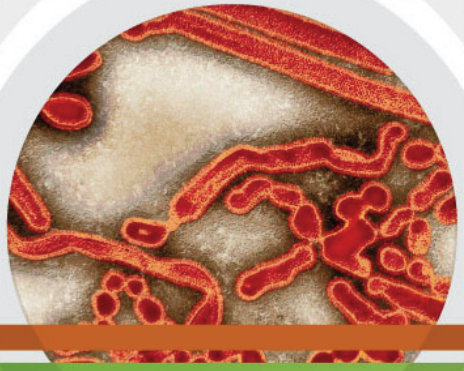


SURVEILLANCE REPORT

# Weekly influenza surveillance overview

23 March 2012

## Main surveillance developments in week 11/2012 (12–18 March 2012)

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

The 2011/12 influenza season started late and has been without any clear geographic progression. The following points are noteworthy this week:

- Decreasing trends were reported by 15 countries, eight of which have reported such trends for at least two consecutive weeks.
- Of 1 203 sentinel specimens tested, 502 (41.7%) were positive for influenza virus. The proportion of sentinel specimens testing positive for influenza virus has decreased over three consecutive weeks.
- Of the sentinel specimens that tested positive for influenza virus 82.9% were type A and 17.1% type B. The proportion of influenza B viruses reported has doubled over the past two weeks.
- There has been a degree of heterogeneity in the antigenicity of the A(H3) viruses this season and an imperfect fit with the A(H3) component in the seasonal vaccine.
- Since week 40/2011, a total of 1 378 SARI cases, including 69 fatalities, have been reported by seven countries. Of these cases, most were influenza-related.
- No resistance to neuraminidase inhibitors (oseltamivir and zanamivir) has been reported so far this season.

The decrease in the proportion of influenza-positive sentinel specimens together with the growing number of countries reporting continuously decreasing trends in the incidence of ILI or ARI indicate that the epidemic peak has passed in most European countries. As often observed late in the season, the proportion of influenza B viruses among the detected influenza viruses has been increasing over the past five weeks.

**Sentinel surveillance of influenza-like illness (ILI)/acute respiratory infection (ARI):** Medium or low intensity was reported by 25 countries and decreasing trends were reported by 15 countries. For more information, **click here**.

**Virological surveillance:** Of 502 sentinel specimens testing positive for influenza virus, 416 (82.9%) were type A and 86 (17.1%) type B. For more information, **click here**.

**Hospital surveillance of severe acute respiratory infection (SARI):** Since week 40/2011, seven countries have reported 1 378 SARI cases, most of which were related to influenza infection. For more information, **click here**.

