

Influenza season 2013/14 has started in Europe with influenza A(H1)pdm09 virus being the most prevalent subtype

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The 2013/14 influenza season has started in Europe. Four countries have reported medium intensity influenza activity, with children under 15 years being the most affected age group. A growing number of countries see increasing rates of influenza-like illness or acute respiratory infection and increasing proportions of specimens positive for influenza A(H1)pdm09 virus. In previous seasons, this subtype was associated with higher reported numbers of severe and fatal cases. Clinicians should offer influenza vaccination to unvaccinated persons belonging to risk groups.

We present an early descriptive analysis of the epidemiology and virology of the 2013/14 influenza season in Europe, following its recent start in some southern parts. We summarise current knowledge on the intensity of influenza-like illness (ILI) or acute respiratory infection (ARI) activity, circulating influenza viruses and the frequency and characteristics of severe cases for the benefit of decision-makers, public health experts and clinicians in European countries not yet affected by epidemic influenza this season.

Influenza causes substantial morbidity and mortality, has pandemic potential and is therefore under continuous global surveillance. In the European Union (EU) and European Economic Area (EEA), the European Influenza Surveillance Network (EISN) performs influenza surveillance [1,2]. Weekly epidemiological and virological influenza data are collected from 30 EU/EEA countries to determine the start, end, magnitude and severity of the season as well as the dominant circulating influenza viruses. Data collected include sentinel primary care consultations for ILI or ARI [3], the number of tested and influenza virus-positive specimens of sentinel patients, the results of typing, subtyping and antigenic and genetic characterisation of circulating influenza viruses [4,5]. In addition, 11 countries (Austria, Finland, France, Ireland, Malta, Portugal, Romania, Slovakia, Spain, Sweden and the United Kingdom (UK)) report hospitalised cases or severe

acute respiratory infection (SARI) with laboratory-confirmed influenza, including cases with fatal outcome.

Epidemiological situation in primary healthcare

In the first three weeks of 2014 (week 1 started on 30 December 2013), both the ILI/ARI rates (number of cases per 100,000 population) and the percentage of influenza virus-positive sentinel specimens increased in 12 countries. Spain has reported medium intensity of influenza activity since week 1/2014, Bulgaria, Greece and Portugal since week 2/2014 (Table). Portugal and Spain have also indicated widespread geographical transmission. Indicators of influenza activity are described in [6].

In Bulgaria and Spain, ARI and ILI rates, respectively, in 2013/14 have exceeded those of the corresponding period (the first weeks after the start) of the 2012/13 season, but are comparable to the 2011/12 season, which were dominated by influenza B and A(H3) respectively. They have exceeded the rates in 2010/11 in Spain, but not in Bulgaria, when influenza A(H1)pdm09 accounted for the majority of circulating influenza viruses.

In Bulgaria and Spain, where ARI or ILI data from sentinel primary healthcare providers are reported by age group, children under 15 years of age have to date been affected the most (Figure 1). In Portugal, similar rates have been reported for people aged 5–14 years and those aged 15–64 years (Figure 1).

Virological situation in primary healthcare

The proportion of influenza virus-positive sentinel samples across Europe has increased steadily, from 4% in week 49/2013 to 34% in week 2/2014 (Figure 2). Since week 40/2013, 97% of sentinel specimens have tested positive for influenza type A virus and 3% for type B. Among subtyped influenza A viruses, A(H1)pdm09 and A(H3) were detected in almost equal proportions in

TABLE

 Reported influenza intensity and dominant circulating influenza virus (sub)type ($\geq 60\%$ of (sub)type detections) by week, EU/EEA, weeks 40/2013–3/2014

Country	Week number, 2013												Week number, 2014			
	40	41	42	43	44	45	46	47	48	49	50	51	52	1	2	3
Austria																
Belgium												A				
Bulgaria														A(H1) pdm09	A(H1) pdm09	A(H1) pdm09
Croatia																
Cyprus																
Czech Republic																
Denmark													A	A	A	A
Estonia																
Finland																A
France													A	A	A	A
Germany																
Greece													A(H1) pdm09		A(H1) pdm09	A(H1) pdm09
Hungary																
Iceland																
Ireland																A
Italy								A(H3N2)	A(H3N2)	A(H3N2)	A(H3N2)			A(H3N2)	A	A
Latvia																
Lithuania																
Luxembourg																
Malta																A
Netherlands																
Norway								A	A	A	A	A	A	A	A	A
Poland																
Portugal													A	A	A	A(H1) pdm09
Romania																
Slovakia																
Slovenia																A(H3)
Spain								A(H1N1) & A(H3)	A(H1N1) & A(H3)	A(H3)			A(H1) pdm09	A(H1) pdm09	A(H1) pdm09	A(H1) pdm09
Sweden													A(H1) pdm09	A(H1) pdm09	A(H1) pdm09	A(H1) pdm09
UK (England)																
UK (Northern Ireland)																
UK (Scotland)														A(H1) pdm09	A(H1) pdm09	A(H1) pdm09
UK (Wales)												B		A(H1) & A(H3)	A	A

