RISK ASSESSMENT

Seasonal influenza 2013–2014 in the EU/EEA countries

February 2014

Executive summary

- Circulation of influenza has been late in Europe in 2013–2014 with a different timing across EU/EEA countries. In the first four affected countries (Bulgaria, Greece, Portugal and Spain), A(H1)pdm09 virus has dominated. The pressure on primary and secondary healthcare systems was not unusual and overall comparable to, or even lower than in previous post-2009 pandemic seasons.
- In week 07/2014, circulating A(H1)pdm09 virus was dominant or co-dominant in 21 reporting countries while A(H3) was dominant in four countries. High protection in age groups most likely to transmit A(H1)pdm09, as observed in serological studies in Norway and the UK (Scotland), may partly explain the limited circulation of the A(H1)pdm09 virus in other EU/EEA countries when compared to the US. In countries where A(H3) has been dominant, severe cases are more likely to occur in older age groups compared to A(H1)pdm09.
- None of the antigenically characterised viruses has differed substantially from the current vaccine viruses recommended by WHO.
- Very little reduced susceptibility to neuraminidase inhibitors has been observed in Europe.
- A Canadian and a US study indicate high vaccine effectiveness against A(H1)pdm09 and moderate effectiveness against A(H3). One estimate from Spain with a lower sample size shows a low overall vaccine effectiveness, moderate effectiveness against A(H1)pdm09 and very low effectiveness against A(H3) virus. In addition to decreasing trends of vaccination coverage among the elderly, problems with vaccine distribution were reported by several EU countries. This may reduce the potential expected benefits in high-risk groups.
- Infection prevention and control measures, early treatment of severe cases, vaccination of high-risk groups and healthcare workers should be continued in accordance with national guidelines.

Introduction

Influenza surveillance in Europe is based on a variety of data sources including sentinel primary healthcare providers, hospitals, vaccine effectiveness studies, antiviral susceptibility surveillance and mortality monitoring. In addition, data from epidemic intelligence provide information on events not visible in routine surveillance, such as early-season pressures on hospital services or outbreaks of influenza in communities. Data from both routine and event-based surveillance form the basis of this assessment of the ongoing influenza season in Europe.

Suggested citation: European Centre for Disease Prevention and Control. Seasonal influenza 2013–14 in the EU/EEA countries. Stockholm: ECDC; 2014.

Scope and objectives

The geographic and temporal scopes of this risk assessment are the European Union and European Economic Area (EU/EEA) during the season 2013–2014. The main objectives are:

- to provide an early description of the epidemiological pattern of seasonal influenza in 2013–2014;
- to predict the evolution of influenza activity for the rest of the season;
- to identify affected populations and the impact on primary and secondary healthcare services;
- to assess the implication for 2013–2014 in terms of influenza vaccine effectiveness and susceptibility to antiviral drugs;
- to suggest scientific and public health advice on measures to be taken to reduce the burden of seasonal influenza in 2014.

Methodology

This risk assessment is based on:

- clinical, epidemiological and virological data routinely reported to ECDC through the European Influenza Surveillance Network (EISN) and the European Reference Laboratory Network for Human Influenza (ERLI-Net).
- responses (within one week) to a short questionnaire on the pattern and interim impact of influenza in the first-affected countries, i.e. countries that reported medium intensity and/or widespread activity or 10% or more sentinel specimens positive for influenza (of ≥ 10 specimens tested) or hospitalised laboratory-confirmed severe influenza cases (13 EU/EEA countries in total). The questionnaire (see Annex 2) was also sent to Poland, Norway and the UK (Scotland) that are conducting annual serological surveys.
- lessons learned from previous seasons.
- other information available: peer-reviewed literature, serological surveys, results from public health projects: European Monitoring of Excess Mortality for Public Health Action (EUROMOMO), Influenza Monitoring of Vaccine Effectiveness (I-MOVE), Vaccine European New Integrated Collaboration Effort (VENICE) and from data gathered through ECDC epidemic intelligence.