# Sentinel surveillance (ILI/ARI)

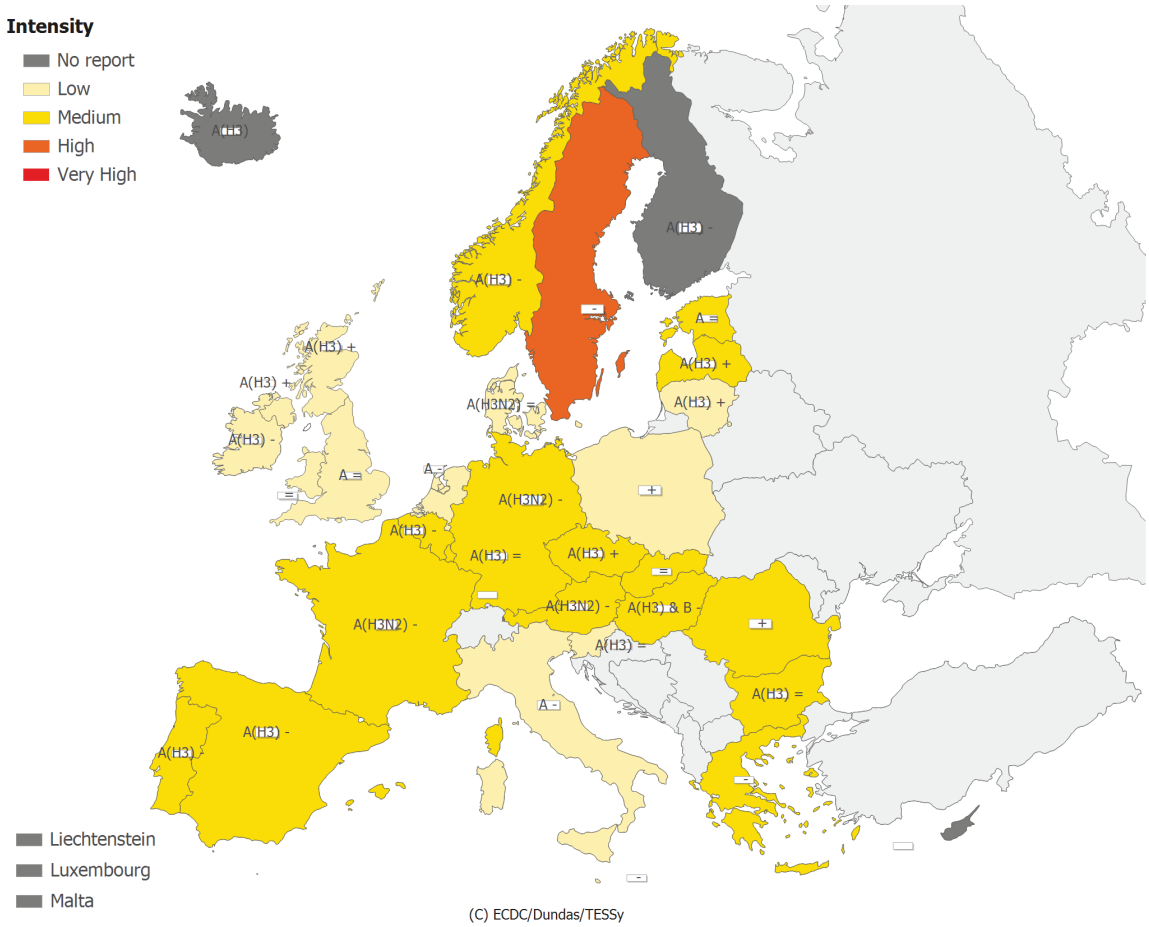
## Weekly analysis – epidemiology

During week 11/2012, 27 countries reported clinical data. Low intensity was reported by nine countries, medium intensity was reported by 16 countries and Sweden reported high intensity (Table 1, Map 1). Spain has reported medium intensity for 10 consecutive weeks and 13 countries have reported medium or higher intensity for at least three consecutive weeks.

Geographic spread was reported as widespread by 13 countries (Austria, Belgium, Estonia, France, Greece, Hungary, Latvia, Luxembourg, the Netherlands, Norway, Portugal, Slovenia, and Sweden) for the second consecutive week, regional or local by 10 countries, and sporadic by three. Poland reported no activity (Table 1, Map 2).

Decreasing trends were reported by 15 countries (Table 1, Map 2). Belgium, Finland, France, Greece, Ireland, Italy, Norway and Spain have reported decreasing trends for at least two consecutive weeks, suggesting that their influenza seasons have peaked.

## Map 1: Intensity for week 11/2012

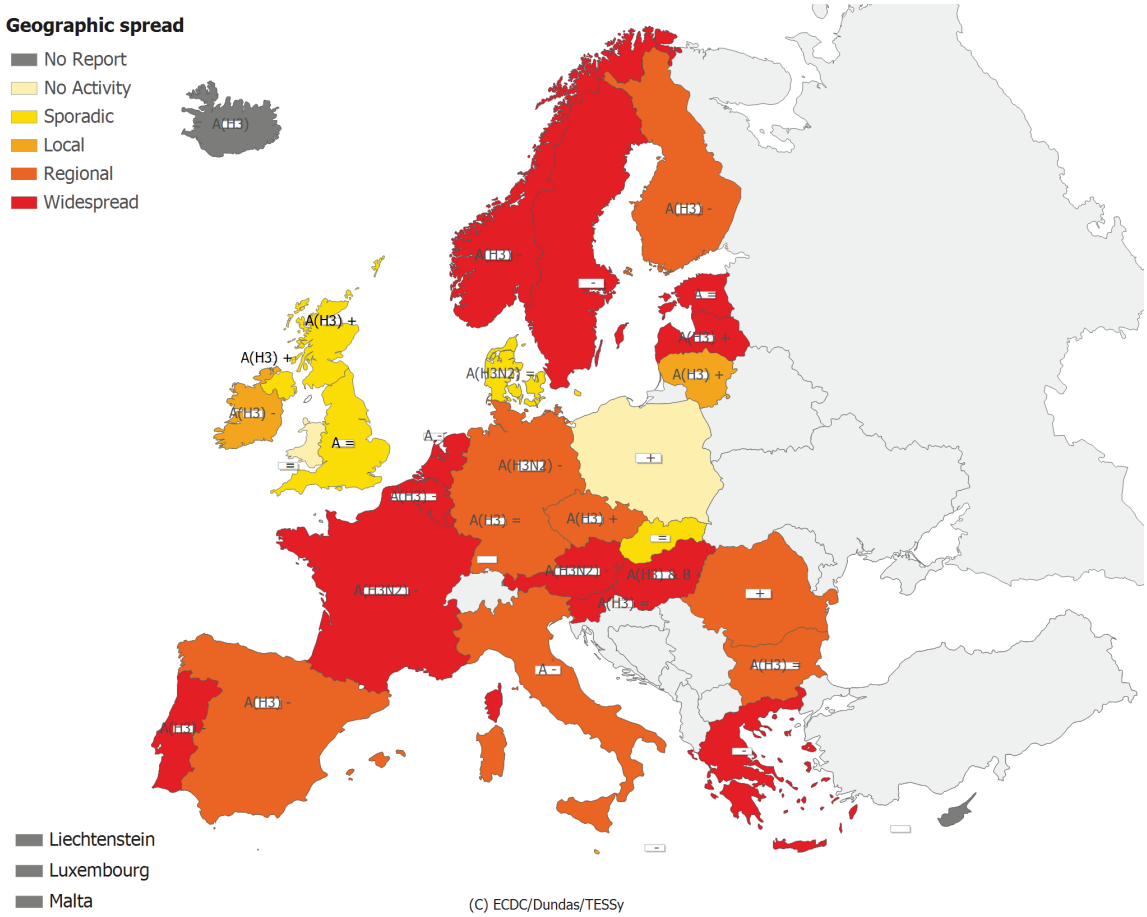



* A type/subtype is reported as dominant when at least ten samples have been detected as influenza positive in the country and of those > 40 % are positive for the type/subtype.

