

Risk groups and other target groups – preliminary ECDC guidance for developing influenza vaccination recommendations for the season 2010-11

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Providing guidance on risk and target groups for seasonal influenza immunisation is difficult for the 2010-11 season since there is no experience with the new influenza A(H1N1) virus in its seasonal form. Arguments exist for offering immunisation to people with chronic illness and older people, and also for other risk and target groups including pregnant women. A more rigorous approach is being developed to produce annual evidence-based guidance on risk and target groups for influenza vaccination.

The 2009 influenza A(H1N1) pandemic has changed the landscape for seasonal influenza [1]. While more than one scenario is possible for the next influenza season (2010-11) the most likely prospect identified in a *Forward Look Risk Assessment* by the European Centre for Disease Prevention and Control (ECDC) is that the new influenza A(H1N1) virus will dominate [2]. Such a 'new' seasonal influenza will be different from the 'old' influenza and presumably have similarities to the autumn/winter pandemic wave of 2009 (Table 1), although there will presumably be less transmission because of immunity in the population following the 2009 transmission and immunisation programmes.

The presence of drifted influenza A(H3N2) viruses cannot be ruled out and influenza B viruses will be an inevitability [2]. Pandemic strains also always change, and another possibility is a drifted influenza A(H1N1) virus with somewhat different properties such as higher transmissibility or higher morbidity in older people. It is currently unknown if infection or vaccination in 2009 and early 2010 will result in immunity and protection in that situation, and the World Health Organization (WHO) and the European Medicines Agency (EMA) have recommended all three antigens for next season's vaccines (pandemic influenza A(H1N1), influenza A(H3N2) and influenza B) [7].

A more severe season than the autumn/winter wave of 2009-10 cannot entirely be excluded [2]. This happened in the second winter of the last ('Hong Kong') pandemic when the virus became more transmissible

and killed more people in its second European season (1969-70) than in 1968-69 [2,8]. Under those circumstances the unused stocks of the adjuvanted pandemic vaccines with a very good safety profile would be invaluable, provided that the necessary stability for use next autumn is documented.

Particular uncertainty arises over the risk groups and target groups. This is important as in European countries the influenza vaccination strategy is based on protecting the vulnerable. ECDC has previously produced evidence-based guidance to help European Union (EU) Member States decide on these groups. This was done based on the evidence from inter-pandemic (seasonal) influenza from 1970 to 2007 [9]. ECDC is obliged to produce such guidance annually under a new Health Council Recommendation that foresees the following [10]:

The Member States are encouraged to adopt and implement national, regional or local action plans aimed at improving seasonal influenza vaccine coverage to a coverage rate of 75% for older age groups and if possible for other risk groups, preferably by the 2014-15 season;

- The Member States' action plans and policies are to take into account definitions of older age groups and risk groups as contained in guidance by ECDC as well as measurements of uptake in all risk groups and analyses of why some people do not wish to receive vaccination;
- The Member States are to foster education, training and information exchange on seasonal influenza and vaccination by organising information action for healthcare workers, information action for risk groups and their families, and organising effective information to remove obstacles to vaccination uptake;
- The Member States are invited to report on a voluntary basis to the Commission on the implementation of this recommendation, in particular vaccination coverage achieved among risk groups;

- The Commission is invited to report regularly to the Council on the implementation of this recommendation, on the basis of the data the Member States will make available.

With a new seasonal influenza based on a pandemic virus that behaved differently from the old seasonal influenza (Table 1), solid evidence-based guidance cannot be produced at present. However, a number of countries have to order vaccines for the coming season now, and the size of those orders depends on decisions on which groups to immunise. The objective of

this paper is to satisfy its new obligation and to answer questions received from countries by discussing the issues that they should take into consideration when making such decisions.

There is one particularly important difference between the coming season and the pandemic period. When risk groups and other target groups for pandemic vaccines were identified in the summer of 2009 by the WHO Strategic Advisory of experts on Immunization (SAGE) [11] and the EU Health Security Committee, the initial vaccine supply was limited and had to be rigorously

TABLE 1

Differences between old seasonal influenza and 2009 pandemic influenza in Europe

	Seasonal influenza 1970-2008	2009 pandemic influenza
Circulating influenza viruses	Two influenza A viruses: A(H1N1), A(H3N2) and some influenza B viruses	Almost exclusively pandemic influenza A(H1N1), a few influenza A(H3N2) and some influenza B viruses
Antiviral resistance	Common and transmissible oseltamivir resistance in influenza A(H1N1) viruses (2008-9) and adamantane resistance in influenza A(H3N2) viruses	Rare and to date only transmitting under certain circumstances
Setting for transmission	Probably any setting where people come together	Schools are considered especially important, along with homes
Experiencing severe disease	Those in clinical risk groups and older people	Young children, pregnant women and those in clinical risk groups, but 20–30% of people experiencing severe disease were outside any risk group Many people born before the mid-1950s seem to be immune, but those who are not do experience severe disease, more so than any other age group.
Acute respiratory distress syndrome	Extremely rare	Uncommon but does occur, even in young fit adults.
Mortality	Few confirmed deaths reported each year in official statistics Estimates of up to 40,000 deaths in a more severe year in the European Union (EU) using statistical methods [3] based on European data [4,5]	Substantial numbers of confirmed deaths announced by the EU Member States (over 2,800 deaths as of March 2010) Not yet calculated for the EU, but estimated in the United States at over 11,000 deaths [6]