A draft of this risk assessment was reviewed by a group of external experts (see Annex 1) and the countries that completed the questionnaire (end January 2014). This risk assessment will remain under review and be updated later in the season, if necessary.

Source and type of request

Routine and planned risk assessment, and ECDC internal decision in light of the situation in North America where influenza A(H1N1)pdm09 virus caused severe outbreaks starting in December 2013.

Epidemiology in primary healthcare services

Influenza activity started four to six weeks later than in most previous seasons since 2010. A questionnaire was sent on 21 January (week 04/2014) to 13 EU countries (Bulgaria, Finland, France, Greece, Ireland, Italy, the Netherlands, Portugal, Romania, Slovenia, Spain, Sweden and the UK) that met the abovementioned criteria. In four of these countries, ILI/ARI rates reached (Portugal) or exceeded (Bulgaria, Greece and Spain) the rates observed during the peak of 2012–2013. In Bulgaria and Spain, children under 15 years of age were affected the most, while in Portugal similar rates were reported for those aged 5–14 years and 15–64 years.

For week 07/2014, almost all EU countries reported increasing ILI/ARI rates. Some countries with increasing trends (France, Greece, Ireland and the UK) reported in the questionnaire a heterogeneous distribution of cases within the country. There was no clear pattern of geographical spread across the EU/EEA (west–east or south–north) as observed in earlier seasons [1].

The respiratory syncytial virus (RSV) activity in Europe already peaked in week 51/2013 and has since sharply declined. After week 02/2014, it is unlikely that RSV has substantially contributed to ILI/ARI in young patients [2].

According to data collected through the questionnaire, there was no substantial pressure on primary healthcare facilities up to that time. Most of the countries replied that it was too early to estimate the pressure in primary care.

Epidemiology in secondary healthcare services (ICUs)

From week 40/2013 to week 07/2014, four countries (Finland, France, Sweden and the UK) reported laboratory-confirmed influenza cases admitted to intensive care units (ICUs) and three countries (Ireland, Romania and Spain) reported influenza cases hospitalised in both ICUs and regular wards. In ICUs, of 1 189 cases reported, 1 175 (99%) were related to influenza virus type A infection and 14 (1%) to type B virus infection. Of 757 subtyped influenza A viruses, 657 (87%) were A(H1)pdm09 and 100 (13%) were A(H3). Of the 487 cases with reported age, 263 (54%) were 40–64 years old and 105 (22%) were 65 years and over. Six countries reported a total of 131 fatal influenza-related cases. All fatal cases were associated with influenza type A virus and 97 of these viruses were subtyped: 82 (85%) as A(H1)pdm09 and 15 (15%) as A(H3). Of the fatal cases with known age, 56 (43%) were in the age group 40–64 years and 57 (44%) were 65 years and over, possibly reflecting the major role of co-morbidities and old age in fatal outcome [2].

According to data collected through the questionnaire, hospitalised cases have been reported since 21 January in France, Ireland, Portugal, Spain and the UK, while ILI/ARI rates were still low or rising. In Ireland and in Spain, the majority of severe cases were related to A(H1)pdm09 infection with a lower or similar mean age compared to the previous year. Ireland has observed a lower proportion of paediatric cases than in the two previous seasons which might indicate a higher immunity in children.

Reported risk groups were similar to the previous season, but France, Greece and Spain [3] have reported a higher prevalence of obesity among severe cases which had already been highlighted by the US CDC [4] and documented during the 2009 influenza pandemic [5]. Proportions of vaccinated hospitalised laboratory-confirmed cases reported by France and Greece varied from 7% to 21% whereas other countries (Ireland, Italy and Romania) have reported few cases. The number of cases (or clusters) was lower than in the 2012–2013 season. The severity of these cases was the same or lower than in the two previous seasons in all responding countries but Spain where more severe cases than in the two previous seasons were reported.

