Summary of oral evidence: Professor Hans Klenk

10 April 2006

Professor Hans-Dieter Klenk, Institute of Virology, University of Marburg, gave evidence to the group via teleconference. The views expressed were the personal views of Professor Klenk.

Members of the working group present were: Sir John Skehel, Professor Barry Furr, Professor Neil Ferguson, Dr John McCauley, Professor Andrew McMichael, Professor Karl Nicholson, Professor Albert Osterhaus, Dr Geoffrey Schild and Professor Robin Weiss.

Key points

Scientific evidence and how it is used in policy-making in Germany

Professor Klenk stated that he is not a member of an official advisory committee on policy-making or influenza contingency planning in Germany. His research interests in relation to H5N1 are focussed on pathogenesis, host adaptation, and vaccination. In his opinion, surveillance of the avian population and of flu in Germany is good, it is organised at the Länder (local) and the Federal level. The final responsibility for surveillance lies with the Federal Government.

Vaccination

Professor Klenk said that the (H5N1) virus is endemic in the avian population in large parts of the world, therefore a vaccination policy is justified. There was a discussion about the bird vaccination policy in the Netherlands: poultry are only allowed outside if they are vaccinated and sentinel animals are included in the vaccination programme. It was commented that vaccination in poultry has reduced the number of human cases of flu in Asia. Professor Klenk believes that the European policy document must be changed as regards vaccination of poultry.

Deployment and availability of avian flu vaccine

Professor Klenk said that free range animals should be vaccinated principally, because they cannot be kept indoors over long time periods. In terms of availability of vaccine, stockpiling is being done in Germany and in other countries. There is currently capacity, but it is a two shot vaccine that takes 3-4 weeks to carry out which would not be helpful in an outbreak situation. The vaccine composition is attenuated virus with the addition of adjuvants. There was a discussion about whether a mass vaccination could lead to variants being selected for, but it was pointed out that you get limited sub-clinical infection and the inclusion of sentinel animals gives information on this.

German pandemic plan

Professor Klenk has been involved in providing advice for the set-up of the German contingency plan.

- The contingency plan includes drug stockpiling and vaccine development under the supervision of the Federal Government. The two companies involved in vaccine manufacture are GlaxoSmithKline and Chiron. The antiviral drug stockpile is sufficient to treat 7.5-30% of the population depending on location, but the overall average is 20%.
- Patenting is a potential problem and the use of reverse genetics to develop new vaccines is a concern in this regard. However, in Europe all governments have the right to circumvent patents in an emergency situation.

- In Germany, €20 million has been spent on human flu vaccines. This was decided following little input from scientists, but mostly following discussions with companies.
- In terms of a H5N1 vaccine for humans, many companies do not know the formulation and dosage that will be required. Dose-finding is a priority for the new vaccines being developed, as is finding new adjuvants. Poor immunogenicity has not been taken into accounts in a number of the calculations made to date, for example a 15 mg dose is unlikely to be sufficient to elicit a response.

Diagnostics

Professor Klenk is not aware of any new developments in flu diagnostics in Germany.
In terms of funding in Germany, it was announced that €60 million would be spent on pandemic flu research- €20 million has been spent on vaccines and €40 million is to be spent on resource research.

Final comments

- Professor Klenk stressed that a long term understanding of flu is important, with an emphasis on ecology and the natural history of the virus, how it is spread in nature and the mechanisms underlying host pathogenicity and host adaptation markers.
- He advised that the group should make strong recommendations on veterinary vaccination policy.
- Other areas of research that should be developed include research into new antivirals, especially looking into the polymerase and haemagglutinin as new drug targets.
- Diagnostics may be a priority in the early stages of a pandemic. In Professor Klenk's opinion, the tests for rapid flu diagnostics that are currently available are not very good.