

SURVEILLANCE REPORT

Weekly influenza surveillance overview

04 December 2009

Main surveillance developments in week 48/2009 (23 Nov 2009—29 Nov 2009)

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

- Overall, 17 countries reported widespread activity in week 48 while all reporting countries are still experiencing medium to very high influenza intensity.
- Eleven countries reported increasing activity, many of which are in Eastern and Southern Europe.
- Influenza intensity has been declining for at least two consecutive weeks in nine countries, many of which are located in Northern, Western and Central Europe.
- Oseltamivir resistance has been reported at very low levels in the EU.
- Seasonal influenza strains continue to be very rarely detected and more than 99% of subtyped viruses have been influenza A(H1N1)v.
- The percentage of samples from sentinel patients positive for influenza seen in primary care has declined since week 46. Nevertheless, the percentage is higher in countries reporting increasing trends.

Sentinel surveillance of influenza-like illness (ILI)/ acute respiratory illness (ARI): All 25 countries reported levels for ILI and/or ARI above baseline levels, ranging from medium to very high. Widespread activity was reported in 17 countries across the EU. For more information, [click here](#).

Virological surveillance: Sentinel physicians collected 3349 respiratory specimens, of which 1263 (37.7%) were positive for influenza virus. Of the 11 658 viruses detected by sentinel networks since week 40/2009, 11 615 were type A and 43 were type B. So far, oseltamivir resistance was only detected in four out of 904 viruses tested and reported to EISN. For more information, [click here](#).

Aggregate numbers of pandemic H1N1 2009 deaths: Ten countries reported 41 new deaths. Since the beginning of the pandemic, 483 deaths have been reported. For more information, [click here](#).

Hospital surveillance of severe acute respiratory infection (SARI): Seven countries reported 207 SARI cases, 41 of whom had symptom onset during week 48/2009. Since the beginning of this surveillance, 2336 SARI cases including 97 fatalities have been reported. For more information, [click here](#).

Qualitative reporting: No qualitative indicator data are available yet. For more information, [click here](#).

Sentinel surveillance (ILI/ARI)

Weekly analysis – epidemiology

In week 48/2009, 25 countries reported epidemiological data. For the intensity activity indicator—national network levels for ILI and/or ARI—Greece and Lithuania reported very high intensity, Denmark, Estonia, Germany, Ireland, Latvia, Luxembourg, Norway, Poland, Slovenia and Sweden reported high intensity and the remaining 13 countries reported medium intensity.

For the geographic spread indicator, 17 countries (Belgium, Denmark, Estonia, France, Germany, Greece, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Norway, Poland, Portugal, Slovenia, Spain and Sweden) and part of the UK (Wales) reported widespread activity. Five countries reported regional activity and three reported local activity.

For the trend indicator, eleven countries reported increasing activity, twelve countries reported decreasing activity and three countries reported stable activity. For definitions of the intensity and geographic spread indicators, [click here](#).

Since week 40/2009, all countries reporting data to EISN have experienced influenza intensity activity above baseline levels. Intensity curves started to decline in Iceland in week 43, in Belgium in week 44, in Norway and Bulgaria in week 45, in Italy, the Netherlands and Sweden in week 46 and in Germany and Denmark in week 47. Intensity curves declined for the first time during week 48 in Slovakia, Slovenia and Spain. Decreasing ILI/ARI intensity does not necessarily imply decreasing numbers of hospitalisations and deaths due to A(H1N1)v influenza. These numbers may remain high for some time after ILI/ARI activity has peaked.

During the 2009/10 season, most countries started to report influenza activity above baseline levels earlier than in recent seasons. In addition, peak incidences of ILI and/or ARI have generally been higher in 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 48/2009

