Policy Research Brief

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Policy analysis for pandemic influenza preparedness

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Policy brief on issues related to analysis and formulation of avian influenza and pandemic influenza policy obtained from APEIR studies

- A harmonised, regional approach to avian influenza control and prevention in Asia will prove elusive because of the markedly different disease status of countries, different structure of the industry and different attitudes towards vaccination, even in places where the disease remains endemic or recurs regularly. Regional policies and strategies will need to recognise these differences between countries.
- There is general agreement on the benefits of stockpiling of anti-viral drugs. Experiences with the H1N1 human pandemic in 2009 demonstrated the value of these stockpiles even if their main use was early treatment of patients rather than pandemic prevention.
- Policy formulation for potential pandemic diseases remains difficult for developing countries. It is unreasonable to expect developing countries to bear all of the costs of prevention of potential human pandemic diseases yet donors are not prepared to provide appropriate support to fill the gaps.
- For poultry vaccination at the smallholder level, a decision to conduct long term mass vaccination campaigns only makes sense if it will also reduce the risk of emergence of a human pandemic virus because the costs of vaccination campaigns outweigh the direct benefits from the prevention of poultry losses.
- Decisions on the size of antiviral stockpiles are being driven by the cost of purchasing and regularly replacing expired drugs rather than public health considerations. This has significant implications if the main purpose of the stockpile is pandemic prevention.
- Scientific evidence on disease control and prevention (in this case the use of vaccination in poultry) was interpreted by expert panels in different ways suggesting that either the balance of evidence for and against vaccination was not sufficiently clear cut or that other (economic) factors influenced the decision.
- Regardless, agriculture sectoral policy should be coherent with public health sectoral policy both within individual countries and across the region and should aim to reduce the risk of emergence of human pandemic agents.

1. What was known about policy decisions related to avian influenza control and pandemic preparedness prior to the study

Highly pathogenic avian influenza caused by viruses of the H5N1 subtype (H5N1 HPAI) caused severe disease in humans and poultry in 1997 and briefly raised concerns about a possible severe human influenza pandemic. Once the disease was contained in Hong Kong these concerns were largely forgotten. Even though related viruses continued to circulate in China and occasional outbreaks were reported in Hong Kong, planning for outbreaks of this disease elsewhere and preparations for a pandemic remained weak in SE Asia.

The global outbreak of SARS in 2003 reminded all countries of their vulnerability to human pandemic disease and resulted in some moves towards greater pandemic planning. These preparations were overtaken by the emergence of H5N1 HPAI across much of SE Asia in 2003-04 and transcontinental spread of this disease to Europe and Africa in 2005-06. Few of the newly infected countries were fully prepared for widespread transmission of H5N1 HPAI viruses, the disease it caused in poultry and humans, or the potential threat of a human influenza pandemic. Policies to deal with this disease were developed in the face of outbreaks and human cases.

International agencies had long standing recommendations for control of HPAI in poultry that were

no longer necessarily appropriate for a disease that was widespread before concerted control measures were in place (the recommendations were based on early detection and early response and were designed for disease in commercial poultry). New approaches were proposed by FAO in 2004 (FAO 2004). This document pointed out that the disease was already endemic in some countries and that prospects for regional eradication in the near future were poor. It also indicated that well managed vaccination was expected to reduce the quantities of virus circulating and therefore the risk to public health. FAO recommended selection of the mix of measures most appropriate to the country and the stage of the disease control program. The potential to use compartmentalisation to retain export markets if certain parts of the poultry population outside the compartment were vaccinated was also described. However at the time this document was written acceptance of compartmentalisation was still limited. As these were only recommendations, countries were not required to follow the advice they contained.

Differences in the structure of the livestock sectors in the three countries involved in this research had already been described, with Thailand having fewer small scale poultry farmers than Vietnam and a much greater reliance on export markets for produce from Thailand (Rushton et al 2005).

WHO provided guidance for pandemic preparedness in 2005 (WHO 2005) in which it asked "Does the country concerned have the resources for the provision of antiviral drugs that may be used during a pandemic? If so, is there a strategy in place to make optimal use of the available capacity?" Pandemic preparedness plans in the Asia Pacific region had been assessed (Coker and Mounier-Jack 2006), including those for Thailand and Vietnam and found that only small stockpiles of anti-influenza drugs would be kept in these two countries.

Indonesia was an early adopter of poultry vaccination for H5N1 HPAI with the commercial sector introducing vaccination when producers found alternative means of prevention, based around farm biosecurity measures, were not sufficient to prevent the disease. Government sponsored vaccination programs for smallholders were introduced later but were largely abandoned because of the problems in sustaining sufficient immune coverage.