Legend:

| | | | |
|---|---|---|---|
| **No report** | 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** | Type A |
| **Very high** | Particularly severe levels of influenza activity | **A(H3)** | Type A, Subtype H3 |
| | | **A(H3) & B** | Type B and Type A, Subtype H3 |
| | | **A(H3N2)** | Type A, Subtype H3N2 |

## Map 2: Geographic spread for week 11/2012




* 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** | Type A |
| **A(H3)** | Type A, Subtype H3 |
| **A(H3) & B** | Type B and Type A, Subtype H3 |
| **A(H3N2)** | Type A, Subtype H3N2 |

**Table 1: Epidemiological and virological overview by country, week 11/2012**

| 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 | Widespread | Decreasing | 47 | A(H3N2) | 68.1 | 30.0 | - | Graphs | Graphs |
| Belgium | Medium | Widespread | Decreasing | 53 | A(H3) | 58.5 | 265.7 | 1763.6 | Graphs | Graphs |
| Bulgaria | Medium | Regional | Stable | 0 | A(H3) | 0.0 | - | 1025.9 | Graphs | Graphs |
| Cyprus | | | | - | - | 0.0 | - | - | | |
| Czech Republic | Medium | Regional | Increasing | 35 | A(H3) | 60.0 | 78.9 | 1083.5 | Graphs | Graphs |
| Denmark | Low | Sporadic | Stable | 3 | A(H3N2) | 0.0 | 55.5 | - | Graphs | Graphs |
| Estonia | Medium | Widespread | Stable | 34 | A | 67.6 | 15.0 | 390.4 | Graphs | Graphs |
| Finland | Unknown (no information available) | Regional | Decreasing | 67 | A(H3) | 7.5 | - | - | Graphs | Graphs |
| France | Medium | Widespread | Decreasing | 138 | A(H3N2) | 47.1 | - | 1680.7 | Graphs | Graphs |
| Germany | Medium | Regional | Decreasing | 118 | A(H3N2) | 40.7 | - | 1339.5 | Graphs | Graphs |
| Greece | Medium | Widespread | Decreasing | 46 | None | 69.6 | 329.6 | - | Graphs | Graphs |
| Hungary | Medium | Widespread | Decreasing | 46 | A(H3) & B | 41.3 | 252.8 | - | Graphs | Graphs |
| Iceland | | | | 0 | A(H3) | 0.0 | - | - | Graphs | Graphs |
| Ireland | Low | Local | Decreasing | 20 | A(H3) | 25.0 | 16.1 | - | Graphs | Graphs |
| Italy | Low | Regional | Decreasing | 35 | A | 31.4 | 205.9 | - | Graphs | Graphs |
| Latvia | Medium | Widespread | Increasing | 11 | A(H3) | 63.6 | 240.3 | 1243.1 | Graphs | Graphs |
| Lithuania | Low | Local | Increasing | 5 | A(H3) | 60.0 | 10.5 | 546.7 | Graphs | Graphs |
| Luxembourg | Medium | Widespread | Stable | 53 | A(H3) | 50.9 | -* | -* | Graphs | Graphs |
| Malta | Low | Local | Decreasing | - | - | 0.0 | -* | -* | Graphs | Graphs |
| Netherlands | Low | Widespread | Decreasing | 18 | A | 44.4 | 43.5 | - | Graphs | Graphs |
| Norway | Medium | Widespread | Decreasing | 9 | A(H3) | 66.7 | 118.7 | - | Graphs | Graphs |
| Poland | Low | No activity | Increasing | 27 | None | 11.1 | 128.7 | - | Graphs | Graphs |
| Portugal | Medium | Widespread | Decreasing | 16 | A(H3) | 56.3 | 70.1 | - | Graphs | Graphs |
| Romania | Medium | Regional | Increasing | 30 | None | 56.7 | 4.4 | 945.5 | Graphs | Graphs |
| Slovakia | Medium | Sporadic | Stable | 6 | None | 16.7 | 207.6 | 1625.6 | Graphs | Graphs |
| Slovenia | Low | Widespread | Stable | 29 | A(H3) | 82.8 | 44.5 | 1268.9 | Graphs | Graphs |
| Spain | Medium | Regional | Decreasing | 158 | A(H3) | 30.4 | 57.2 | - | Graphs | Graphs |
| Sweden | High | Widespread | Decreasing | 93 | - | 30.1 | 24.3 | - | Graphs | Graphs |
| UK - England | Low | Sporadic | Stable | 65 | A | 30.8 | 14.7 | 404.2 | Graphs | Graphs |
| UK - Northern Ireland | Low | Sporadic | Increasing | 4 | A(H3) | 0.0 | 36.3 | 468.9 | Graphs | Graphs |
| UK - Scotland | Low | Sporadic | Increasing | 34 | A(H3) | 23.5 | 18.4 | 507.2 | Graphs | Graphs |
| UK - Wales | Low | No activity | Stable | 3 | - | 33.3 | 7.8 | - | Graphs | Graphs |
| **Europe** | | | | **1203** | | **41.7** | | | | Graphs |

**Incidence per 100 000 is not calculated for these countries as no population denominator is provided.*
*Liechtenstein does not report 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) participate. 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 11/2012, 27 countries reported virological data. Of 1 203 sentinel specimens tested, 502 (41.7%) were positive for influenza virus (Table 1, Figure 1), of which 82.9% were type A and 17.1% type B (Table 2). The proportion of influenza B viruses reported has doubled over the past two weeks (8.6% in week 9/2012). This represents three consecutive weeks with significant decreases in both number of detections and proportion of positive sentinel specimens, suggesting the peak of the epidemic at the EU/EEA level has passed (Figure 1).

