European Medicines Agency

London, 25 September 2009
Doc. Ref. EMEA/601321/2009

Questions and answers on vaccines for the pandemic (H1N1) 2009 ('swine flu')

The Committee for Medicinal Product for Human Use (CHMP) at the European Medicines Agency has issued positive opinions recommending that two pandemic flu vaccines be granted marketing authorisation. This means that, once the marketing authorisations based on these opinions are granted by the European Commission, these vaccines will become available for use throughout the European Union to protect against infection with the current pandemic virus and help control the spread of the pandemic.

What is the 'swine flu' pandemic?
The 'swine flu' outbreak started in April 2009 in Mexico, and was officially declared the 'pandemic (H1N1) 2009' by the World Health Organization in June 2009. A pandemic is an outbreak of influenza due to a new strain of flu virus that is spreading easily from person to person. It is different from the normal 'seasonal' flu, because the strain is new, and because most people have no protection (immunity) against it. A lack of immunity in the population means that the virus can spread widely.

Which vaccines has the CHMP recommended for marketing authorisation?
The CHMP has recommended that two vaccines be authorised:

- Focetria, from Novartis Vaccines and Diagnostics S.r.l.;
- Pandemrix, from GlaxoSmithKline Biologicals S.A.

Both vaccines have been developed using the 'mock-up' vaccine approach. This approach is unique to pandemic vaccines. Mock-up pandemic influenza vaccines were prepared in advance of the pandemic, using a different flu virus strain, before the actual virus strain that is causing the current pandemic was known. The vaccines used an H5N1 strain of flu virus, because this is a strain of flu virus that could cause a pandemic, and to which no-one has been exposed. After the start of the current pandemic and once the A(H1N1)v virus had been identified, manufacturers converted the mock-up vaccines into final pandemic vaccines, by replacing the H5N1 strain with the H1N1 strain.

The mock-up vaccines have been specially designed to mimic the final vaccines in two ways:

- in the way the vaccine is 'constructed': the methods used to prepare the virus, as well as the composition of the vaccine,
- and in the way the vaccine is used, in people who have no existing protection against the virus.

Because of this the information obtained from the studies with the mock-up vaccines can be used to 'extrapolate' (predict) the safety and protective effect of the final vaccines.

What are the recommendations of the Committee?
The Committee recommended a two-dose vaccination schedule, with a 3-week interval, in adults, including pregnant women, and in children from the age of 6 months. The Committee acknowledged that the dosing recommendations may change as more data are obtained from the clinical studies.

The full details of the Committee's recommendations can be found in the product information, which details how the vaccine may be used, and describes the data on which its recommendations are based[1]. Based on this information, governments in each EU Member State will develop their vaccination strategy.

[1] Available on the Agency's website www.emea.europa.eu

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What data did the CHMP review to make its recommendation?
The CHMP recommendation is based on two sets of data:

- the data reviewed for the authorisation of the original mock-up vaccines. These are full studies of the quality, safety and immunological effect of the mock-up vaccines with the H5N1 virus strain. These data included the results of studies in over 6,000 people, including adults, older subjects and children.
- the data regarding the change of virus strain from H5N1 to H1N1. These are data on the methods used to make and test the final vaccine.

Clinical trials in adults and children with the vaccines containing the pandemic H1N1 strain are currently ongoing and the CHMP will review these data as soon as they become available. However, the Committee has already reviewed some preliminary results from early studies with H1N1 vaccines.

Where data were limited, the Committee also used data from the published literature, and information from disease control centres on the spread and severity of the current pandemic. They also drew on the scientific knowledge coming from many years of experience with seasonal flu vaccines.

For its recommendation in children, the CHMP extrapolated data obtained with the mock-up H5N1 vaccines in some age groups of children to conclude on a recommendation for the final pandemic vaccines in children of all ages.

For its recommendation in pregnant women, the Committee noted that the vaccines are expected to produce a similar immune response in pregnant women as in women who are not pregnant. While there is limited data on safety of vaccines in pregnancy, years of experience with vaccination of pregnant women with the seasonal flu vaccine have not raised specific concerns. In addition data in animal studies with the mock-up vaccines, and with the 'adjuvants' (the substances used in the vaccines to enhance the immune response), do not show any untoward effects. The CHMP concluded that the vaccines can be used in pregnancy according to official recommendations.

Adjuvants are widely used in vaccines as they allow for less viral material to be used in each dose of vaccine. The adjuvants used in Focetria and Pandemrix are oil-based compounds. As for all substances used in medicines, these adjuvants have been extensively tested before they have been considered appropriate for use in vaccines.

What will happen next?
The positive opinions of the CHMP are being transmitted to the European Commission for the granting of the marketing authorisations.

The CHMP will continue to evaluate all the further data that will be generated from the clinical trials the companies are carrying out, and will recommend updates to the product information as necessary.

As soon as the vaccines are being used across the EU, the manufacturers will start the additional studies they have committed to carry out. These include studies looking at the safety of the vaccines, which will follow up about 9,000 newly vaccinated people very closely to confirm that the safety of the H1N1 vaccines is as expected. Measures are also being put in place to facilitate 'traceability', so that any side effect reported can be clearly attributed to the exact vaccine, and batch, the person has received. Throughout Europe the companies that are producing the vaccines are working closely with public health authorities in the Member States to make sure that all these measures are put in place.

The European Medicines Agency will provide updates as new information becomes available.