Virology

Circulating viruses from sentinel sources

Of the 4 217 influenza virus detections in sentinel specimens reported to ECDC from week 40/2013 to week 07/2014, 98% were type A and 2% were type B viruses in EU/EEA countries. Of the 3 832 influenza A viruses subtyped, 59% were A(H1)pdm09 and 41% were A(H3). Of the 24 type B viruses ascribed to a lineage, 21 were Yamagata and three were Victoria viruses. During this period, in the four first affected countries with high ILI/ARI rates (Bulgaria, Greece, Portugal and Spain) [6], the proportions of A(H1N1)pdm09 virus ranged from 61 to 84% in primary healthcare settings.

Until week 7/2014, A(H1)pdm09 virus was dominant or co-dominant, i.e. accounted for more than 60% of positive specimens, in 21 reporting countries. However, A(H3) virus was reported as dominant in Austria, Germany, Italy and Slovenia. In contrast to North America [7, 8] the dominance of A(H1N1)pdm09 virus was not as overwhelming across Europe.

Circulating viruses from non-sentinel sources

Of the 10 788 influenza A viruses detected from non-sentinel sources (e.g. specimens collected for diagnostic purposes in hospitals) from week 40/2013 to week 7/2014, 96% were A(H1)pdm09 and 4% were A(H3). The 386 influenza B viruses detected represented 3% of non-sentinel viruses.

Antigenic and genetic characteristics

From week 40/2013 to week 7/2014, 373 A viruses were antigenically characterised and reported to ECDC. All 234 A(H1) viruses belonged to the group A/California/7/2009-(H1N1)pdm09-like. Of 139 A(H3) viruses, 137 were characterised as A/Texas/50/2012 (H3N2)-like. None of the antigenically characterised viruses differed substantially from the current vaccine viruses recommended by WHO [9].

All A(H1) and A(H3) viruses that were genetically characterised belonged to the A(H1)pdm09 A/St Petersburg/27/2011 group (6) and to the A(H3) A/Texas/50/2012 subgroup (3C) group, respectively. Influenza B viruses were mostly ascribed to two Yamagata lineage groups represented by B/Massachusetts/02-2012 and B/Wisconsin/1/2010, with a few B viruses ascribed to the B/Victoria-lineage group represented by B/Brisbane/60/2008.

Susceptibility to antivirals

From week 40/2013 to week 7/2014, 385 A(H1)pdm09, 88 A(H3) and 23 type B viruses were tested for susceptibility to the neuraminidase inhibitors oseltamivir and zanamivir by genetic and/or phenotypic methods. Only three viruses showed genetic or phenotypic (IC_{50}) evidence of reduced inhibition. Two A(H1N1)pdm09 viruses carried the NA-H275Y amino acid substitution associated with highly-reduced inhibition by oseltamivir. The reduced susceptibility found in Europe so far is in accordance with the results in the US (1%) [7] and contrasts with higher percentages observed in Japan (7%) [10].

Seroepidemiology

As in previous years, Norway undertook a pre-season serological survey and a national risk assessment [11, 12]. Like in the previous season, antibodies against influenza A(H1), A(H3) and B viruses were detected. In August 2013, one third (32%) of the Norwegian population had natural or vaccine-induced protective antibodies against A(H1)pdm09 virus compared to 22% in August 2012. The increase of antibodies between 2012 and 2013 was less pronounced for A(H3N2) virus (34% vs. 30%). For both viruses, the highest proportion of immunity was in 5–24-year-olds. According to this report, both viruses might be dominant in Norway this season, with A(H3) more likely to affect adults over 24 years old while A(H1) would probably affect young children and adults over 24. The good immunity against A(H1)pdm09 virus will probably limit circulation of this virus in the age group (5–25 years) most likely to contribute to the spread of the virus. In addition, early-season virus detection data in Norway seem to indicate that circulation of the different viruses is suppressed in the age group(s) with the highest pre-season immunity. Norwegian serological data are in accordance with a study performed in Canada where seroprotection was high in school-aged children (and in elderly adults) [13].