Of the 1 950 influenza viruses detected from sentinel and non-sentinel sources during week 11/2012, 1 858 (95.3%) were type A and 92 (4.7%) were type B. Of the 410 influenza A viruses sub-typed, 405 (98.8%) were A(H3) and five (1.2%) were A(H1)pdm09 (Table2).

Of the 25 388 influenza virus detections in sentinel and non-sentinel specimens since week 40/2011, 24 174 (95.2%) were type A and 1 214 (4.8%) were type B viruses. Of 11 787 influenza A viruses sub-typed, 11 503 (97.6%) were A(H3) viruses and 284 (2.4%) were A(H1)pdm09 (Table 2, Figures 2 and 3). The lineage of 160 influenza B viruses has been determined: 87 (54.4%) were B-Victoria and 73 (45.6%) were B-Yamagata lineage (Table 2).

Since week 40/2011, 627 antigenic characterisations of viruses have been reported, of which 525 (83.7%) were A/Perth/16/2009 (H3N2)-like (Figure 4).

Since week 40/2011, 716 genetic characterisations of viruses have been reported, 621 (86.7%) of which have been A(H3) viruses; 408 (65.7%) of which were A(H3) viruses falling within the A/Victoria/208/2009 clade, genetic group 3 represented by A/Stockholm/18/2011 (Figure 5). Viruses falling within this genetic group are antigenically diverse and therefore there is an imperfect match with the current vaccine virus A/Perth/16/2009. This is consistent with the decision of WHO to recommend changes in the strain selection for next season. See WHO report and ECDC analysis and comment.

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

Between week 40/2011 and week 11/2012, antiviral susceptibility data was reported from Germany, Italy, the Netherlands, Norway, Portugal, Romania, Sweden and the UK. None of the A(H1N1)pdm09, A(H3N2) and B viruses tested for neuraminidase inhibitor susceptibility were resistant. All A(H1N1)pdm09 and A(H3N2) viruses screened for M2 susceptibility to the adamantane class of antivirals were resistant (Table 3).

No zoonotic influenza infections of humans (i.e. viruses not usually infecting and circulating among humans) within EU/EEA countries have been reported to ECDC this week.

In week 11/2012, 19 countries reported 464 respiratory syncytial virus (RSV) detections (Figure 6). Since week 52/2011, the number of RSV detections has decreased continuously.

**Table 2: Weekly and cumulative influenza virus detections by type, sub-type and surveillance system, weeks 40/2011–11/2012**

| Virus type/subtype | Current period Sentinel | Current period Non-sentinel | Season Sentinel | Season Non-sentinel |
|---|---|---|---|---|
| Influenza A | 416 | 1858 | 7270 | 16904 |
| A(H1)pdm09 | 3 | 5 | 75 | 209 |
| A(H3) | 320 | 405 | 6466 | 5037 |
| A(sub-typing not performed) | 93 | 1448 | 729 | 11658 |
| Influenza B | 86 | 92 | 597 | 617 |
| B(Vic) lineage | 12 | 0 | 52 | 35 |
| B(Yam) lineage | 4 | 1 | 36 | 37 |
| Unknown lineage | 70 | 91 | 509 | 545 |
| **Total influenza** | **502** | **1950** | **7867** | **17521** |

*Note: A(H1)pdm09 and A(H3) include both N-sub-typed and non-N-sub-typed viruses*