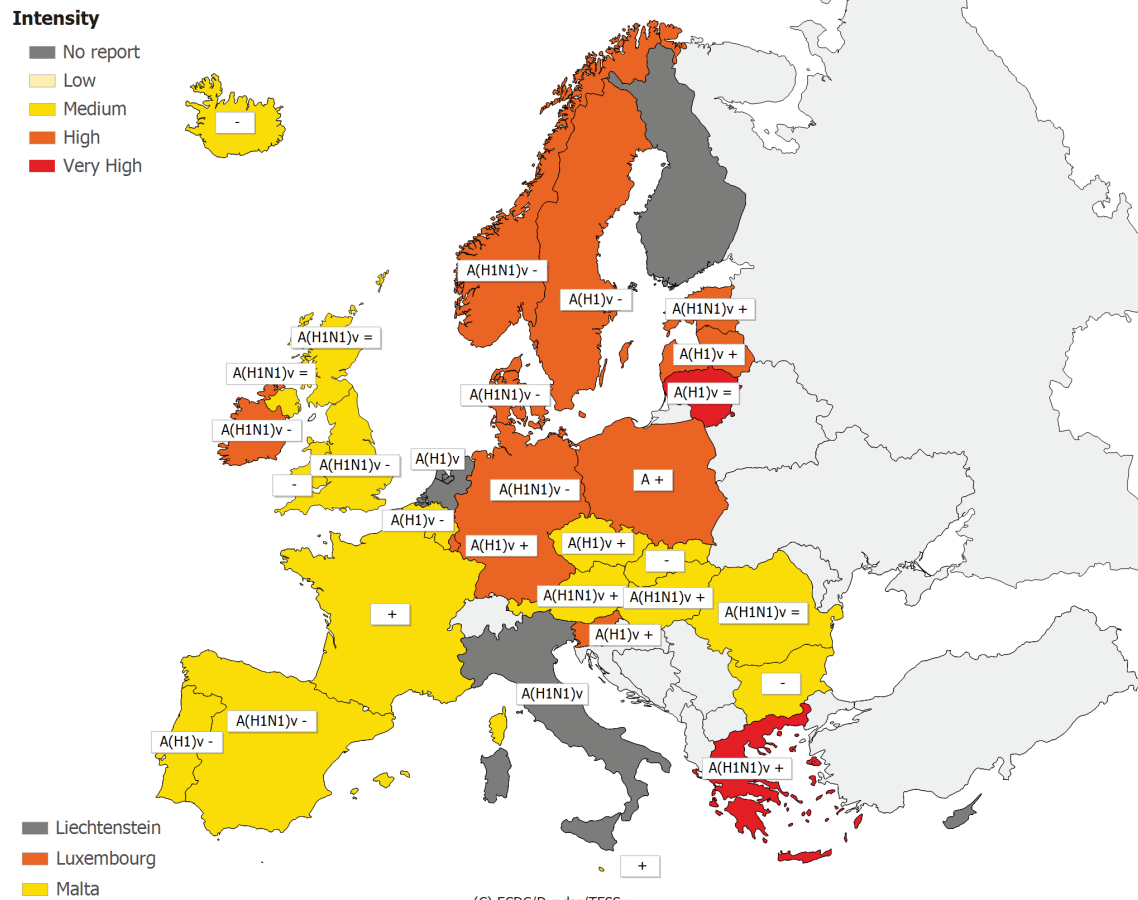


Table 1: Epidemiological and virological overview by country

| 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 | Increasing | 45 | A(H1N1)v | 62.2 | - | 40.3 | Graphs | Graphs |
| Belgium | Medium | Widespread | Decreasing | 104 | A(H1)v | 36.5 | 246.6 | 1409.5 | Graphs | Graphs |
| Bulgaria | Medium | Local | Decreasing | 0 | - | - | - | 880.3 | Graphs | Graphs |
| Czech Republic | Medium | Regional | Increasing | 44 | A(H1)v | 56.8 | 292.0 | 1619.2 | Graphs | Graphs |
| Denmark | High | Widespread | Decreasing | 22 | A(H1N1)v | 36.4 | 305.7 | 0.0 | Graphs | Graphs |
| Estonia | High | Widespread | Increasing | 94 | A(H1N1)v | 44.7 | 63.2 | 1007.5 | Graphs | Graphs |
| Finland | - | - | - | - | - | - | - | - | Graphs | Graphs |
| France | Medium | Widespread | Increasing | 0 | - | - | - | 2944.0 | Graphs | Graphs |
| Germany | High | Widespread | Decreasing | 200 | A(H1N1)v | 50.5 | - | 1530.9 | Graphs | Graphs |
| Greece | Very High | Widespread | Increasing | 91 | A(H1N1)v | 63.7 | 630.2 | - | Graphs | Graphs |
| Hungary | Medium | Widespread | Increasing | 222 | A(H1N1)v | 39.6 | 403.7 | - | Graphs | Graphs |
| Iceland | Medium | Local | Decreasing | 22 | None | 4.5 | 42.6 | - | Graphs | Graphs |
| Ireland | High | Widespread | Decreasing | 75 | A(H1N1)v | 24.0 | 93.6 | - | Graphs | Graphs |
| Italy | | | | 92 | A(H1N1)v | 39.1 | - | - | Graphs | Graphs |
| Latvia | High | Widespread | Increasing | 9 | A(H1)v | 88.9 | 537.2 | 2011.8 | Graphs | Graphs |
| Lithuania | Very High | Widespread | Stable | 22 | A(H1)v | 86.4 | 569.6 | 1924.8 | Graphs | Graphs |
| Luxembourg | High | Widespread | Increasing | 74 | A(H1)v | 40.5 | 5566.2 | 22648.8 | Graphs | Graphs |
| Malta | Medium | Regional | Increasing | 0 | - | - | 14519.6 | - | Graphs | Graphs |
| Netherlands | | | | 44 | A(H1)v | 38.6 | - | - | Graphs | Graphs |
| Norway | High | Widespread | Decreasing | 26 | A(H1N1)v | 26.9 | 295.9 | - | Graphs | Graphs |
| Poland | High | Widespread | Increasing | 364 | A | 12.9 | 353.0 | - | Graphs | Graphs |
| Portugal | Medium | Widespread | Decreasing | 18 | A(H1)v | 61.1 | 71.7 | - | Graphs | Graphs |
| Romania | Medium | Regional | Stable | 129 | A(H1N1)v | 56.6 | 7.4 | 1276.1 | Graphs | Graphs |
| Slovakia | Medium | Local | Decreasing | 0 | - | - | 494.1 | 2495.2 | Graphs | Graphs |
| Slovenia | High | Widespread | Increasing | 92 | A(H1)v | 68.5 | 201.6 | 1751.5 | Graphs | Graphs |
