
**Table 8: Number of SARI cases by level of care and respiratory support, weeks 40/2010–13/2011**

| Respiratory support | ICU | Inpatient ward | Other | Unknown |
|---|---|---|---|---|
| No respiratory support available | | 1 | | |
| No respiratory support necessary | 173 | 464 | 431 | |
| Oxygen therapy | 132 | 196 | 384 | |
| Respiratory support given unknown | 581 | 309 | 749 | 228 |
| Ventilator | 1021 | 17 | 6 | 46 |

**Table 9: Number of SARI cases by vaccination status, weeks 40/2010–13/2011**

| Vaccination Status | Number Of Cases | Percentage of cases |
|---|---|---|
| Both, monovalent 2009 pandemic H1N1 and seasonal 2010 vaccination | 125 | 2.6 |
| Monovalent 2009 pandemic H1N1 vaccinati | 48 | 1 |
| Not vaccinated | 2150 | 45.4 |
| Seasonal 2010 vaccination | 257 | 5 |
| Unknown | 2158 | 45.5 |
| TOTAL | 4738 | |

**Figure 7: Number of SARI cases by underlying condition, weeks 40/2010–13/2011**




*Note: Other represents any other underlying condition 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 10: Number of underlying conditions in SARI cases by age group, weeks 40/2010–13/2011**

| Underlying condition/risk factor | 0-11 months | 1-4 years | 5y-14 | 15-24 | 25-64 | >=65 |
|---|---|---|---|---|---|---|
| Asthma | 2 | 8 | 5 | 5 | 40 | 4 |
| Cancer | | 1 | 1 | | 39 | 12 |
| Diabetes | | 3 | 4 | 3 | 162 | 77 |
| Chronic heart disease | 15 | 7 | 4 | 6 | 149 | 85 |
| HIV/other immune deficiency | | 6 | 10 | 12 | 143 | 46 |
| Chronic lung disease | 12 | 19 | 8 | 8 | 169 | 71 |
| No underlying condition | 333 | 305 | 131 | 59 | 439 | 67 |
| Obesity (BMI between 30 and 40) | | 1 | 3 | 9 | 234 | 32 |
| Pregnancy | | | 1 | 25 | 102 | |
| Underlying condition unknown | 81 | 148 | 67 | 68 | 737 | 206 |
| Other (including all other conditions) | 35 | 31 | 30 | 14 | 295 | 196 |

**Table 11: Additional clinical complications in SARI cases by age group, weeks 40/2010–13/2011**

| Additional clinical complications | 0-11 months | 1-4 years | 5y-14 | 15-24 | 25-64 | >=65 |
|---|---|---|---|---|---|---|
| Acute respiratory distress syndrome | 49 | 89 | 50 | 49 | 649 | 132 |
| Bronchiolitis | 5 | 2 | | | 3 | |
| Encephalitis | | 1 | 1 | 1 | 2 | |
| Myocarditis | | | | | 2 | 1 |
| None | 23 | 31 | 23 | 45 | 150 | 42 |
| Other (please specify separately) | 3 | 8 | 6 | 2 | 94 | 25 |
| Pneumonia (secondary bacterial infection | 48 | 115 | 42 | 50 | 911 | 224 |
| Sepsis/Multi-organ failure | 1 | 1 | 1 | | 44 | 9 |
| Unknown | 349 | 285 | 140 | 65 | 747 | 367 |

# Country comments and specific information concerning hospitalised cases and mortality

This section is compiled from specific comments and published reports on the website where these are indicated by reporters. They are structured to show influenza-associated hospitalisations (and some emergency hospital consultations), use of higher level care and mortality.

**Denmark:** Up to 4 April (week 13/2011), a cumulative total of 155 influenza patients with a median age of 55 years (range 1 week to 83 years) have been reported by intensive care units (ICUs) in Denmark. Three patients were admitted to an ICU in week 13/2011 compared with six new admissions in week 12. Other influenza surveillance systems in the country show low activity. The pressure on the wards, reflected by the proportion of ICU beds used for influenza patients, remained at the same level as the previous week. On Monday, 4 April 2011, at 8:00 am, eight influenza patients were in ICUs, corresponding to 2.6% of the total number of occupied ICU beds in the country. Of the ICU patients, 115 were diagnosed with influenza A, 45 of whom were reported to be further subtyped as A(H1N1)2009. Forty patients had an influenza B virus infection. Eleven patients with influenza A and three patients with influenza B virus infection received extracorporeal membrane oxygenation (ECMO). Nineteen patients with confirmed influenza A and seven with influenza B virus infection died. Twenty-four patients were reported to be previously healthy, and for another 39 patients, no underlying condition was reported. For 92 patients, one or more underlying conditions were described. One influenza patient was reported to be pregnant. Initial alignment with the Danish Vaccination Registry showed that 28 of the 155 patients had received the 2010/2011 seasonal influenza vaccine between weeks 39 and 50/2010. The other 127 patients were probably not vaccinated with the 2010/2011 seasonal influenza vaccine.

**Spain**: ISCIII influenza link here. In Spain, information concerning severe illness due to influenza infection with associated admission to hospitals comes from a surveillance system developed during the 2009/2010 pandemic season specifically for this purpose. Since week 40/2010 and up to week 13/2011, 1380 severe hospitalised confirmed influenza cases have been reported. Severely affected cases were mostly in the 15–64 year age groups (63%), 19% were less than five years old and 18% were more than 64 years old. 26% of them with no known risk factors. Of 1374 cases with outcome information, 155 died (13% with no known risk factors). Of the severe cases, 892 had information available on the status of influenza vaccination for the 2010/2011 season and only 134 cases (15%) had been immunised. Monovalent pandemic vaccines 2009 were reported to have been received for 10% of hospitalised cases. Most of the severe and fatal cases included in the groups which were recommended influenza vaccination had not been vaccinated this season.

*The report text 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, The Netherlands) and Thedi Ziegler (National Institute for Health and Welfare, Finland). Additionally the report is reviewed by experts of WHO regional office Europe.*