DOI:10.1111/j.1750-2659.2008.00065.x
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Special Edition: Editorial

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Please cite this paper as: Hampson and Wood (2008). Recent developments in seasonal and pandemic influenza vaccines. Influenza and Other Respiratory Viruses 2(6), 191–192.

It is surprising that over 60 years have elapsed since the first use of influenza vaccines, yet with the advances in biotechnology that have occurred in the interim, the majority of the influenza vaccines that we use today are still non-living viral antigens produced in a relatively uncontrolled substrate, the embryonated chicken egg. It is also surprising that the impact of seasonal influenza has only gradually entered the consciousness of public health authorities over the last couple of decades. This has resulted in expanded national recommendations for influenza vaccination and gradually increasing vaccine use, at least in many of the more economically developed and rapidly developing countries.[1,2]

It has been widely accepted for many years that a future influenza pandemic is inevitable. Regardless of the development of new influenza-specific antivirals, vaccines are seen as the most effective response against such a threat and, therefore, have a key role in pandemic preparedness planning. It is quite alarming, then, that the current global capacity to produce vaccine would fall woefully short of global needs in the event of a pandemic that occurred today.[3,4] One of the few significant 'improvements' introduced into vaccine manufacture was a move to sub-virion vaccines in order to reduce the reactogenicity that was observed principally when administered to infants and young children.[5] Ironically, this was clearly demonstrated in the late 1970s to reduce vaccine immunogenicity in immunologically naïve individuals,[6–8] as would be the case in a pandemic. Other studies have also shown reduced immunogenicity of seasonal sub-virion vaccine in the older adult, a major target group for annual vaccination.[9] Another improvement, the immunological standardization of vaccine antigen content,[10,11] might, in itself, contribute to delays in vaccine availability due to the time required to produce the required reagents.

The ongoing epizootic of avian influenza due to A(H5N1) viruses, and the growing count of associated human fatalities, has stimulated the development of candidate pandemic vaccines with an emphasis on the H5 subtype.[12] All of the initial human studies with H5 vaccines suggested that the haemagglutinin of this subtype displayed an immunogenicity that was lower than that of the haemagglutinins of other candidate pandemic viruses, such as H2 and H9[13–15] which has compounded the shortcomings of the current sub-virion vaccines and further reduces the potential pandemic vaccine supply. This has stimulated a variety of approaches to resolving this issue including new ways of producing vaccine antigen, improving immunogenicity by the use of existing and new immunological adjuvants and even a return to the use of whole virus preparations. A number of encouraging results that offer the possibility of improving the quantity and potency of A(H5N1) vaccines within the immediate future have recently been reported. In view of their importance to those involved in public health programmes and pandemic preparedness planning it is important to record as many of these as possible in a single publication. We have, therefore, canvassed widely among vaccine manufacturers and developers for up-to-date review articles describing their improved products for seasonal and/or pandemic influenza. Although not all have contributed there has been an excellent response and the journal is pleased to publish these articles in this special edition.

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