| Spain | Medium | Widespread | Decreasing | 599 | A(H1N1)v | 45.1 | 242.1 | - | Graphs | Graphs |
| Sweden | High | Widespread | Decreasing | 81 | A(H1)v | 29.6 | 29.2 | - | Graphs | Graphs |
| UK - England | Medium | Regional | Decreasing | 316 | A(H1N1)v | 26.3 | 38.6 | 463.8 | Graphs | Graphs |
| UK - Northern Ireland | Medium | Sporadic | Stable | 41 | A(H1N1)v | 26.8 | 99.2 | 426.6 | Graphs | Graphs |
| UK - Scotland | Medium | Regional | Stable | 523 | A(H1N1)v | 29.4 | 34.8 | 335.7 | Graphs | Graphs |
| UK - Wales | Medium | Widespread | Decreasing | 0 | - | - | 63.0 | - | Graphs | Graphs |
| Europe | | | | 3349 | | 37.6 | | | 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 48/2009, 27 countries reported virological data. Sentinel physicians collected 3349 respiratory specimens, of which 1263 (37.7%) were positive for influenza virus (Tables 1 & 2). This proportion has now decreased for two consecutive weeks. In addition, 6586 non-sentinel source specimens (e.g. specimens collected for diagnostic purposes in hospitals) were reported positive for influenza virus. Of the 11 658 viruses detected by sentinel networks since week 40/2009, 11 615 were type A and 43 were type B viruses. 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 243 influenza viruses reported from week 40/2009 to week 48/2009, 241 (99%) were reported as A/California/7/2009 (H1N1)v-like and two (<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 A(H1N1)v viruses tested so far have been resistant to M2 inhibitors. Oseltamivir resistance was detected in only four out of 904 viruses tested and reported to EISN so far, whereas resistance to zanamivir was not detected in any of the 282 tested strains (Table 3).

Specimens have been tested for respiratory syncytial virus (RSV) in eight countries of which three reported positive results. Overall RSV detections are increasing (Figure 5).

Table 2: Weekly and cumulative influenza virus detections by type, subtype and surveillance system, weeks 40/2009–48/2009

| Virus type/subtype | Current Week | | Season | |
|-----------------------------|--------------|--------------|--------------|--------------|
| | Sentinel | Non-sentinel | Sentinel | Non-sentinel |
| Influenza A | 1261 | 6575 | 11615 | 54425 |
| A (pandemic H1N1) | 1151 | 5634 | 11026 | 46450 |
| A (subtyping not performed) | 80 | 907 | 504 | 7641 |
| A (not subtypable) | 0 | 0 | 50 | 278 |
| A (H3) | 0 | 0 | 4 | 21 |
| A (H1) | 30 | 34 | 31 | 35 |
| Influenza B | 2 | 11 | 43 | 52 |
| Total Influenza | 1263 | 6586 | 11658 | 54477 |

