The Royal Society
Pandemic Influenza – Call for Evidence
Reply by
Dr. Arnold S. Monto

I am pleased to be able to offer my views as evidence to the Royal Society's Pandemic Influenza – Call for Evidence. Because of the short time period for response, I have taken the liberty of attaching a recent paper that I have written, commenting on needs for vaccine development and antiviral stockpiling and use. On these subjects, I shall make only a limited number of additional points. I am afraid there is no coordinated international approach to vaccine development and evaluation, so that there may be duplication of some approaches, and omission of others. The problem is sometimes more political than scientific, and often, to speed things up, priorities are established in ways which lack transparency. I have been involved in European Commission meetings on vaccine, but have been disappointed by their inability to move quickly or efficiently. The best we can hope for is a global clearing house for sharing information. WHO may be assuming this role; one hopes that there will be more stability there than has been the case in the past.

As stated in my paper, it is unacceptable that the world must rely on one antiviral and that even alternative drugs target the neuraminidase. Here, the only solution, given reliance on the private sector, is to increase incentives for development, which must also involve seasonal use. Oseltamivir, and for that matter, zanamivir have been under-used, and that, in part, is the reason for current shortages. The fault lies as much with the company as with health authorities. In the United States, there has been little physician education on the value of the drugs for seasonal use. Pharmaceutical companies spend most of their money on promoting "blockbuster" drugs, and the neuraminidase inhibitors do not fall in this category.

I have been struck recently that industry has finally seen the value of developing new therapeutics for pandemic or seasonal influenza, and have been stymied by the limited number of places where the ferret model is available. We, at the University of Michigan, used to have it in operation but for logistic reasons, have not been able to maintain it. This particularly applies to evaluating agents treating H5N1, which requires high levels

of containment. A parallel problem affects surrogates of protection in vaccine evaluation. We are currently using neutralization antibody to indicate immune response, and have no idea of what level correlates with protection against infection. Given the fact that human challenge studies are not possible, except perhaps with an attenuated vaccine, there would seem to be a role here for animal testing.

In my recent paper, I do not address non-pharmaceutical interventions, which for many countries may be the only ones available. We know little about what works and what does not, especially concerning hand-washing, one of the most recommended preventive action, as well as social distancing. I believe there are two reasons for this lack of knowledge. First, in the seasonal situation, with the availability of vaccines and antivirals, there has not been any incentive to study these interventions. Also, perhaps as importantly, is the difficulty of drawing conclusions on activities which are not easily subject to randomized trials; observational studies may be the only way to provide the necessary information. It is also possible that transmission modelling may help in decision making on this important subject, as it has on appropriate use of vaccines and antivirals.

Reference: Monto AS. Vaccines and antiviral drugs in pandemic preparedness. Emerging Infectious Diseases (January 2006, Vol 12, No 1).

Available from http://www.cdc.gov/ncidod/EID/vol12no01/05-1068.htm