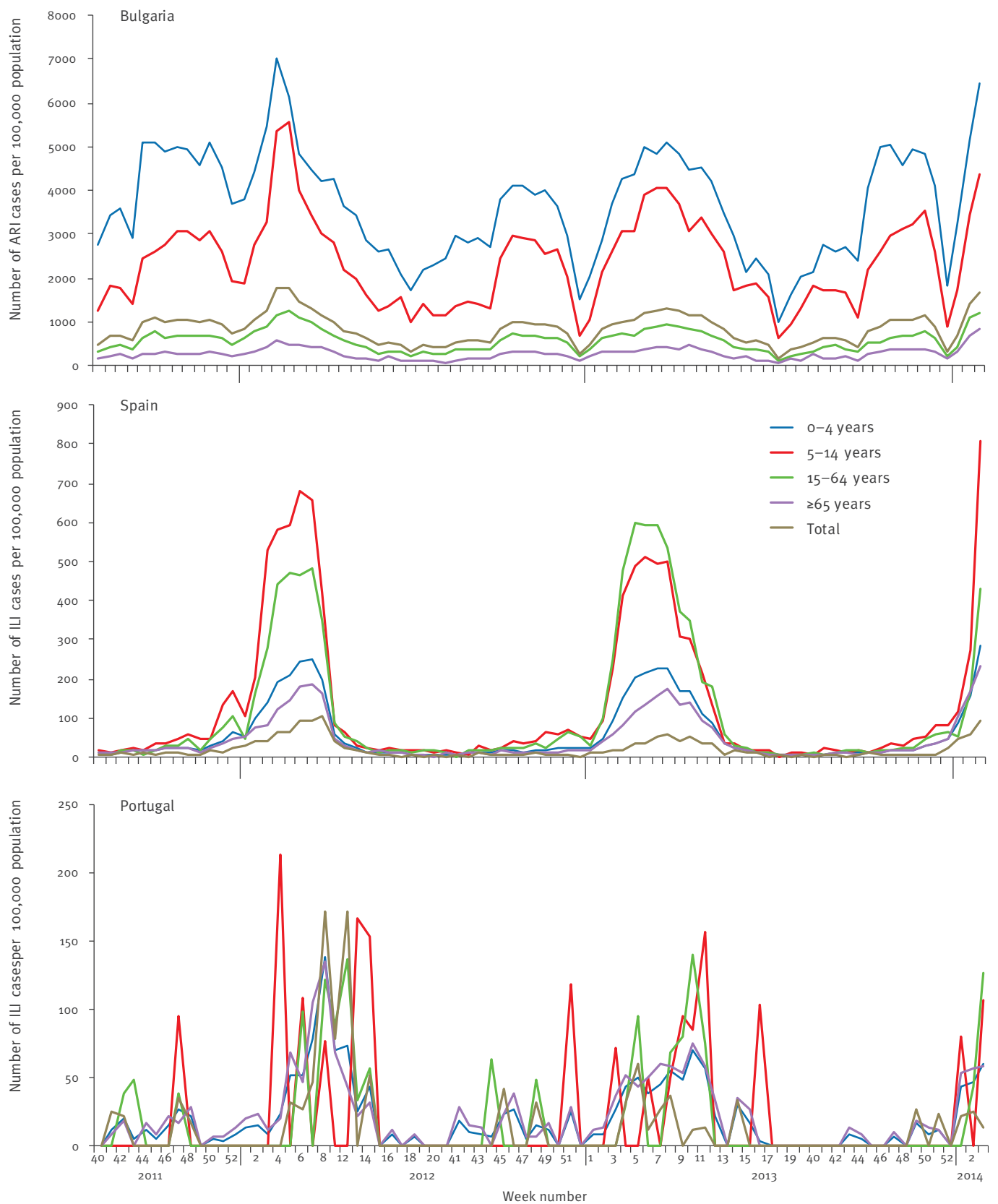
EEA: European Economic Area; EU: European Union; UK: United Kingdom.