TABLE 2

Risk groups for seasonal influenza 2008-9 and pandemic influenza 2009

	Seasonal influenza up to 2008-9		Pandemic influenza 2009	
	Risk of severe disease and death	Vaccine effectiveness	Risk of severe disease and death	Comments
Potential risk groups				
Persons with chronic diseases	Increased, well documented	Limited documentation	Increased, well documented	Included people with morbid obesity and children with neurodevelopmental conditions
Older people	Increased, well documented	Reasonable documentation	Low incidence, but highest risk of complications of any age group if infected	
Pregnant women	Possibly increased, limited documentation	Unclear	Increased risk of complications	Limited data and documentation from Europe [9]
Children	High incidence, complication risk moderate	Good documentation	Increased risk of hospitalisations, less risk of severe disease	
Healthy adults	Low	Good documentation	Increased risk of severe disease and death	
Target groups for vaccination				
Healthcare workers	NA	Some documentation of reduced incidence in patients	NA	Unknown

NA: not applicable.

prioritised. That is no longer the case and vaccine can be produced in sufficient amounts for groups at both higher and lower risk. For lack of experience with the 'new' seasonal influenza except in its pandemic form, considerations will have to draw on the pandemic experience and public health judgement.

Persons with chronic underlying conditions

The previous risk group guidance for seasonal influenza highlighted persons with chronic diseases [9] (Table 2). In the 2009 influenza A(H1N1) pandemic those with chronic diseases were also a risk group, though with some differences as there were some new high risk groups like chronic neurological diseases and morbid obesity [12].

Older people

Older people were another recognised risk group for the 'old' seasonal influenza [9]. In the 2009 influenza A(H1N1) pandemic they had a low incidence of influenza probably due to pre-existing immunity. However, the risk of complications and death in older people who were infected was higher than in any other age group [12]. They will also be at risk from A(H3N2) and B influenzas. When there is no shortage of vaccine the existing limited evidence and public health considerations would therefore support efforts to vaccinate even healthy older people.

Pregnant women

The evidence for risk of complications from the 'old' seasonal influenza in otherwise healthy pregnant women was contradictory [14]. With the pandemic influenza, however, they were one of the risk groups, though European data are as yet scarce [12]. Whether they will still be at increased risk with the 'new' seasonal influenza is unclear [2]. In some countries, vaccination coverage with pandemic vaccine in pregnant women was high last autumn, but vaccination started too late to give clear indications of effectiveness. The safety record has been reassuring [13]. For this group the probable risk of complications from influenza infection will have to be weighed against a reluctance to vaccinate pregnant women in some countries and the limited knowledge about vaccine effectiveness. Questions about adjuvanted vaccines may not arise, because most manufacturers have stated they will not be using adjuvants for the seasonal vaccines.

Children

There has been a general recommendation in the US and also in a few European countries (Finland and some other) for vaccination of all children older than six months against seasonal influenza [15]. The documentation of the burden of disease presented by the 'old' seasonal influenza in Europe was considered too limited to produce general guidance [16]. However, the incidence of paediatric disease and complications during the pandemic waves was considerable [12].

There are practical difficulties in introducing general paediatric influenza immunisation. Immunisation of

immunologically naïve young children may require two doses of vaccine. The more acceptable nasal live attenuated vaccines are not available in Europe, and scheduling injectable doses between the vaccines already recommended for infants in the childhood immunisation programmes is a problem. These difficulties must be weighed against the risk of severe influenza outcomes and the possibility of indirectly protecting other risk groups by vaccinating children [17].

Healthy young adults

One of the unusual features of the 2009 pandemic influenza A(H1N1) was the appearance of complications and deaths in young, healthy adults [12]. This is a phenomenon also seen in other pandemics, most clearly in the 'Spanish Flu' 1918-20. It is unknown whether an increase in the rates of complications in healthy young adults will occur during the next influenza season, but the US has included them in their targeted groups for immunisation to the effect that vaccination is recommended for everyone over the age of six months (although actual coverage for this group is well under 50%) [18]. This is one of the fields where more knowledge is most needed, and decisions are most difficult.

Healthcare workers

Information on policies, practices, and coverage for influenza vaccination in Europe is gathered through annual surveys by the Vaccine European New Integrated Collaboration Effort (VENICE) Project [15]. These surveys document that among the many potential target groups healthcare workers are the group most commonly identified for vaccination, and ECDC guidance has highlighted them because of their risk of transferring the infection to persons in the risk groups [12].

Conclusion

There will inevitably be epidemics of influenza during the winter of 2010-11, with the new influenza A(H1N1) probably dominating. However, the scientific information for evidence-based guidance for vaccination is presently insufficient for a more precise guidance. To fulfil its new obligations, ECDC will be undertaking annual reviews of the accumulating information that will first come from the southern hemisphere from July 2010 onwards and then every year in the European influenza seasons.

In the meantime the public health justification for vaccinating people from the age of six months with chronic diseases, older people and healthcare workers seems to be sufficient to identify them as target groups for vaccination. There are also some reasons to believe that pregnant women, young children and young healthy adults will be at risk from a seasonal influenza dominated by the new influenza A(H1N1) viruses. This must be weighed against the limited knowledge about vaccine effect, the costs and the practical difficulties related to vaccination when the recommendations for the coming season are decided.

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