Scotland (UK) has conducted a serological investigation over three seasons (samples from 2000 individuals annually using the CONCISE protocol). In August 2013, 43% and 44%, respectively, of the Scottish population had natural or vaccine-induced protective antibodies against A(H1)pdm09 and A(H3N2) viruses, with the highest levels of immunity in those under the age of 20. Whilst 38% had natural or vaccine-induced protective antibodies against the trivalent Yamagata lineage, only 19% did so against the B/Brisbane/60/2008-like virus (Victoria lineage) in the quadrivalent vaccine. This prompted stockpiling of a limited contingency stock of quadrivalent vaccine. For all viruses tested in Scotland, significant geographical heterogeneity in susceptibility was evident (J. McMenamin, personal communication).

Results from the serological survey conducted in Poland were not available at the time of publication of this risk assessment.

Influenza vaccine

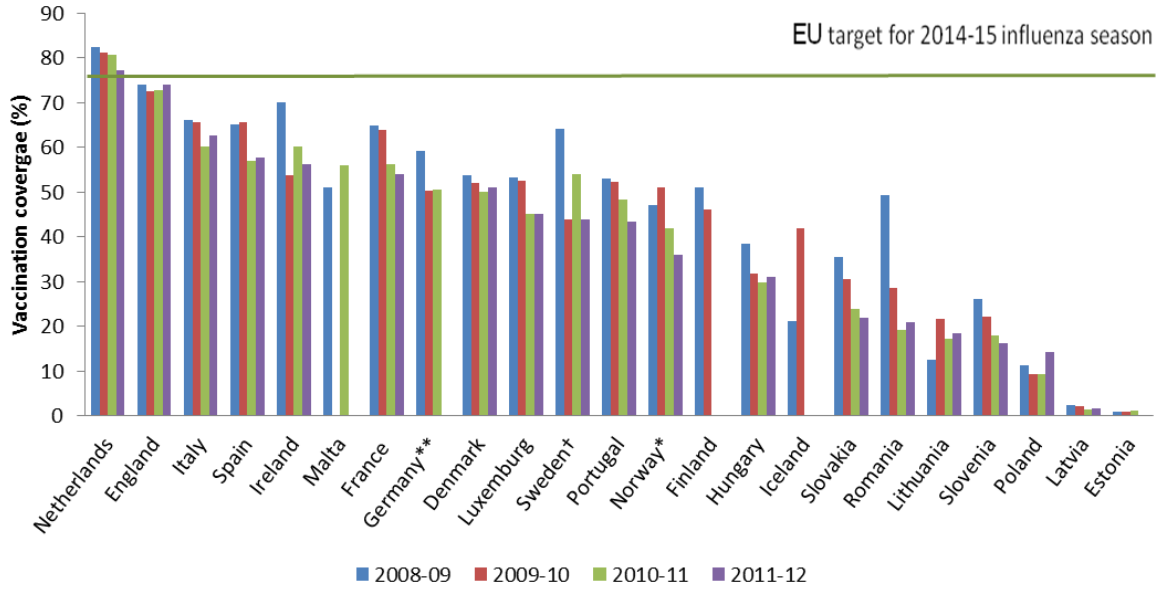
Vaccine coverage

According to the last Venice II survey covering the years 2008 to 2012, influenza vaccine coverage in older populations has shown a slight decline over time in most EU countries (Figure 1) [14].

According to the questionnaire, vaccination coverage among those aged over 65 years compared with the previous season varied: it was lower in Bulgaria and the Netherlands, similar in Spain and higher in Portugal, Sweden and the UK (Wales). In the UK (Scotland), the EU target (at least 75% in the age group of 65 years and over) was met in six of the last seven seasons.

In the UK, vaccine uptake was stable in 2013. Preliminary estimates are that the first year of their phased roll-out of the routine offer of live attenuated influenza vaccine (LAIV) to children in 2013 (all 2 and 3 year-olds and pilots in school-aged children) has been accomplished without prejudicing the adult programme.