Influenza intensity reported by country

- low intensity
- medium intensity
- no report

FIGURE 1

Influenza-like illness or acute respiratory infection rates^a by age group, Bulgaria, Spain and Portugal^b, over the last three influenza seasons (weeks 40/2011–3/2014)



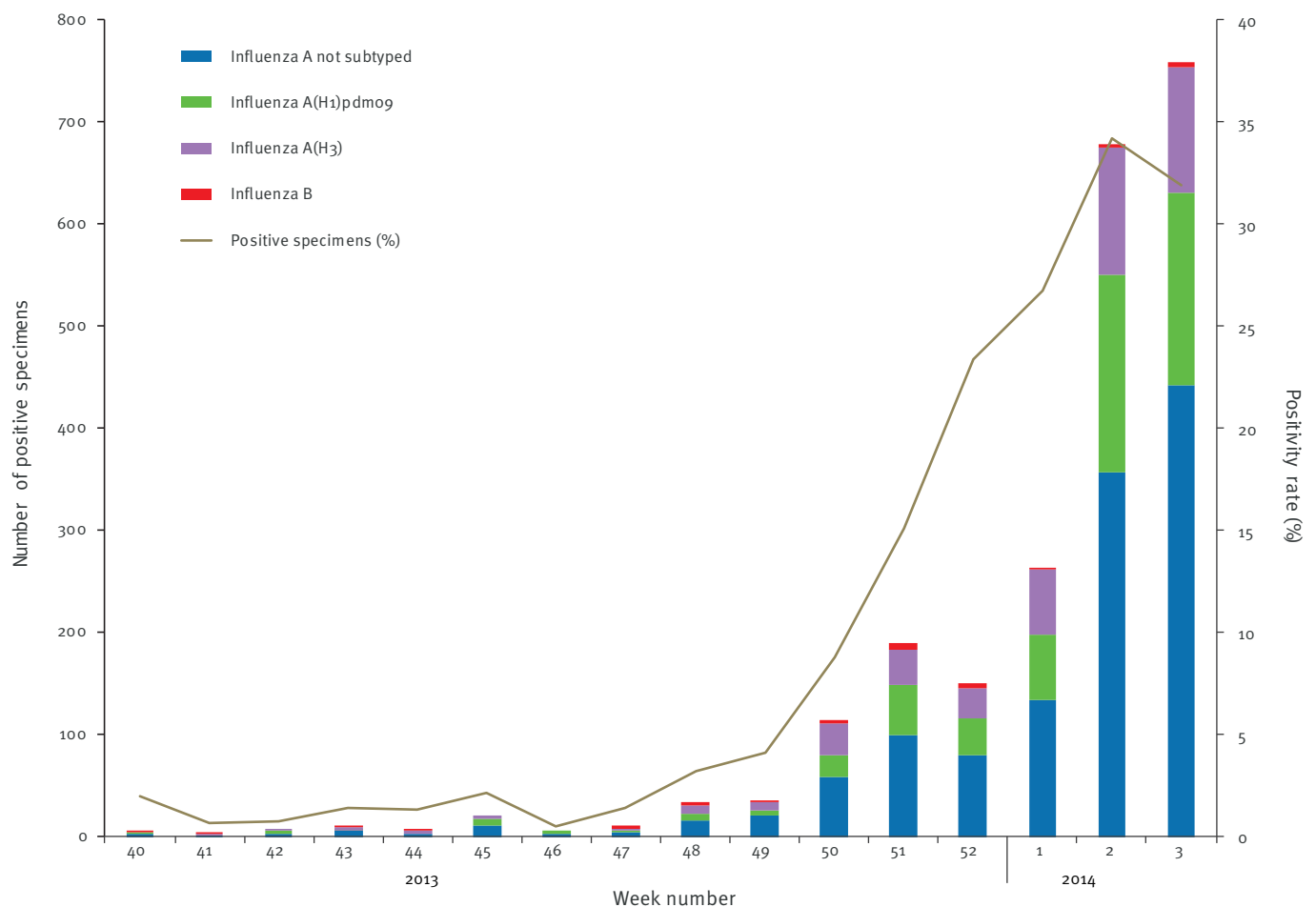
ARI: acute respiratory infection; ILI: influenza-like illness.

^a Number of cases per 100,000 population.

^b As of week 3/2014, the most affected countries of the 2013/14 season.

