



### **Combating H7N9: Using Lessons Learned from APEIR's Studies on H5N1**

The recent human cases of H7N9 avian influenza demonstrate the importance of adopting the lessons learned from H5N1 avian influenza. Studies on this disease recently completed by researchers from the Asia Partnership on Emerging Infectious Diseases Research (APEIR) developed a series of messages for policy makers that are highly relevant to the current outbreak.

Economic studies and studies on small scale producers showed that these producers were hit very hard by avian influenza. Professor Liu Wenjun of the Chinese Academy of Sciences Institute of Microbiology said: "With H7N9 we are already seeing marked falls in demand for poultry and this can have a major effect on the livelihoods of the rural poor who depend on the sale of chickens for a significant part of their disposable income. While it was necessary to close infected markets to protect public health, the flow-on effects for producers and others associated with the poultry industry are massive and there will be a need to look for alternative means of support for these producers."

The economic studies recommended that support from the government is needed to build slaughtering facilities and freezers to help adjust to market price fluctuation. "At present many farmers cannot sell their poultry and ways need to be found to support these farmers when market shocks occur."

"In areas affected by H7N9 influenza, which already covers Jiangsu, Zhejiang and Anhui provinces and beyond, support for taking up alternative jobs should be considered for households rearing poultry so that households can make up for their losses from raising poultry and maintain their living standards. The studies on H5N1 found that despite shifts in government policies towards support for large scale industrial poultry production, small scale production still needs support as it is a major source of income for women and the rural poor."

The team conducting studies on the effectiveness of control measures against H5N1 found that there were significant deficiencies in biosecurity practices in most of the farms studied, especially, but not only, small scale farms. The measures in place on these farms would not be sufficient to prevent an H7N9 influenza virus from gaining entry to farms and infecting poultry. This means that, for areas where this virus is not yet present, farm biosecurity measures need to be strengthened, as recommended also by FAO, but the measures proposed and adopted have to be affordable and in line with existing production systems.

The various studies also found that with H5N1 control, wide area culling in which all poultry in a large zone around known infected flocks are culled had very severe effects on livelihoods because of the level of disruption and hardship it caused producers and the rural poor. There was also no evidence to suggest that it was more effective than limited culling, coupled with surveillance to detect other infected flocks. Compensation provides partial coverage of the losses but does not cover the loss of business or the loans farmers have taken out if they are not allowed to recommence business for an extended period of time.

Studies on wild birds conducted as part of APEIR demonstrated the importance of undertaking surveillance in wild birds to characterise the influenza viruses carried by these birds. The genetic information obtained so far on the H7N9 virus suggests that the H and N components of this virus were probably derived from wild birds, and also possibly from poultry. It is also evident from the genetic studies that the surveillance systems in place have not detected close relatives of the original host of these viruses and need to be strengthened. The studies conducted by APEIR did find some additional influenza virus subtypes other than H5N1 viruses, and this information helps in understanding the transmission of other influenza viruses by wild birds. Although no H7N9 viruses were detected, the viruses found were fully characterised and gene sequences uploaded to gene databases, adding to the pool of data available for comparison by scientists trying to unravel the origin of novel viruses.

APEIR recommended that all gene sequences of influenza viruses should be shared as soon as they are available and this has been done by Chinese scientists for H7N9 viruses. APEIR researchers, including Professor Lei Fumin of the Institute of Zoology of the Chinese Academy of Sciences, are currently investigating the possible role of wild birds in transmission of H7N9 avian influenza. Professor Lei Fumin said, "We have already seen suggestions that this virus could be transmitted widely among migratory birds and poultry, and it is important to assess the likelihood of this through scientific studies on wild birds as they fly north through China to their summer breeding grounds."

Policy makers in China may again be faced with a decision on whether or not to use vaccination to contain this disease so as to reduce the likelihood of exposure of humans to the H7N9 virus. APEIR studies on policy development showed the importance of having sound evidence on the merits and pitfalls of vaccination so that these can be weighed up scientifically without outside interference. Although there is no evidence so far that this virus will result in a human pandemic, this outbreak provides a reminder of the importance for all countries to ensure they have an appropriate stockpile of antiviral medication.

This study on avian influenza policies also found that agriculture sectoral policy should be coherent with public health sectoral policy and should aim to reduce the risk of emergence of human pandemic agents.

Dr. Pongpisut Jongudomsuk, Director of the Health Systems Research Institute, Thailand and Chair of the APEIR Steering Committee, said: "APEIR is a unique Asian trust-based EIDs research network composed of over 30 partner institutions from six countries (Cambodia, China, Indonesia, Lao PDR, Thailand and Vietnam). We have established partnerships and networks on the global, regional and country levels."

"Much has been learned from studies conducted by APEIR researchers and we have an opportunity now to adopt the lessons so as to minimise effects on livelihoods and to prevent the disease caused by H7N9 avian influenza. APEIR is poised to play an important role in investigating and combating H7N9."

For more information about APEIR and the five avian influenza projects please contact the APEIR Coordinating Office at [phuonghuynh7@hotmail.com](mailto:phuonghuynh7@hotmail.com) and [pornpit@health.moph.go.th](mailto:pornpit@health.moph.go.th) or visit the APEIR website at [www.apeiresearch.net](http://www.apeiresearch.net).