Vietnam introduced vaccination at a time when global attention was focused on the country because it had more human cases of Influenza A(H5N1) than any other country. Vaccination was extended to all poultry sectors in high risk areas (Domenech et al 2009) rather than just the commercial sector because most of the human cases had occurred in association with small flocks of poultry. Vietnam also produced two major policy papers on influenza control - the so called 'red book' (avian influenza strategy) and the 'green book' (work plan) - which represented collaborative efforts between government and donors to develop appropriate plans for handling a potential pandemic and reducing the risk posed to humans by infected poultry.

Thailand did not adopt vaccination despite some poultry producers calling for its adoption but had a well-developed pandemic preparedness plan.

At the time the study was undertaken no formal assessment and comparison of the policy decisions in the three countries had been conducted.

Analysis of the political economy of avian influenza was undertaken on these three countries independently by the STEPS centre, concurrently with the APEIR studies. Results were not available at the time the APEIR studies were conducted (working papers were published in 2009 (Forster 2009, Safman 2009, Vu 2009). Rather than trying to cover all issues the APEIR studies chose to focus on the basis for policy decisions on two issues (vaccination of poultry and stockpiling of antiviral medications) rather than conduct a broader more superficial assessment of all policies.

2. Main findings from APEIR activities

The study examined two main policy issues – the background and rationale for decisions on whether to include vaccination of poultry as part of the response and for decisions on stockpiling of antiviral agents for pandemic preparedness. The main findings of the three countries have been published (Pongcharoensuk et al 2011).

Policy is never prepared in a vacuum. There are always conflicting goals and objectives and interest groups that need to be considered. This was evident in all three countries with major pressures being brought to bear on decision makers by the large scale poultry producers, especially in Thailand.

On vaccination, Thailand came to a different conclusion to Vietnam and Indonesia despite reviewing the same technical information. The apparent sticking point in Thailand was the concern about silent infection in poultry and the potential for development of novel more virulent viruses as a result of vaccination (the latter has never been proved to occur). The former was widely recognised as a possibility but it was not deemed to be sufficient reason to forego use of vaccination elsewhere (for example, in Vietnam a major goal was to reduce, not eliminate, shedding and, in doing so, reduce the likelihood of exposure of humans to large quantities of virus).

In Thailand, views on vaccination differed between parts of the poultry sector with smallholders and many fighting cock owners calling for use of vaccination but not the large scale broiler producers (it is also noteworthy that evidence was found by the control measures group of illegal use of vaccine by farmers operating layer farms suggesting they too could see benefits in vaccination).

One of the key conclusions of the study was that commercial imperatives played an important role in both decisions (vaccination and stockpiles). For vaccination, the cost of vaccination and the effect of use of vaccination on access to markets were among the factors that were considered in making the decision to use vaccination (and in the case of Thailand not to use vaccination).

It is noteworthy that decisions to curtail village vaccinations in Indonesia were driven, in part, by the very high cost of obtaining reasonable vaccination coverage of smallholder flocks in which the turnover of poultry is very high and high level immunity difficult to sustain.

Economic imperatives rather than public health research evidence, appeared to be the dominant factor influencing the target set for population coverage for antiviral drug stockpiles.

Superficially it might appear that the approach adopted by Thailand for control of the disease in poultry was superior to that adopted in Vietnam and Indonesia given Thailand has been more successful in controlling the disease. However this does not take into account the markedly different nature of the poultry sector as well as the greater resources available and the quality of veterinary services that probably favoured virus elimination in Thailand.

It was also noteworthy that there were some apparent differences within FAO between country offices on the merits of use of vaccine. Perhaps this, in part, reflected the differences in the poultry sector between the countries given the 'central' FAO advice was to use the most appropriate mix of control and preventive measures. Nevertheless it demonstrated that, even within a scientific organisation, views could differ which provides one additional explanation for the different interpretations of data on vaccination at country level. This study demonstrates again the difficulties encountered in weighing up the 'negative' consequences of poultry vaccination (non-sterile immunity, potential for shedding by apparently healthy birds) against the positive effects (marked reduction in shedding if infected, fewer fully susceptible birds, less likelihood of farmers selling clinically affected flocks to markets).

3. Capacity building

The project introduced researchers to methods for collecting and analysing data on policy decisions, an area that had not been conducted by the groups before. It provided excellent training for all involved in the process. It provided experience in preparing material for publication in an international refereed journal and experience in conducting 'writeshops'. The inclusion of teams from three countries and a range of different subject specialists provided opportunities to learn about different approaches to work how to bring together transdisciplinary teams and to coordinate activities across countries.

4. Policy advocacy

Publishing the work in an international journal provided high level exposure of the findings. This paper has been cited by a number of other publications, including a recent paper on control measures in poultry produced for WHO, examining the scientific basis for control measures for H5N1 HPAI (Sims in press). The study also involved high level decision makers in each country which meant that the findings were delivered directly to decision makers. Key policy recommendations derived from this study are provided below.

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