FIGURE 2

Number and percentage of influenza virus-positive sentinel specimens by (sub)type and week, EU/EEA, weeks 40/2013–3/2014



EEA: European Economic Area; EU: European Union.

week 1/2014; in weeks 2 and 3, the proportion of A(H1)pdm09 increased to 61% (Figure 2).

Based on specimens from sentinel and non-sentinel (e.g. specimens collected for diagnostic purposes in hospitals) sources, a total of 16 countries reported influenza A as the dominant circulating virus type at least for one week this season (Table). In week 3/2014, six countries (Bulgaria, Greece, Portugal, Spain, Sweden and the UK (Scotland)) reported A(H1)pdm09 as dominant while Slovenia reported A(H3). The characterisation of the circulating viruses reported to date indicates a match with the current seasonal vaccine strains [7].

Epidemiological situation in hospitals

Since week 40/2013, France, Ireland, Romania, Spain, Sweden and the UK have reported a total of 409 cases admitted to intensive-care units (ICUs) with laboratory-confirmed influenza. These cases have mostly been 40–64 years of age and associated with influenza A(H1)pdm09 virus infection (Figure 3). The number of ICU cases reported from Spain during the beginning of

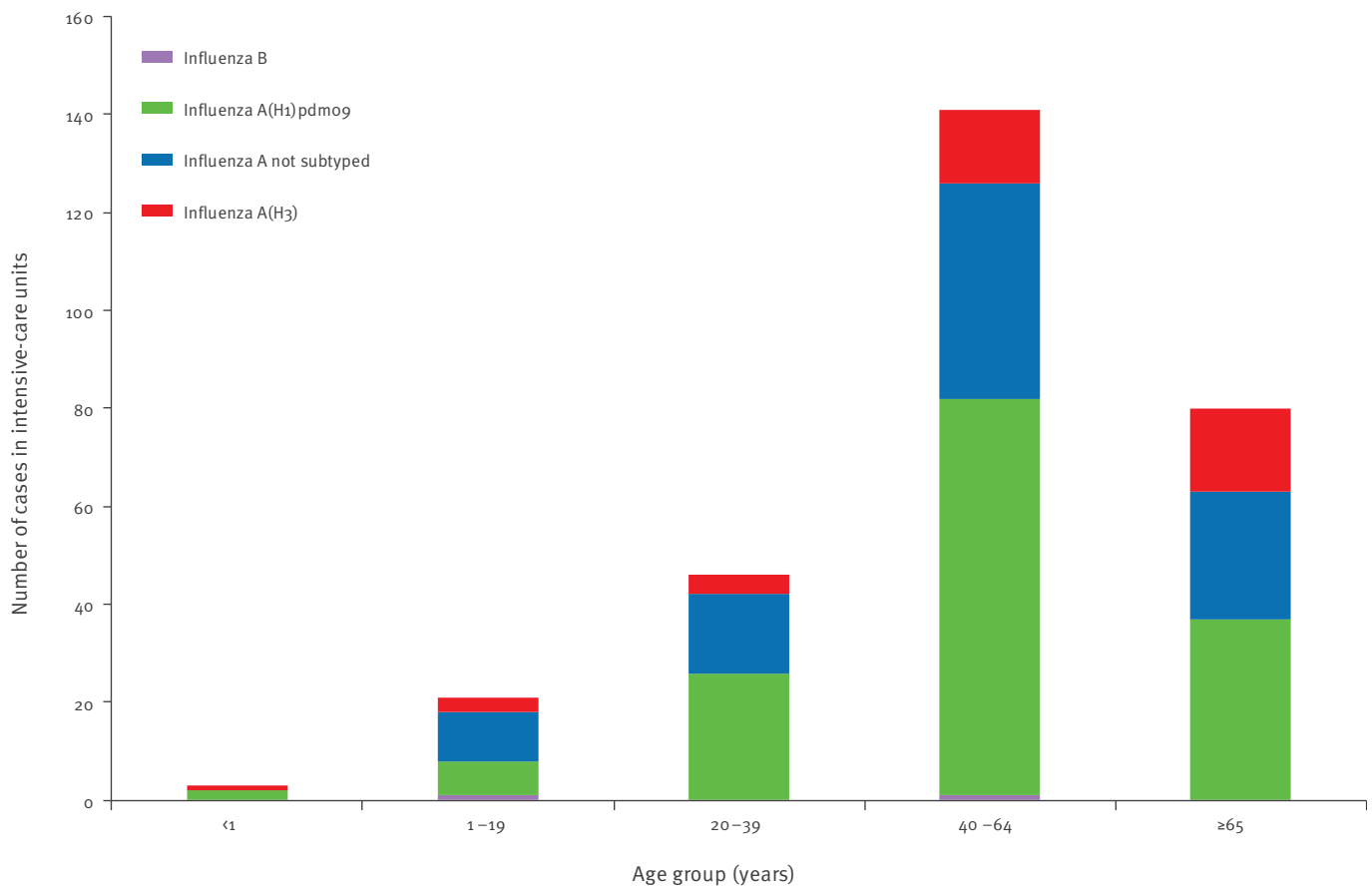
this season has exceeded the numbers seen during the two previous seasons, but is lower than in the A(H1)pdm09-dominated season 2010/11 (in 2010/2011, there was a total of 596 cases in ICUs; in 2011/12, n=201; in 2012/13, n=202; in 2013/14, n=214).