Figure 1. Reported seasonal influenza vaccination coverage in older populations (≥ 65 years) in 23 EU/EEA Member States during four seasons from 2008 to 2012 (annual VENICE survey)



† Sweden: reports were received for only around 60% of the population for the 2009–10 influenza season.
** Norway: coverage results calculated for those ≥65 and clinical risk groups together.*
*** Germany: no data available for 2011–12.*

Vaccine effectiveness

A Canadian study estimated vaccine effectiveness for each strain contained in the 2013–2014 trivalent influenza vaccine [9,15]. The vaccine effectiveness was high (80%) against the circulating A(H1N1)pdm09 virus and moderate (51%) against circulating A(H3N2) strains. The vaccine was effective (71%) against the Victoria lineage of influenza B which is part of the vaccine. It was poorly effective (27%) against the Yamagata lineage of influenza B, which was not included in the EU vaccines, but was part of the new quadrivalent vaccine used in the US [16]. In the US, overall adjusted vaccine effectiveness against influenza A and B virus infection with medically attended ARI was 61%. Vaccine effectiveness against A(H1)pdm09 virus was similar (62%) across age groups. American results are consistent with estimates from Canada [17].

However, a mid-season study from Navarre, Spain, suggests lower estimates with 40% (95% CI: -12 to 68) against A(H1)pdm09, 13% (95% CI: -36 to 45) against A(H3) virus and 24% (95% CI: -14 to 50) overall effectiveness in preventing laboratory-confirmed cases in outpatients and hospitalised patients [18]. This study included several nursing home outbreaks of A(H3N2) among vaccinated cases, suggesting a poor effectiveness of the vaccine against this subtype among the elderly. Heterogeneous methodologies, differences of sample size and study population may explain discrepancies in vaccine effectiveness estimates.

According to anecdotal reports in reply to the questionnaire, Portugal reported possible vaccine failures in 6% of laboratory-confirmed vaccinated influenza cases. Ireland, Greece and Sweden reported small numbers of vaccine failures in hospitalised patients with severe disease.

Supply of vaccines and antivirals

In response to the questionnaire, Greece and Romania reported problems related to the distribution of the influenza vaccine. At this stage, it is impossible to quantify this shortage, but in Greece, it was substantial enough to shift guidance towards stressing the early use of antiviral drugs.

Mortality

Based on mortality monitoring data from 12 EU countries/regions pooled through EUROMOMO from week 40/2013 to week 7/2014, all-cause mortality has not been significantly above seasonally expected levels. It is premature to draw any firm conclusion at this point, however, as figures may not yet reflect the current situation due to reporting delay [19].

Situation in other temperate countries in the northern hemisphere

In **Canada**, ILI rates peaked in week 2/2014, cumulative percentages of detections of influenza A and B viruses were 95% and 5%, respectively, and among subtyped specimens, 97% were A(H1)pdm09 virus. The age group 20–64 years was the most affected. With respect to hospitalisations related to influenza, 98% were due to influenza A infection, predominantly A(H1)pdm09 and in the age group 45–64 years. Of 23 influenza A viruses subtyped in fatal cases, 22 were A(H1)pdm09 virus and one A(H3). A total of 400 specimens were tested for antiviral resistance and none of them showed resistance to neuraminidase inhibitors [8].

In the **US**, ILI rates peaked in week 52/2013. As in Canada, proportions of influenza A and B viruses were 95% and 5%, and among subtyped specimens, 97% were A(H1)pdm09 virus. Since the start of the season, almost all hospitalised laboratory-confirmed influenza cases were associated with influenza A infection. Of influenza A viruses subtyped from hospitalised cases, 99% were A(H1)pdm09 viruses. During week 4/2014, excess deaths due to pneumonia and influenza substantially exceeded the epidemic threshold. Of 870 A(H1)pdm09 viruses tested for reduced susceptibility, 1% showed resistance to oseltamivir and none to zanamivir [7].