**Figure 1: Proportion of sentinel specimens positive for influenza virus, weeks 40/2011–11/2012**

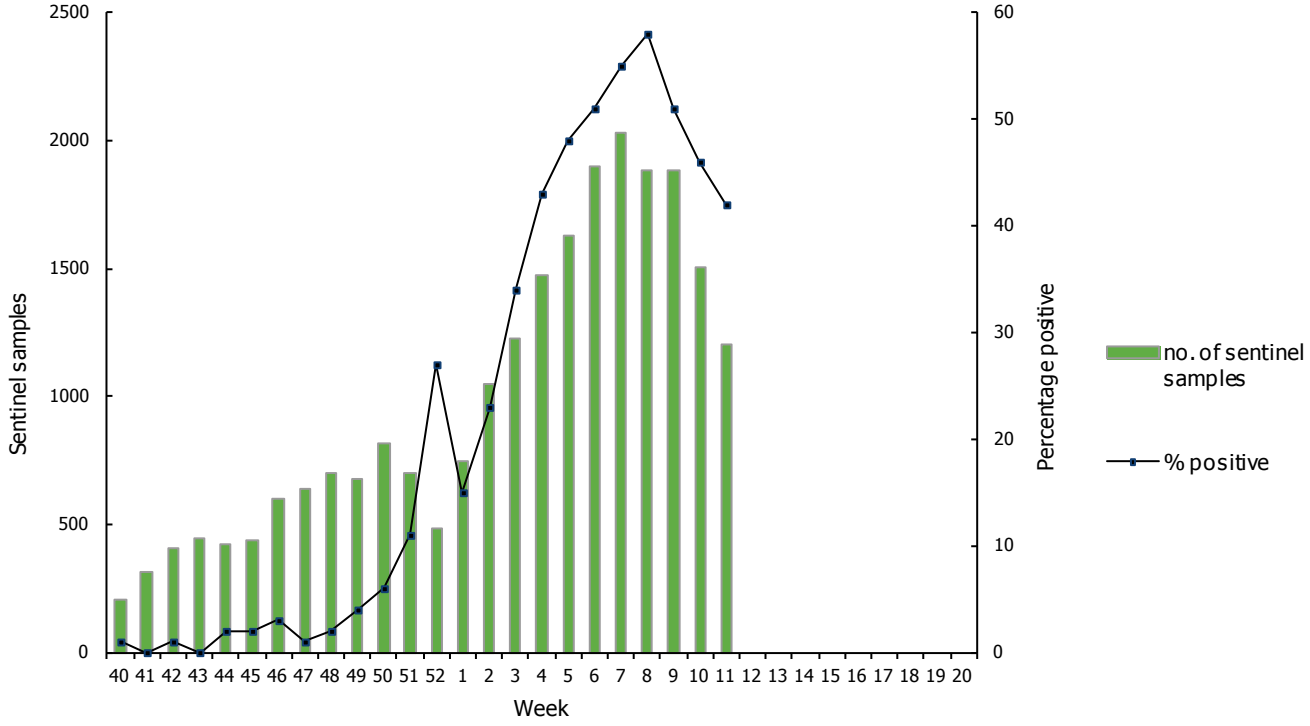



**Figure 2: Number of sentinel specimens positive for influenza virus, by type, sub-type and week of report, weeks 40/2011–11/2012**

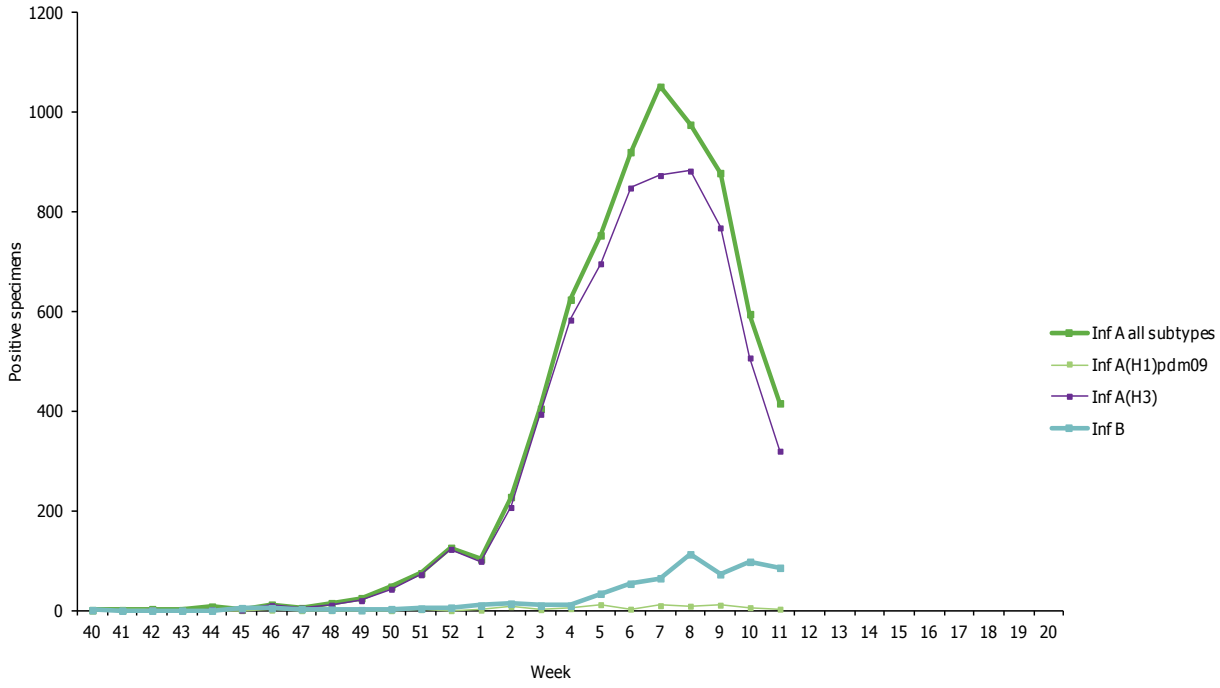


**Figure 3: Number of non-sentinel specimens positive for influenza virus by type, sub-type and week of report, weeks 40/2011–11/2012**