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 40/2009–48/2009

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

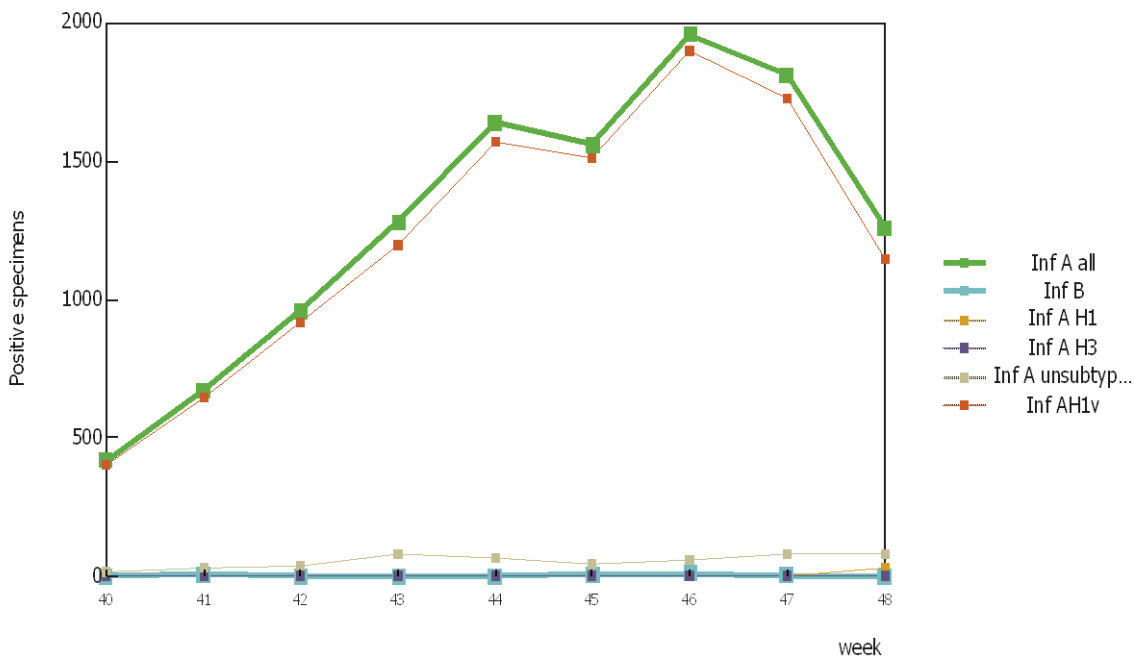


Figure 2: Number of non-sentinel specimens positive for influenza by type, subtype and week of report, weeks 40/2009–48/2009

