THE ROYAL SOCIETY

The Academy of Medical Sciences

Summary of oral evidence: Professor Maria Zambon and Dr John Watson, HPA.

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Professor Zambon is Head of the National Influenza Laboratory and Deputy Director of the Virus Reference Division at the Centre for Infections, Health Protection Agency (HPA).
Dr Watson is a Consultant Epidemiologist and Head of the Respiratory Diseases Department at the Centre for Infections, HPA.

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, Dr Geoffrey Schild and Professor Robin Weiss.

Key points

Science into policy making
The HPA were not asked for advice from the Department of Health as regards the purchase of antivirals or vaccines, but the HPA modelling group did provide data at an early stage to the DH pandemic influenza committee. In Professor Zambon's personal opinion, coordination at the scientific and policy interface of UK government could be improved.

Surveillance
Professor Zambon said that the channels for formal exchange of information between UK veterinary and medicine regulatory bodies may not be as efficient for avian influenza as is currently desirable, but that in recent years things have improved. Informally, information exchange between reference laboratories is very good. A National Zoonoses Framework exists for joint working between VLA and HPA but has not proved very useful with respect to forward planning for influenza.

There is an international group drawn from WHO laboratories, public health experts and academics, funded by GlaxoSmithKline and Roche, which facilitates the exchange of drug resistance surveillance information internationally (NISN group). One function of the NISN group is also to carry out antiviral resistance surveillance internationally. The USA and Australia have put in place more enhanced forms of surveillance. There is currently no antiviral susceptibility monitoring in the United Kingdom.

Dr Watson made the following points with regard to surveillance issues:

- Surveillance on seasonal flu might not do as well with pandemic influenza
- A spectrum of clinical disease surveillance is required
- The current system of surveillance based on GPs providing information may fall apart in a pandemic situation, and the introduction of telephone polling may be required.
- The analysis of serious infections involves linkage of information, this could raise data protection issues.

Diagnostics
To enable rapid diagnosis of flu and confirm the strains involved the HPA need to obtain the most up-to date international information. However, it is often difficult to obtain recent virus sequence information from UK institutes which hold international data. The centres at VLA Weybridge and MRC Mill Hill in the UK do not always release information to the HPA, although information is released very promptly to WHO and held in

protected databases available to several international laboratories. As these two centres are both funded by the UK government, this is an unsatisfactory situation, since it means that information developed in the UK, and funded by the UK government is not being shared with UK institutions which have responsibility for UK diagnostics. This situation has been the subject of much international criticism recently, as it is clear that many countries are also unable to access such information developed within the WHO.

There are currently 19 laboratories in the UK that are fully accredited for H5N1 influenza diagnosis. These centres can provide a confirmed diagnosis within 8 hours. A laboratory network has been established whereby all accredited labs meet monthly for regular updates and information sharing. Professor Zambon estimated that the UK has the capacity to deliver diagnosis on approximately 2000 samples per day possibly more. The formal capacity of the laboratory network has not been established. All labs are equipped with P3(BSL3) biosafety facilities, but few could handle a highly pathogenic avian virus.

Professor Zambon thought that the development of rapid diagnostics would be of value because there are two problems with the current rapid flu diagnostics; they are not sensitive enough or are too time-consuming. When asked about the necessity for rapid diagnostics, it was pointed out that in the event of a flu outbreak emerging in Asia for example, there would be a need for rapid diagnostics in Asia. There is currently a gap in the availability of diagnostics between high-tech diagnostics which has a high skill requirement and is time-consuming and a dipstick-style test which is not very sensitive. There is a need for improved technologies to make a simple diagnostic, which would be used as the disease is emerging in the population in the early stages, particularly for resource poor settings, including hospitals which have little virology diagnosis capability.

Antivirals

There was a discussion on the purchase of an antiviral stockpile by the government which will be enough to treat 25% of the population. This figure is now being reanalysed, but it was commented that perhaps there could have been more discussion on the availability of drugs and other possibilities 18 months ago during the original analysis. In terms of delivery of antiviral drugs in the population, Dr Watson commented that there is a need for operational research. Data from clinical trials with human influenza suggests that treatment with antiviral drugs may be more effective if given as early as 12 hours after onset of illness.

Vaccines

It was stressed that the HPA remit is to support vaccine development work but not to lead it, although HPA may be involved in immunogenicity assessment and safety and efficacy evaluation. The working group members were encouraged to ask the Department of Health about this issue.

UK Infrastructure

There is very little sharing of WHO clinical information, which was evident during the SARS outbreak. The UK needs a system to collect details of early patients and the HPA is deploying a preliminary system for this purpose, which will include details of clinical symptoms of patients, treatments and responses. Rapid feedback will be required from different centres on secondary bacterial infections, resistance to antibiotics etc.

There may not be surge capacity for diagnostics in the event of a pandemic flu situation, but attempts are being made to try to make testing a routine lab procedure rather than a specialised skill. Infection control information is still very thin, community proposals have been submitted but the preventative measures to be employed are not clear. There may be a need for clinical physician training to prepare for their individual response to a pandemic situation.