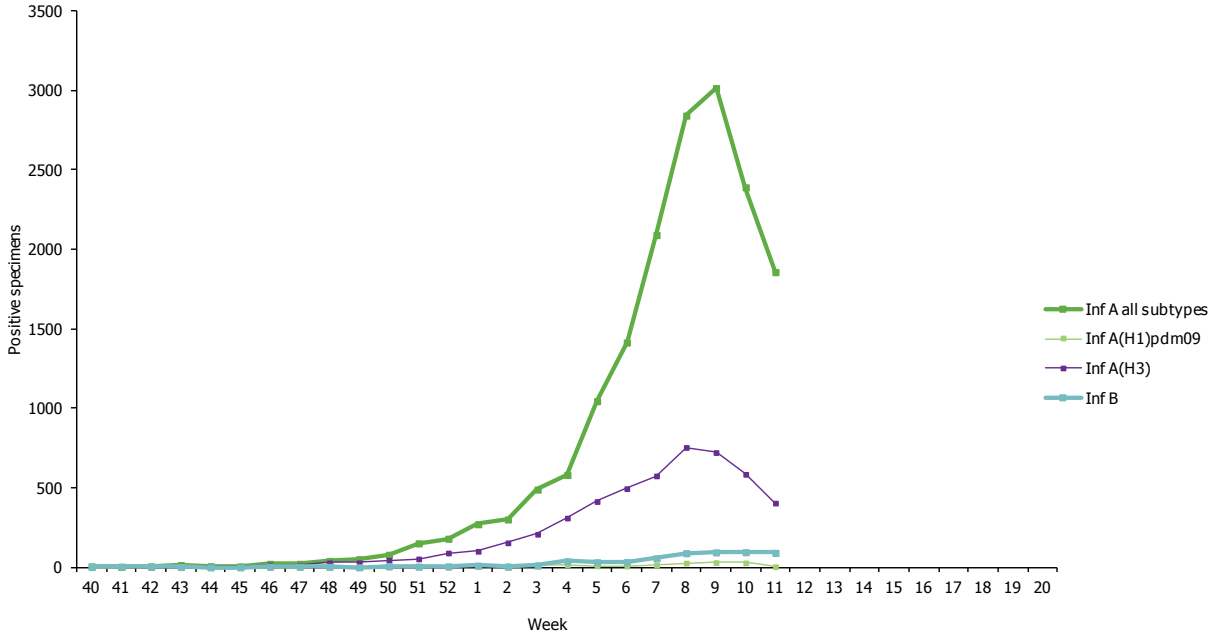



**Figure 4: Results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates, weeks 40/2011–11/2012**

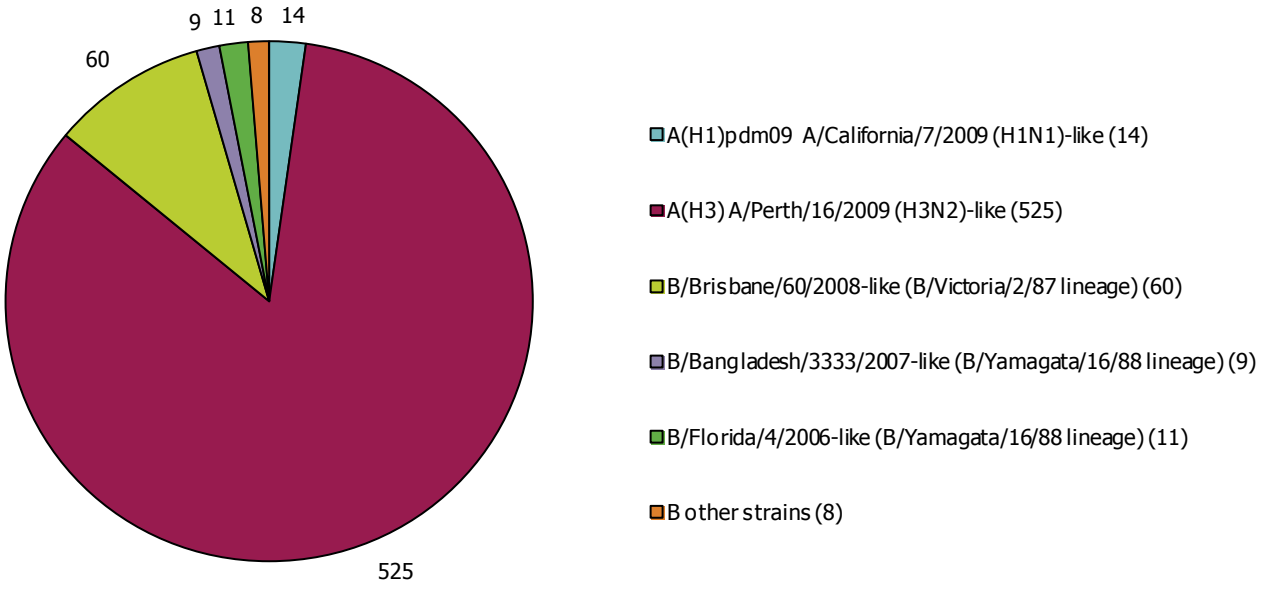


**Figure 5: Results of genetic characterisations of sentinel and non-sentinel influenza virus isolates, weeks 40/2011–11/2012**