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

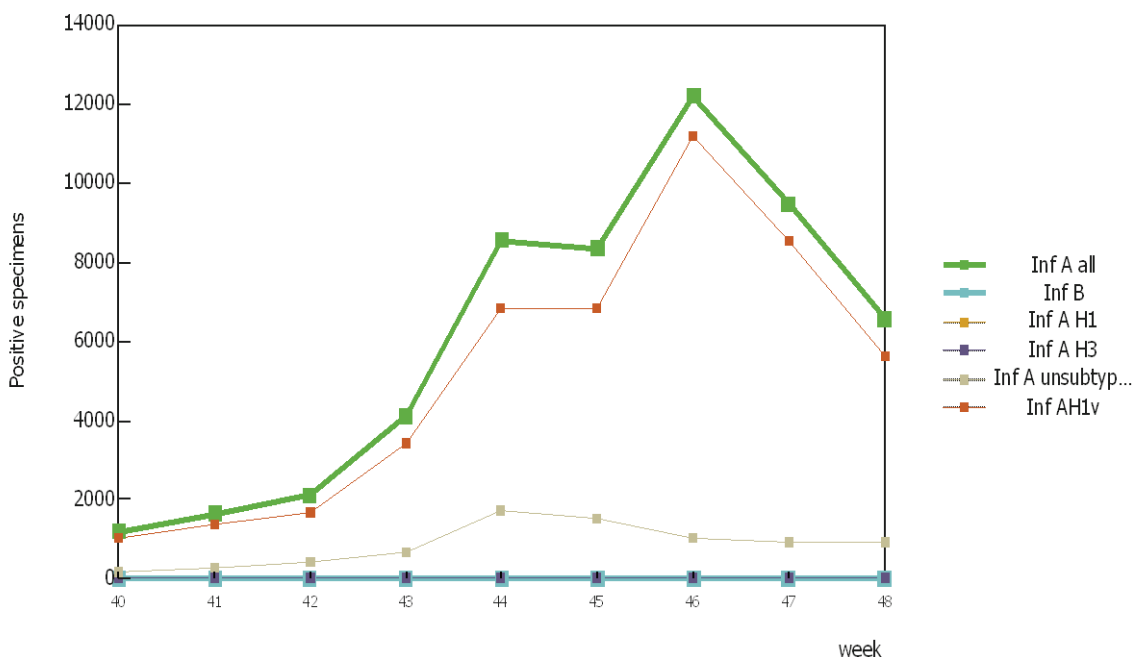


Figure 3: Proportion of sentinel samples positive for influenza, weeks 40/2009–48/2009

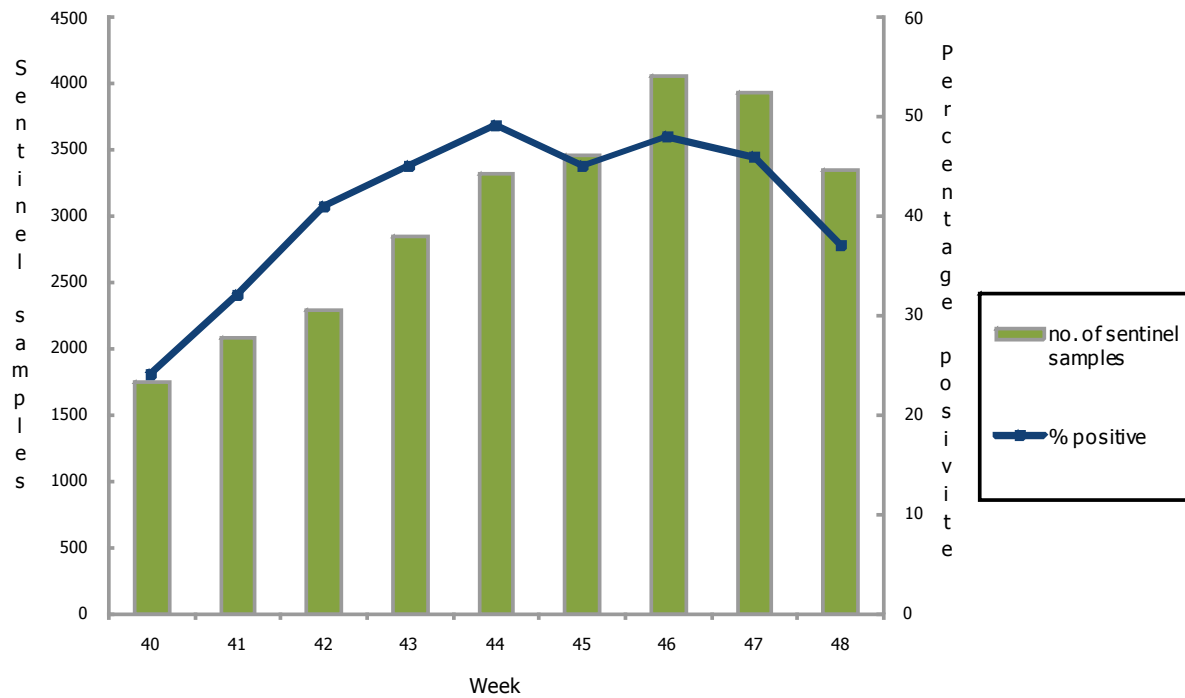


Figure 4: Results of antigenic characterisations of sentinel and non-sentinel influenza virus isolates since week 40/2009

