

Royal Society response to the House of Lords Science and Technology Committee inquiry into Pandemic Influenza

The Royal Society is pleased to respond to the Committee's call for evidence for the inquiry into 'UK's preparations for a potential outbreak of pandemic influenza'¹. This inquiry is a follow up to the House of Lords Science and Technology Committee's report on 'Fighting Infection' in 2003. The inquiry is to focus on the UK's contingency planning for a possible outbreak of pandemic influenza and the Government's continuing preparations to meet this threat.

In preparing this response we have consulted with Fellows and other experts that have worked with us on relevant committees, working groups and science policy advisory groups.

The Society would like to recommend that the Committee consider the following points when conducting its inquiry:

- 1 The majority of cases of pandemic influenza among human reported to date have emerged in South East Asia where avian flu is endemic. However it should be noted that pandemic influenza could emerge elsewhere in the world. For example, the USA, South Africa and Canada all reported cases of avian flu in 2004 and the Netherlands recently reported human deaths from avian flu. Furthermore, the UK is in the flight path of migratory wild fowl from Siberia and central Asia, areas in which avian flu has been reported. It is therefore essential that any assessment of risk should be considered more broadly than solely emergence from South East Asia. It is of further concern that many surveillance organisations such as the Centre for Disease Control and Prevention in the US are reporting the spread of a strain of avian flu in South East Asia with an increased pathogenicity in a wide range of bird and mammal species.
- 2 The Society believes the UK is strongly placed to develop modelling-based scenarios on the possible routes of human transmission and propose possible containment strategies based on these scenarios. Development of these scenarios can be used to anticipate which combinations of interventions are best applied, given the current and future availability of drugs and vaccines. Furthermore these scenarios will benefit from the addition of epidemiological and clinical data which will further inform interventions that may need to be made.
- 3 If an outbreak is due to a strain for which an existing vaccine is available it will be possible to offer protection as long as adequate production facilities exist. It is important to note that there is not currently a vaccine against the H5N1 strain of avian influenza that is licensed for human use in the UK. Vaccines should be developed against strains of avian influenza virus, but these may not be effective if a virus mutates into a form that is easily transmissible to and between humans. Therefore vaccines should be modified and updated to keep pace with the evolution of the viruses. To ensure that the development, manufacture and distribution of vaccines will be effective the Government needs to put mechanisms in place to ensure that the quality and supply of vaccines in the UK are maintained, rather than being bought from the private sector on the open market. It is likely that vaccine companies will not make large profits from vaccines as the costs of updating their technology compared with the potential usage could make it unviable. If necessary, the Government should consider underwriting the cost and liability of developing this new production technology.

¹ http://www.parliament.uk/parliamentary_committees/lords_s_t_select/pandemic.cfm

- 4 In the event of a pandemic influenza outbreak it would be preferable to have a rapid and inexpensive diagnostic test available at the GP clinic and for 'bedside' use. Current diagnosis is laboratory based and takes much longer for results to be available to the prescriber than the narrow window of opportunity (approximately 48 hours) that exists for effective utilisation of antivirals after exposure to influenza. Any 'dip stick' style test will require an appropriate level of sensitivity and accuracy that allows a clear diagnosis and typing of the virus strain. The Government should consider allocating research funds for the development of such a test. In the mean time, further research should also be conducted to increase the accuracy and decrease the time taken for laboratory based diagnosis. The widespread availability of a rapid diagnostic test may also have implications for prescribing of treatments outside of the GP surgery in an outbreak scenario.
- 5 Antiviral drugs can be used in the early treatment of influenza as well as prophylactically in those at risk. Government needs to initiate research on the use of antivirals on a prophylactic basis, the development of possible resistance to an antiviral treatment and the subsequent transmission of resistant strains.
- 6 The Society is concerned by the loose definition in the Department of Health pandemic influenza contingency plan of an 'essential worker' (someone who would receive antiviral treatment) and at what time they would receive the antiviral. This definition should include not only workers in the healthcare sector but other personnel involved in the maintenance of critical national infrastructure such as power, finance, water and Government. A strategic decision on the priority of treatment given to essential workers also needs to be made. It is essential that the number of doses of antivirals and vaccines, if appropriate, available in the UK is at least sufficient to cover all essential workers identified in the contingency plans.
- 7 The globalisation of the economy means that infections now have the potential to spread rapidly around the world. A previously local epidemic now has the potential to become a pandemic. It is essential the UK Government does not focus entirely on stopping a pandemic at source through the use of antivirals but instead considers a broad range of interventions such as modelling based scenarios and developing new vaccine production capability.

Should the Committee wish any clarification or expansion of our views we would be happy to respond to any written queries and also to provide oral evidence to the Committee.

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