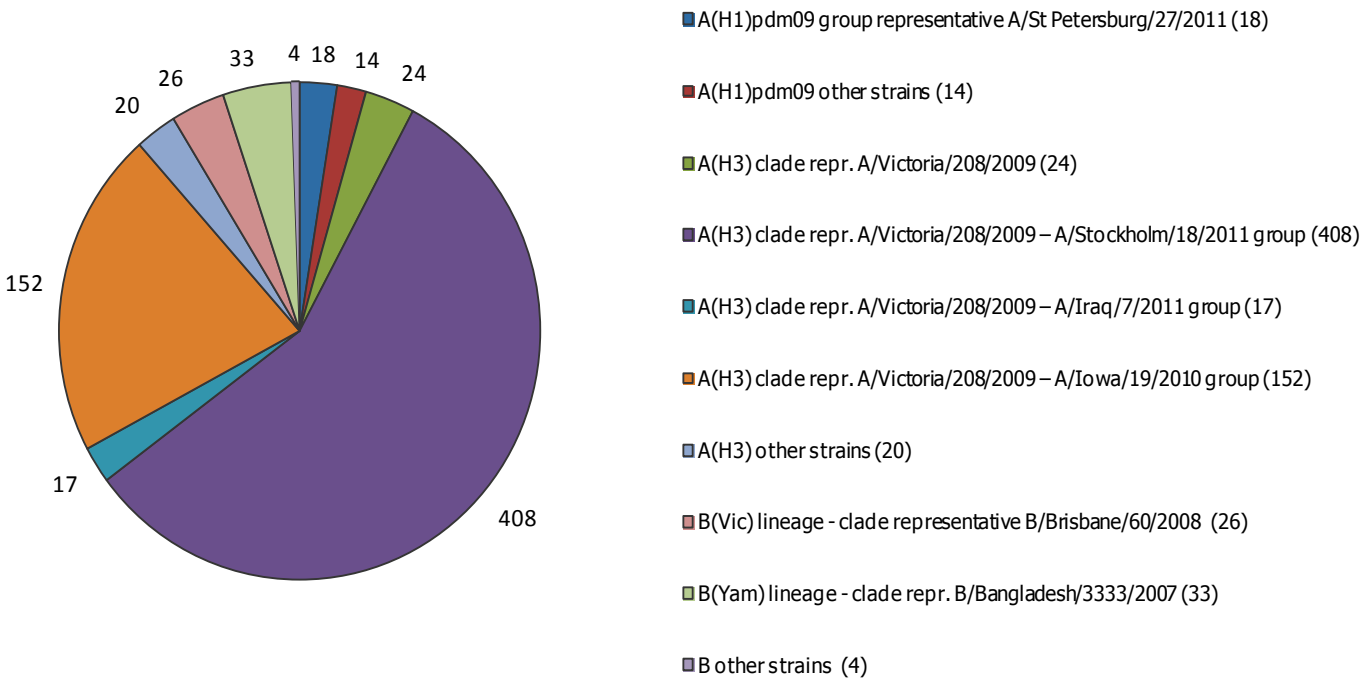
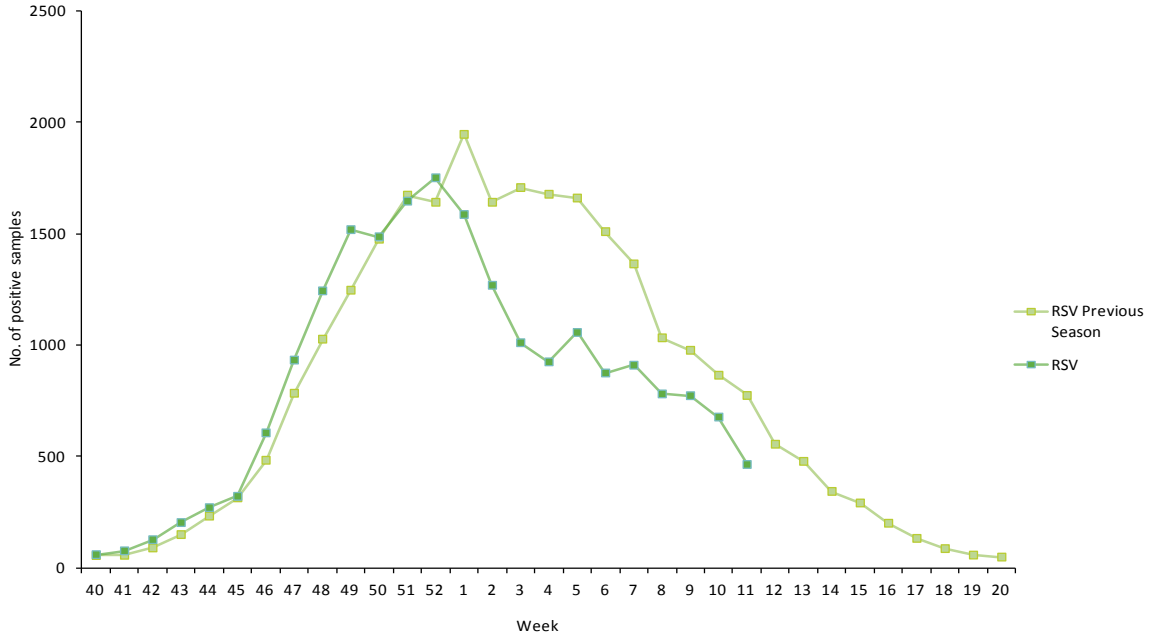



**Table 3: Antiviral resistance by influenza virus type and sub-type, weeks 40/2011–11/2012**

| Virus type and sub-type | Resistance to neuraminidase inhibitors | | | | Resistance to M2 inhibitors | |
|---|---|---|---|---|---|---|
| | Oseltamivir | | Zanamivir | | Isolates tested | Resistant n (%) |
| | Isolates tested | Resistant n (%) | Isolates tested | Resistant n (%) | | |
| A(H3N2) | 252 | | 244 | | 98 | 98 (100) |
| A(H1N1)2009 | 30 | 0 | 30 | 0 | 7 | 7 (100) |
| B | 15 | 0 | 14 | 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 6: Respiratory syncytial virus (RSV) detections, sentinel and non-sentinel, weeks 40/2011–11/2012**




# 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 influenza disease

## Weekly analysis of severe acute respiratory infection – SARI

Since week 40/2011, a total of 1 378 SARI cases, including 69 fatalities, have been reported by seven countries (Table 4 and Figure 7). Of 1 240 patients for whom information was available, 669 (54.0%) were male (Table 5).

Of 43 SARI cases reported in week 11/2012, 23 were related to influenza virus infection, of which 15 were of the A(H3) subtype (Table 6).

Of the 1 378 cumulative cases since week 40/2011, 991 (71.9%) were influenza-related. Of these, 640 were confirmed as type A virus infections with sub-typing revealing that 605 (94.5%) were A(H3) and 35 (5.5%) were A(H1)pdm09 infections (Table 6).