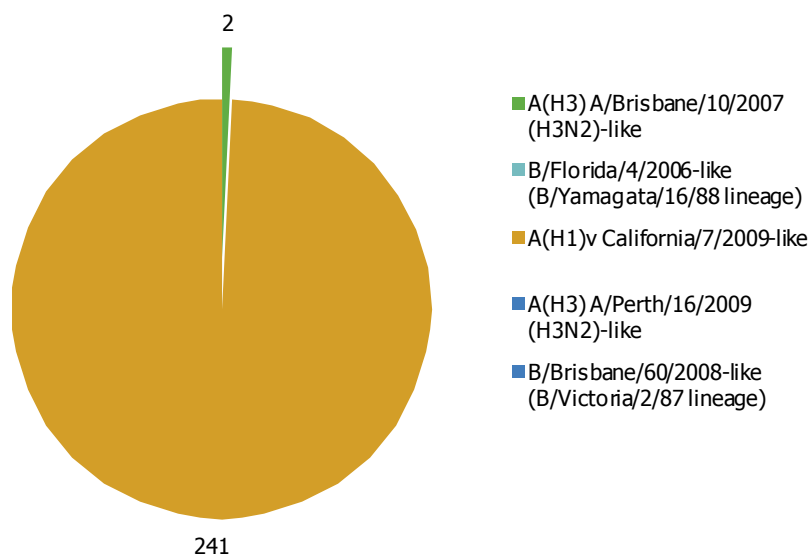


Figure 5: Respiratory syncytial virus (RSV) detections (sentinel and non-sentinel), weeks 40/2009–48/2009

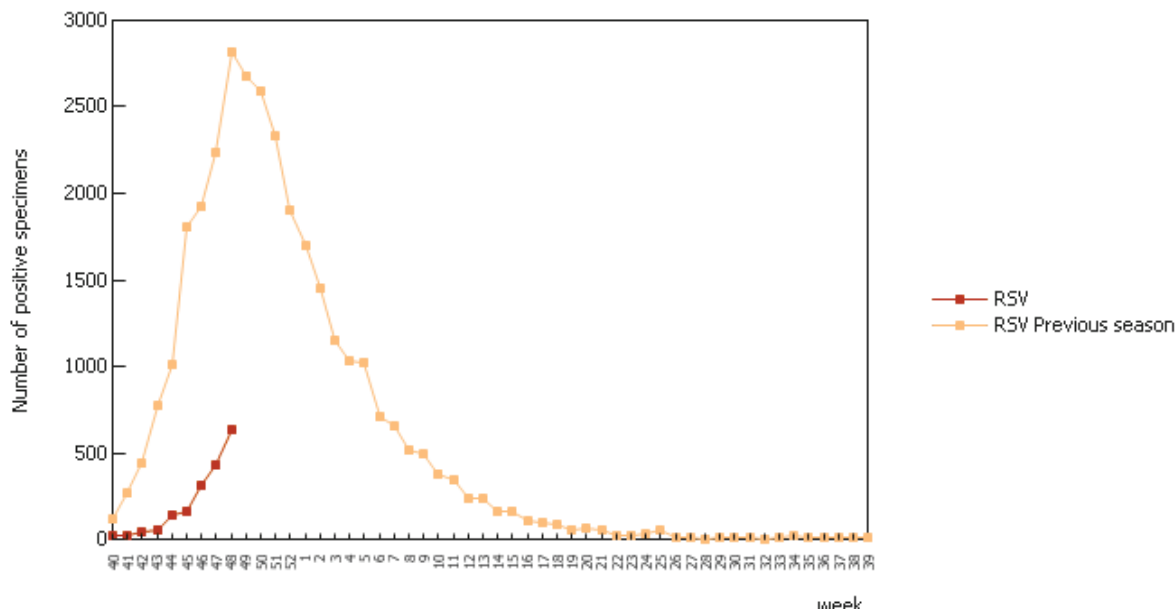


Table 3: Antiviral resistance by influenza virus type and subtype, weeks 40/2009–48/2009

| 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 | 904 | 4 (0.44%) | 282 | 0 | 64 | 64 (100%) |
| B | 0 | 0 | 0 | 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 deaths

Weekly analysis — deaths

In week 48/2009, 10 countries reported 41 new deaths. Since the beginning of the pandemic, 483 deaths have been reported.

Table 4: Aggregate numbers of pandemic H1N1 2009 deaths

| Country | Deaths reported in week 48 | Cumulative deaths since start of season |
|----------------|----------------------------|---|
| Austria | - | 0 |
| Belgium | - | 0 |
| Bulgaria | 0 | 29 |
| Cyprus | - | 0 |
| Czech Republic | 6 | 12 |
| Denmark | - | 0 |
| Estonia | 1 | 2 |
| Finland | - | 0 |
| France | - | 92 |
| Germany | 11 | 66 |
| Greece | 6 | 16 |
| Hungary | 5 | 13 |
| Iceland | 0 | 2 |
| Ireland | 0 | 18 |
| Italy | - | 1 |
| Latvia | - | 1 |
| Lithuania | 1 | 2 |
| Luxembourg | - | 1 |
| Malta | 0 | 3 |
| Netherlands | 5 | 37 |
| Norway | 1 | 25 |
| Poland | - | 9 |
| Portugal | - | 0 |
| Romania | 2 | 3 |
| Slovakia | - | 0 |
| Slovenia | 3 | 5 |
| Spain | - | 4 |
| Sweden | 0 | 15 |
| United Kingdom | 0 | 127 |
| Total | 41 | 483 |

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.