France and Spain have reported 33 fatal cases in 2013/14, all due to influenza A virus infection. Of these, 19 were associated with A(H1)pdm09 infection, six with influenza A(H3) and in eight cases, only type A influenza was identified. Of the 19 cases with A(H1)pdm09, seven were between 40 and 64 years of age and nine were at least 65 years-old. Underlying risk factors for these cases are not systematically reported.

To date, of the 33 deaths this season, 29 have been reported from Spain, more than in the two previous seasons for the same period, but comparable to the 2010/11 season when 28 deaths were reported within the first three weeks of the season.

FIGURE 3

Laboratory-confirmed influenza cases admitted to intensive-care units, by age group and virus (sub)type, France, Ireland, Romania, Spain, Sweden and the United Kingdom, weeks 40/2013–3/2014 (n=409)



Discussion and recommendation

Influenza epidemics occur in Europe every winter, with their severity varying from one season to another. This can probably be largely explained by different circulating virus types and subtypes [8,9]. The 2013/14 influenza season, which still mostly affects southern Europe, has to date been characterised by an increasing proportion of the A(H1)pdm09 subtype, which now accounts for the majority of detected viruses, although A(H3) is co-circulating. As it is still early in the influenza season in Europe and many of the detected viruses have not yet been subtyped or further characterised, it may be too early to state anything definitive about the dominant subtype for this season. To date, influenza A(H1)pdm09 subtype appears to be associated with a higher number of ICU and fatal cases compared with the last two seasons, which were dominated by influenza A(H3) and type B viruses. Although ILI and ARI notification rates have been highest in the two youngest age groups (0–4 years and 5–14 years), most severe and fatal cases have been older than 40 years of age, which has been shown previously for A(H1)pdm09 infection [10]. This is only partly in line with current experience in the United States, where clinicians have recently been alerted about high numbers of severe

cases reported this season, especially in young and middle-aged adults, due to circulation of influenza A(H1)pdm09 virus [11]. The European surveillance data collected during the first few weeks of the 2013/14 season provide no evidence of any similar excess numbers of severe influenza cases, but are comparable to the situation in the 2010/11 season. The data are, however, limited by the early time point in the season and the fact that only a few countries have reported influenza activity.

After influenza pandemics, seasonal excess mortality due to pneumonia and influenza or due to any cause is known to decrease over time, but remains at a relatively high level in subsequent years [12]. Similar to the situation in the United States, the influenza A(H1)pdm09 virus has continued to circulate in Europe after the 2009/10 pandemic [13]. Serological surveys have shown varying degrees of immunity against A(H1)pdm09 in different parts of the world and in different age groups: formerly unexposed parts of the European population can be expected to remain susceptible [14,15]. Only very little information is available about waning immunity and subsequent infection of people previously exposed to influenza A(H1)pdm09 virus.

On the basis of annual seroepidemiological studies conducted in Norway, it seems there is no waning immunity yet against A(H1)pdm09 virus, but rather an increased proportion of the population protected in all age groups [16]. As the 2013/14 influenza season in Europe has only just started, individuals belonging to risk groups, for whom influenza vaccination is recommended [17], can and should still be offered this season's influenza vaccine.

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Conflict of interest

None declared.

Authors' contributions

C. Adlhoch: data analysis and draft of the manuscript; E. Broberg: virological surveillance and data analysis, review and revisions of the manuscript; J. Beauté: influenza surveillance of severe hospitalised and fatal cases, data maintenance and analysis, review of the manuscript; R. Snacken: surveillance data maintenance and analysis, review of the manuscript; E. Bancroft: critical review of the manuscript, data and literature review; P. Zucs: surveillance and concept of the data analysis as well as review manuscript; P. Penttinen: Surveillance strategy and data collection, critical review of the manuscript.

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