Of 599 SARI cases with confirmed influenza virus infection for which the vaccination status was available, 198 (33.1%) were vaccinated against influenza (Table 7).

**Table 4: Cumulative number of SARI cases, weeks 40/2011–11/2012**

| 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 | 280 | 4.82 | 5 | 0.09 | 5813728 |
| Ireland | 7 | | 3 | | |
| Spain | 531 | | 30 | | |
| Belgium | 177 | | 5 | | |
| Slovakia | 25 | 0.46 | | | 5440078 |
| France | 229 | | 26 | | |
| United Kingdom | 129 | 0.22 | | | 59255492 |
| **Total** | **1378** | | **69** | | |

**Figure 7: Number of SARI cases by week of onset, weeks 40/2011–11/2012**

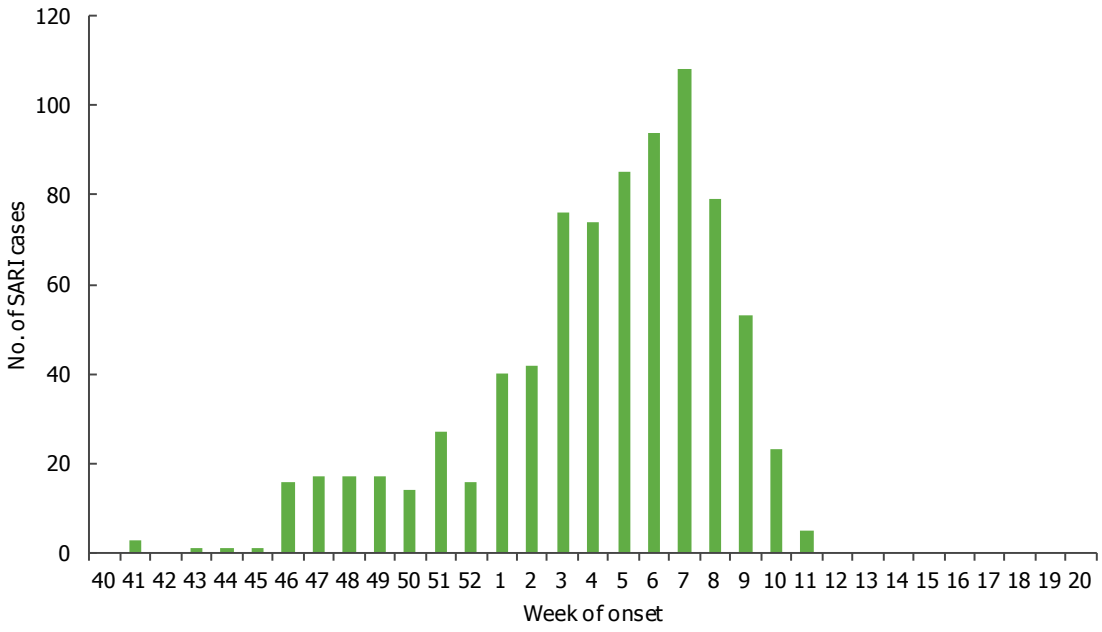


**Table 5: Number of SARI cases by age and gender, weeks 40/2011–11/2012**

| Age groups | Male | Female | Unknown |
|---|---|---|---|
| Under 2 | 134 | 94 | 1 |
| 2-17 | 129 | 94 | |
| 18-44 | 57 | 64 | 2 |
| 45-59 | 84 | 75 | 2 |
| >=60 | 259 | 243 | 3 |
| Unknown | 6 | 1 | 130 |
| **Total** | **669** | **571** | **138** |

**Table 6: Number of SARI cases by influenza type and sub-type and other pathogens, week 11/2012 and cumulative for the season**

| Pathogen | Number of cases during current week | Cumulative number of cases since the start of the season |
|---|---|---|
| Influenza A | 22 | 962 |
| A(H1)pdm09 | | 35 |
| A(H3) | 15 | 605 |
| A(sub-typing not performed) | 7 | 322 |
| Influenza B | 1 | 29 |
| Other pathogen | | 5 |
| Unknown | 20 | 382 |
| **Total** | **43** | **1378** |

**Table 7: Number of SARI cases with confirmed influenza virus infection by influenza vaccination status, weeks 40/2011–11/2012**

| Vaccination status | No. of influenza cases | Percentage of cases |
|---|---|---|
| Seasonal vaccination | 136 | 13.7 |
| Vaccinated for A(H1N1)pdm09 | 9 | 0.9 |
| Fully vaccinated for seasonal & A(H1N1)pdm09 | 53 | 5.3 |
| Not vaccinated | 401 | 40.5 |
| Unknown | 392 | 39.6 |
| **TOTAL** | **991** | |

*This report was written by an editorial team at the European Centre for Disease Prevention and Control (ECDC): Eeva Broberg, Flaviu Plata, Julien Beauté 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 Amparo Larrauri Cámara (Instituto de Salud Carlos III, Spain) and Suzie Coughlan (UCD National Virus Reference Laboratory, Ireland). In addition, the report is reviewed by experts of WHO Regional Office for Europe.*

*Maps and commentary published in this Weekly Influenza Surveillance Overview (WISO) do not represent a statement on the part of ECDC or its partners on the legal or border status of the countries and territories shown.*

*All data published in the WISO are up-to-date on the day of publication. Past this date, however, published data should not be used for longitudinal comparisons as countries tend to retrospectively update their database.*

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