Hospital surveillance – severe acute respiratory infection (SARI)

Weekly analysis – SARI

During week 48/2009, 207 SARI cases were reported of whom 41 had symptom onset during the same week. Since the beginning of this surveillance, seven EU countries have reported 2336 cases including 97 fatalities (Table 5).

The weekly number of SARI cases has increased since week 45, most probably due to improved reporting (Figure 5).

Of the 207 SARI cases reported in week 48, 133 (64%) required ICU admission (Table 9).

Detailed information on SARI cases reported during week 48 is described in Tables 6–12.

Table 5: Cumulative number and incidence of SARI and fatal cases, weeks 40/2009–week 48/2009

| Country | Number of SARI cases | Incidence SARI cases /100'000 population | Number of fatal cases | Incidence fatal cases /100'000 population | Estimated population covered |
|-------------|----------------------|--|-----------------------|---|------------------------------|
| Austria | 8 | | 8 | | |
| Belgium | 1339 | 12.5 | | | 10666866 |
| Cyprus | 4 | | | | |
| France | 453 | | 69 | | |
| Malta | 25 | 6 | | | 413609 |
| Netherlands | 469 | 2.8 | 19 | 0.11 | 16521505 |
| Romania | 38 | 3 | 1 | 0.08 | 1268418 |
| Total | 2336 | 8.1 | 97 | 0.11 | 28870398 |

Figure 6: Number of SARI cases by week of onset, week 48/2009

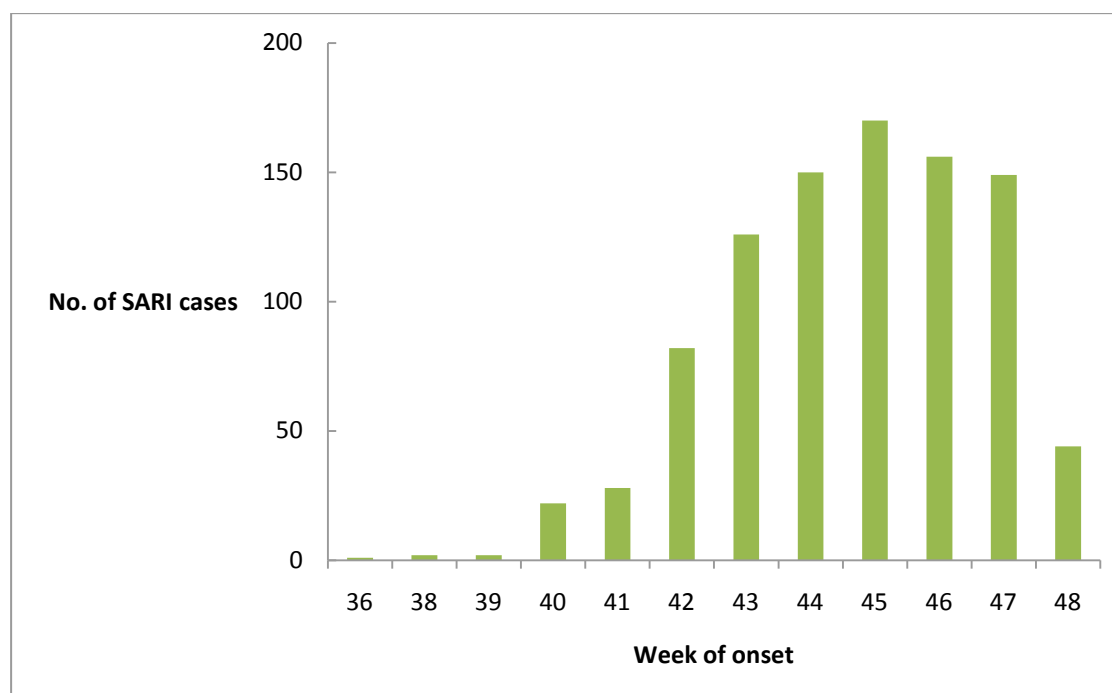


Table 6: Number of SARI cases by age and gender, week 48/2009

| Age groups | Male | Female | Other (e.g., transsexual) | Unknown |
|------------|------|--------|---------------------------|---------|
| Under 2 | 6 | 3 | | 7 |
| 2-17 | 16 | 13 | | 15 |
| 18-44 | 17 | 33 | | 2 |
| 45-59 | 26 | 29 | | 3 |
| >=60 | 16 | 11 | | 9 |
| Unknown | 1 | | | |
| Total | 82 | 89 | | 36 |

