THE ROYAL SOCIETY

The Academy of Medical Sciences

Summary of evidence: Professor Roy Anderson FRS FMedSci

7 April 2006

Professor Roy Anderson FRS FMedSci, Chief Scientific Adviser, Ministry of Defence, gave evidence to the working group in his capacity as Professor of Infectious Diseases Epidemiology, Imperial College. The views expressed were the personal views of Professor Anderson.

Members of the working group present were: Sir John Skehel (chair), Professor Glynis Breakwell and Dr John McCauley.

Key points

Government committees and COBRA

Professor Anderson spoke about the composition of COBRA, the government's crisis management committee, which is composed largely of officials, but perhaps lacks sufficient subject matter specialists. Science feeds into COBRA through Sir David King FRS (Government Chief Scientific Advisor).

A number of pandemic influenza committees exist across Government including: the Department of Health (DH) Science Advisory Group chaired by David Harper; OSI Science Advisory Group chaired by David King and the Cabinet committee on influenza pandemic planning. The civil contingences committee (run from the Cabinet Office) ranks priorities of emergencies and activates the COBRA committee. Professor Anderson recommended that the working group ask Government to provide a picture of how Government and COBRA relate to the various committees. He advised that the group should speak to Bruce Mann, Head of the Civil Contingencies Secretariat.

DH/Defra existing contingency plans

Professor Anderson believes that existing DH/Defra contingency plans are not detailed enough. He believes that DH should run a full scale emergency rehearsal, not just a tabletop version of a mild outbreak which is easy to bring under control.

He suggested lessons can still be learned from the Foot and Mouth Disease (FMD) outbreak and that DH/Defra should develop the capability to run a command control centre with an adequate real-time electronic data management system. This is an area where Ministry of Defence (MoD) has extensive capability and experience. In the long-term he would like to see DH linked to all Primary Healthcare Trusts with software which could identify unusual special clusters of flu in space and time (or any infectious disease) and automatically produce an alert.

Work of the MoD

The MoD has developed its own contingency plan for pandemic influenza independent of DH. The Department has also access to limited supplies of antiviral drugs (Tamiflu) which, while not large enough for prophylactic treatment, will be used to treat on presentation of disease symptoms with priority for already defined essential workers. The MoD has formally written to Defra and DH to ask what they would require from the MoD in the outbreak of a pandemic but has had replies (on the record) from both saying that do not envisage input from the MoD being necessary.

Mobile phone data
Professor Anderson discussed new research from his own group on anonymised mobile phone records and tracking population movements. This data is not currently underpinning the work of modellers at Imperial College (Professor Neil Ferguson), but will be fed into their work. The anonymised data can not be stratified further than age and location of the person who bought the phone, which may limit application in the context of a representative population based sample.

Bedside diagnostics
Professor Anderson would like to see the development of a bedside diagnostic. For example, a dipstick test or a blotting paper colour change test. He believes that diagnostic tests could be used to focus the use of limited supplies of Tamiflu at the start of an outbreak. He envisages that either healthcare professionals would visit patients at home to conduct the test or carers could collect the tests from pharmacies (similar to pregnancy tests).

Antivirals and pre-pandemic vaccination
DH is currently re-evaluating the stocks of treatments for pandemic influenza it has ordered. Their options are either to increase the percentage population coverage of antivirals (currently 25%) or spend money on a pre-pandemic vaccine. Professor Anderson believes that financial limitations means DH can not do both.

Professor Anderson believes that there is no detailed national strategy for the use of antivirals and how the 25% is distributed, as individual Health Authorities have their own plans and advisors. A full scale rehearsal simulation would highlight these issues and help provide answers to ensure uniformity in response across all National Health Trusts, in accord with policy on the best control options to adopt.

To provide a pre-pandemic vaccine for 50% of the population will be an expensive option but even a 30-40% efficacy will greatly limit mortality and morbidity as highlighted by recent simulation studies by HPA and Imperial College. This would also boost vaccine production capacity which is highly beneficial in the long term and the cost-benefit analysis for increasing vaccine production is striking. Professor Anderson advised the working group to ask David Salisbury about the cost of pre-pandemic vaccination.

Modelling
Professor Anderson doesn't believe that DH is seeking sufficient advice from experts in this area. He believes that detail is not sufficient in the current policy response and they should include the situation in each week of a pandemic. For example, predictions of case mortality rates in week one, stratified by age. The models should be able to be adapted accordingly with time (each week) to provide information on who should be targeted to receive antivirals. The UK leads the way in the field, but modelling is being used better by the US Government via direct access to UK research groups than the UK.

From the models he believes that containment at source probably not possible. School closures in the first week of an epidemic would be beneficial but closing national boarders will not, as a retrospective study of SARS showed that closing boarders would have made little difference.

International collaboration
Pooling of clinical data on best treatment options and therapy successes in an outbreak will be vital as epidemiological data is stronger with larger numbers obtained from pooling data. He believes that clinicians (and vets) should be encouraged to share data and there may be a role for WHO and government departments of health in this.