SHORT REPORT
Influenza season 2012–2013 in Europe: moderate intensity, mixed (sub)types

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SUMMARY
This paper summarizes influenza activity in the European Union/European Economic Area (EU/EEA) in 2012–2013. The influenza season 2012–2013 in Europe lasted from early December to late April. Overall the severity of the season could be described as moderate, based on the ILI/ARI consultation rates and the percentage of sentinel specimens positive for influenza compared to previous seasons. Both influenza A and B viruses circulating accounted for 47% and 53% of positive sentinel specimens, respectively, with both A(H1) and A(H3) varying for dominance. Compared to outpatients, the proportion of laboratory-confirmed influenza hospitalized cases infected by A(H1N1)pdm09 was significantly higher in middle-aged patients (33% vs. 17%, χ² = 66.6, P < 0.01). Despite a relatively good match between vaccine and circulating strains, vaccine effectiveness was estimated to be moderate.

Key words: Infectious disease epidemiology, influenza (seasonal), respiratory infections, surveillance system.

Influenza is an acute respiratory disease of major public health importance that has been causing epidemics and pandemics of human disease for centuries, with significant morbidity and mortality still being reported every season [1]. A predominant feature of influenza is that its activity, severity and contagiousness vary in a most unpredictable manner each year as does the timing, intensity and duration of the annual epidemic wave. The objectives of the European Centre for Disease Prevention and Control’s (ECDC) annual surveillance activities are to monitor the various elements of influenza virus activity (general epidemiological features and trends, intensity, geographical spread, circulating strains, antigenic and genetic characterization, antiviral susceptibility, severity in hospitalization, and mortality rates) in order to better guide public health prevention and control activities, vaccine strain selection, planning provision for patient care and eventually to reduce related morbidity and mortality.

Sentinel surveillance of influenza in European Union/European Economic Area (EU/EEA) countries is based on syndromic and virological data collected from primary- and secondary-care patients presenting with influenza-like illness (ILI) or acute respiratory infection (ARI). Twenty-seven EU member states, Iceland and Norway submitted their data weekly to ECDC from week 40 (2012) to week 20 (2013). The state of the season is estimated through qualitative

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and the UK. The two viruses were co-dominant (both between 40% and 60%) in nine other countries (Fig. 1). In most instances, influenza B viruses circulated at the same time or later than the A viruses. In Ireland and the UK, circulation of influenza B viruses preceded circulation of A viruses, which is uncommon [4].

Of the 6405 sentinel A viruses subtyped (a further 780 were classified as subtype unknown), 62% were A(H1N1)pdm09 but at country level, this proportion ranged from 16% in Denmark to 100% in Latvia. The proportion of A(H1N1)pdm09 was higher than 50% in 21 countries while A(H3N2) accounted for over 50% only in Denmark, Estonia, Greece, Ireland and the UK. Of the 2998 B viruses ascribed to lineage (5214 were classified as unknown lineage), 90% were Yamagata and 10% Victoria.

Most A(H3N2) and B (Yamagata) viruses from 23 EU countries were antigenically similar to prototype vaccine viruses for the influenza season 2012–2013. However, some A(H1N1)pdm09 [5] and A(H3N2) viruses [6] were found to have undergone some degree of drift which could partly explain the moderate vaccine effectiveness (51–56%) observed in North America [7,8].

A total of 1374 sentinel and non-sentinel viruses (975 influenza A, 399 influenza B) submitted by 10 countries were tested for antiviral susceptibility. Eleven (2%) of the 612 A(H1N1)pdm09 viruses tested carried the mutation associated with reduced inhibition by oseltamivir and one by zanamivir. In addition, one type B virus showed reduced inhibition by oseltamivir.

Eight countries reported 3388 hospitalized laboratory-confirmed influenza cases including 224 influenza-related deaths in six countries. The proportion of influenza A viruses was 61%, while in primary-care settings of the same eight reporting countries, this proportion was 38% ($\chi^2 = 530.9, P < 0.01$), suggesting a higher pathogenicity of influenza A viruses. The proportion of hospitalized cases infected by A(H1N1)pdm09 was significantly higher in patients aged <65 years (33% vs. 17%, $\chi^2 = 66.6, P < 0.01$), highlighting the importance of influenza vaccination of middle-aged adults at risk of complications.

Finally, all-cause mortality data collected by 14 EU countries [9] has shown excess deaths in the elderly possibly explained by the pattern of influenza activity this season in Europe even if other factors such as the long and cold winter may also have contributed.
There are as yet no agreed criteria for assessing the severity of an epidemic season in the EU. The US CDC described their season as ‘moderately severe’, based on the higher percentage of outpatient visits for ILI, higher rates of hospitalization, and more reported deaths attributed to pneumonia and influenza compared to recent years [10]. The EU/EEA 2012–2013 season appeared to be similarly moderately severe in terms of reported intensity, prolonged duration of higher ILI/ARI case load, and the relatively longer-lasting higher proportions of influenza-positive samples. Characterization of influenza A viruses showed some genetic drift from vaccine strains, resulting in lower vaccine effectiveness than ideal. Very few viruses tested showed mutations associated with reduced inhibition to neuraminidase inhibitors. This season typified the unpredictability of influenza and underlined the importance of maintaining a robust influenza surveillance system.

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DECLARATION OF INTEREST
None.

REFERENCES