In **China**, ILI rates peaked in week 1/2014 and cumulative percentages of detections of influenza A and B viruses were 72% and 28%, with similar proportions in northern and southern China. Among subtyped specimens, 72% were A(H1)pdm09 virus with a higher proportion in northern China (84%). The number of hospitalised cases increased slightly compared to that in 2011 and 2013 [20].

In **Japan**, influenza A(H1)pdm09 and A(H3) viruses were co-dominant in 2013–2014, with A(H3) circulating some weeks earlier. Among A(H1)pdm09 viruses tested, 7% have shown a mutation associated with resistance to oseltamivir [21].

Situation in the temperate countries of the southern hemisphere

In **Australia,** the intensity of ILI rates was similar to previous seasons. The proportions of influenza A and B viruses were 70% and 30%, respectively, and among influenza A subtyped specimens, 60% were A(H1)pdm09 virus. The latter dominated in all jurisdictions but Western Australia which reported two successive waves of A(H3) and A(H1), with an overall proportion of A(H3) of 57%. Among hospitalised laboratory-confirmed influenza cases, 86% of influenza-associated deaths were due to type A virus and 12% were admitted to ICU [22].

In **New Zealand**, the intensity of ILI rates was much lower than in the two previous seasons. Similar proportions of sentinel specimens tested positive for influenza A(H1)pdm09, A(H3) and B viruses [23].

In **South Africa,** there were two waves of influenza activity. The first wave peaked in week 23/2013 and sentinel specimens yielded mainly A(H1)pdm09 virus. The second wave occurred 12 weeks later and was mainly due to A(H3) and B viruses. Most hospitalised laboratory-confirmed influenza cases were tested positive for A(H1)pdm09 virus [24].

In **South America**, intensity of ILI rates was similar to the previous season. Influenza A(H1)pdm09 virus was dominant in most countries, but A(H3) viruses were detected both at the beginning and the end of the influenza season and B viruses were observed at a later stage [25].

Risk assessment for the remaining season (as of week 7/2014)

- In countries with A(H1)pdm09 circulating, especially in countries where influenza activity has already peaked, a later circulation of A(H3) virus, as observed in some countries of the southern hemisphere, is possible. In the event of A(H3) virus circulation, some severe cases are likely, most probably in people older than those typically infected by A(H1)pdm09 virus.
- In countries currently with no/low influenza activity, the dominant influenza virus strain and the intensity (level of ILI/ARI rates) are unpredictable, but are likely to be similar to that observed in countries that have already passed their intensity peak (Bulgaria, Portugal and Spain). However, differences in vaccination coverage and natural immunity may influence levels of ILI/ARI rates and the number of severe cases. In the few countries where A(H3) virus has been dominant so far, a second wave or a co-circulation of A(H1)pdm09 virus is possible.
- Overall, circulating A(H1)pdm09 virus is dominant or co-dominant in most EU/EEA countries. High natural or vaccine-induced protection in age groups most likely to transmit the disease, as observed in Norway and the

UK (Scotland), may partly explain the limited circulation of the A(H1)pdm09 virus in other EU/EEA countries when compared to the US. In countries where A(H3) is dominating, severe cases are more likely to occur in older age groups than with A(H1)pdm09.

- Virus antigenic and genetic characterisation data on the first virus isolates this season indicate a good match with the current influenza vaccine. This is supported by high estimates of vaccine effectiveness against influenza A viruses from North America. However, lower mid-season estimates from Navarre, Spain, warrant further studies on effectiveness to understand these discrepancies. Societal benefits of vaccination are compromised by decreasing trends in vaccine coverage observed in most EU/EEA countries and challenges faced in procurement and distribution of vaccines reported by some countries.

ECDC's scientific and public health advice

Simple protective measures

Evidence of the effectiveness of measures like early self-isolation, hand-washing and good respiratory hygiene/cough etiquette supports a continued recommendation of these simple measures.

Vaccination

Healthcare workers, children, the elderly and people with pre-existing conditions, placing them at risk of severe outcomes should be vaccinated according to national guidelines. This is particularly important in countries still in early season.