Table 7: Number of SARI cases by influenza type and subtype, week 48/2009

| Virus type/subtype | Number of cases during current week | Cumulative number of cases since the start of the season |
|----------------------------|-------------------------------------|--|
| Influenza A | 167 | 953 |
| A (pandemic H1N1) | 163 | 938 |
| A(subtyping not performed) | | 3 |
| A(H3) | | |
| A(H1) | 4 | 12 |
| A(H5) | | |
| Influenza B | | |
| Unknown | 40 | 1383 |
| Total | 207 | 2336 |

Table 8: Number of SARI cases by antiviral treatment, week 48/2009

| Antiviral treatment | Number of patients who received prophylaxis | Number of patients who received anti-viral treatment |
|----------------------------------|---|--|
| Oseltamivir | | 72 |
| Zanamivir | | 1 |
| Oseltamivir and Zanamivir | | 5 |
| Other (or any other combination) | | 1 |
| Unknown | 196 | 117 |
| None | 11 | 11 |
| Total | 207 | 207 |

Table 9: Number of SARI cases by level of care and respiratory support, week 48/2009

| Respiratory support | ICU | Inpatient ward | Other | Unknown |
|-----------------------------------|-----|----------------|-------|---------|
| No respiratory support necessary | 4 | 25 | | |
| Oxygen therapy | 93 | 5 | | 4 |
| Respiratory support given unknown | 32 | | | 40 |
| Ventilator | 4 | | | |

Table 10: Number of SARI cases by vaccination status, week 48/2009

| Vaccination Status | Number Of Cases | Percentage of cases |
|---|-----------------|---------------------|
| Both, seasonal and pandemic vaccination | 4 | 1.9 |
| Not full pandemic vaccination | 0 | 0 |
| Not vaccinated | 53 | 25.6 |
| Pandemic vaccination | 1 | 1 |
| Seasonal vaccination | 18 | 8.7 |
| Unknown | 131 | 63 |
| Total | 207 | |

Table 11: Number of underlying conditions in SARI cases by age group, week 48/2009

| Underlying condition/risk factor | Infant below 2 years | 2-17 years | 18-44 years | 45-59 years | >=60 years |
|---|----------------------|------------|-------------|-------------|------------|
| Asthma | 1 | 8 | 11 | 5 | 2 |
| Cancer | | 1 | 1 | 4 | 3 |
| Diabetes | | | 5 | 4 | 3 |
| Chronic heart disease | | 1 | | 6 | 4 |
| HIV/other immune deficiency | | | 1 | 8 | 2 |
| Kidney-related condition | | | 1 | 1 | 1 |
| Liver-related condition | 1 | | | 1 | 1 |
| Chronic lung disease | 1 | | 3 | 11 | 13 |
| Neurocognitive disorder (including seizure) | | 1 | | | |
| Neuromuscular disorder | | | | | 1 |
| No underlying condition | 4 | 8 | 9 | 10 | 2 |
| Other (please specify separately) | | 1 | 3 | 2 | |
| Obesity (BMI between 30 and 40) | | 1 | 7 | 11 | 6 |
| Pregnancy | | | 8 | | |
| Underlying condition unknown | 9 | 24 | 13 | 12 | 9 |

Note: Obesity is considered an underlying condition only if no other underlying conditions are present. One case can have more than one underlying condition. Note: One case can have more than one complication.

Table 12: Additional clinical complications in SARI cases by age group, week 48/2009

| Additional clinical complications | Infant below 2 years | 2-17 years | 18-44 years | 45-59 years | >=60 years |
|---|----------------------|------------|-------------|-------------|------------|
| Acute respiratory distress syndrome | 1 | 5 | 15 | 11 | 5 |
| Myocarditis | | | 1 | 1 | |
| None | | 3 | 5 | 3 | 5 |
| Other (please specify separately) | | 2 | 4 | 6 | |
| Pneumonia (secondary bacterial infection) | 2 | 1 | 5 | 6 | 1 |
| Sepsis/Multi-organ failure | | 2 | 2 | 4 | 1 |
| Unknown | 13 | 32 | 23 | 30 | 25 |

Description of the system

A number of Member States carry out hospital-based surveillance of 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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