Antivirals

Treatment with neuraminidase inhibitors should be initiated in a timely fashion, i.e. within 48 hours after onset of symptoms, in accordance with national guidelines. There is also some evidence to suggest that treatment after 48 hours with higher doses in those who are severely ill (in an intensive care unit) may also be useful.

Clinical care

The early-season experience suggests that a moderate number of influenza patients may need hospital/intensive care in the next few weeks, especially middle-aged adults infected by A(H1)pdm09 and older persons (≥ 65 years) infected by influenza A(H3) virus.

Research

The effectiveness of vaccines and antivirals, including new drugs, needs further study, particularly for severe cases. The benefits of vaccinating children over the age of five years, in those countries where such immunisation programmes have been implemented, also require additional research. Lessons learned from the quadrivalent vaccine used in the US deserve to be shared, taking into account that the circulation of Victoria B virus was particularly low.

Conclusions

Compared to previous seasons, the 2013–2014 influenza season has started late in most EU/EEA countries and ILI/ARI rates in the first-affected countries peaked in weeks 4 and 5/2014 (Bulgaria, Portugal and Spain) or are still increasing (Greece). Without any specific geographic pattern, influenza activity has since spread rapidly across Europe. A(H1)pdm09 is dominant in most EU/EEA countries with A(H3) co-circulating in almost all affected countries and being dominant in four EU countries. Severe cases reported by six countries were mainly due to A(H1)pdm09 virus. However, pressures on ICUs seem to be similar or less pronounced than during the last two seasons.

In contrast to the season in the US with an overwhelming dominance of A(H1)pdm09 virus and substantial numbers of severe cases, A(H1)pdm09 virus is not as dominant in EU/EEA countries, possibly due to differences in prior exposure to A(H1)pdm09 virus or higher vaccination coverage among the age groups most likely to transmit the disease. In countries not yet affected, the pressure on primary and secondary care services is likely to be less intense than in the US.

The first estimates of vaccine effectiveness from one Spanish region (Navarra) are low (24%) against influenza viruses overall, moderate (40%) against A(H1)pdm09 and very low (13%) against A(H3). These estimates are in contrast those from North America and need to be confirmed by other studies. Vaccination of high-risk groups and healthcare workers, in accordance with national guidelines, in countries that are still at an early stage in their influenza season remains the most effective way of reducing serious outcomes and transmission of the disease.

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Annex 1. Consulted experts

Internal to ECDC: C. Adlhoch, E. Bancroft, J. Beauté, E. Broberg, P. Penttinen, R. Snacken, P. Zucs.

External to ECDC: I. Bonmarin, D. Gross, O. Hungnes, A. Larrauri, B. Lina, J. McMenamin, G. Nylén, R. Pebody S. Tsiodras and M. van der Sande. Declarations of interest have been received from every expert involved. They have been reviewed by ECDC and none are considered to represent a conflict of interest.

Responders to the questionnaire: K. Bednarska, A. Bella, L. Brydak, M de Lange, J. Ellis, H. Englund, T. Georgieva, R. Guiomar, SH Hauge, N. Ikonen, O. Lyytikainen, A. Melidou, C. More, S. Murtopuro, B. Nunes, J. O'Donnell, R. Ortiz de Lejarazu, R. Popescu, O. Popovici, H Rebelo de Andrade, C. Rizzo, B. Smyth, M. Socan and G. Spala.

ECDC is very grateful for the expert input from the persons above. They were consulted as individuals on the basis of their expert knowledge and experience rather than as representatives of their institutions or countries. It should also be noted that responsibility for the content of this risk assessment rests with ECDC rather than with these individuals.

The WHO Regional Office for Europe was consulted on this document. The views in this document do not necessarily represent the views of WHO Europe.

Annex 2. Questionnaire

Questions for influenza season 2013–2014 (to date).

Q 1. Are current pressures on primary care due to respiratory illness different from the corresponding time after onset of the season in:

(please highlight the most appropriate answer/s)

2012-2013? *The same, more than in 2012-2013, less than in 2012-2013.*

2011-2012? *The same, more than in 2011-2012, less than in 2011-2012.*

No information

Any further comments? .....

Q 2. Are the current pressures on secondary care (hospital admissions, intensive care units, deaths) due to respiratory illness different from the corresponding time after onset of the season in:

(please highlight the most appropriate answer/s)

2012-2013? *The same, more than in 2012-2013, less than in 2012-2013.*

2011-2012? *The same, more than in 2011-2012, less than in 2011-2012.*

No information

Any further comments? .....

Q 3. In relation to questions 1 and 2, are you aware of any more marked geographic heterogeneity (more pressures in some part(s) of the country) than usual?

(please highlight the most appropriate answer/s)

Yes

No

If yes, could you further specify? .....

Q 4. Are people in risk groups for severe disease due to influenza currently affected at rates any different from the corresponding time after onset of the season in:

(please highlight the most appropriate answer/s)

2012-2013? *The same, more than in 2012-2013, less than in 2012-2013*

2011-2012? *The same, more than in 2011-2012, less than in 2011-2012*

No information

Which is the more prevalent risk group? .....

If there are differences, could they be explained by changes in strain mix in 2013-2014?

If there are differences, what are they? .....

.....

Q 5. What are the age groups experiencing severe influenza disease compared to:

(please highlight the most appropriate answer/s)

2012-2013? *The same, older than in 2012-2013, younger than in 2012-2013*

2011-2012? *The same, older than in 2011-2012, younger than in 2011-2012*

No information

If there are differences, could they be explained by changes in strain mix in 2013-2014?

If there are differences, what are they? .....

.....

Q 6. At this moment, how does the number of healthy people with severe influenza compare to the corresponding time after onset of the season in:

(please highlight the most appropriate answer/s)

2012-2013? *The same, more than in 2012-2013, less than in 2012-2013*

2011-2012? *The same, more than in 2011-2012, less than in 2011-2012*

No information

If there are differences, can they be explained by changes in strain mix in 2013-2014?

Q 7. Are there any specific issues noticeable this season related to complications of influenza (acute respiratory distress syndrome or secondary bacterial infections/co-infections)

(please highlight the most appropriate answer/s)

Yes

No

If yes, please provide more details: ……

Q 8. Are there any other features that you think deserve attention (e.g reduced antiviral susceptibility, any subtype causing severe disease, vaccine failure, vaccine shortage …)?

(please highlight the most appropriate answer/s)

Yes

No

If yes, please provide more details ……

Q 9. Do you have any information on immunisation coverage for influenza in 2013-2014 yet?

(please highlight the most appropriate answer/s)

Yes

If yes, is it higher or lower (compared to previous season): ……

No

Q10. Do you have any indication of possible vaccine failures?

(please highlight the most appropriate answer/s)

Yes

No

Q11. How many (%) of ICU admissions/deaths associated with influenza were vaccinated?

%:

I do not know

Q 12. If influenza in older people in long-term care facilities is monitored,

(please highlight the most appropriate answer/s)

a) The number of cases (or clusters) is *the same, more than in 2012-2013, less than in 2012-2013*
the same, more than in 2011-2012, less than in 2011-2012

b) The severity of cases is *the same, more than in 2012-2013, less than in 2012-2013*
the same, more than in 2012-2013, less than in 2012-2013

please provide more details, if any:
……

Q 13. Is it too early to answer all or any of the questions?

(please highlight the most appropriate answer/s)

Yes

No

If yes, *I will send an updated questionnaire later*

Many thanks for completing this questionnaire. Please let us know:

(please highlight the most appropriate answer/s)

Would you be willing to review the draft risk assessment?

Yes

No

Would you be willing to have your name or institution listed as contributing to the risk assessment?

(please highlight the most appropriate answer/s)

Yes

No

On any of the questions above (e.g. the clinical picture and impact), are there other persons that you feel we should contact/forward this questionnaire to? If so, how should we best contact them?

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