

Pandemic Flu Preparedness: How Far Have We Come in the Last Five Years?

An Interview with Dr. Peter Clevestig and Rachel Irwin

By Erin Schneider
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In 2007, global leaders from science, industry, and policy gathered at the Pacific Health Summit on “Pandemics: Working Together for an Effective and Equitable Response” for two days of discussion and debate focusing on avian flu and other threatening communicable and non-communicable pandemics. As a follow-up to the 2007 Summit, NBR spoke with Dr. Peter Clevestig and Rachel Irwin to learn about the current state of pandemic flu preparedness, particularly in the Asia-Pacific region.

Q. In April 2011, Indonesia, a hot spot for avian flu viruses, signed an international agreement with the World Health Organization (WHO) to share viruses in return for access to the vaccines that are developed from those viruses. Previously, in 2007 Indonesia had refused to share their domestic virus strains. How will the 2011 agreement better prepare high-risk Asian countries, such as Indonesia, for the next outbreak of pandemic flu?

It was Indonesia that first brought these issues of fair access, transparency, and benefits-sharing to the global health agenda when it stopped sharing its influenza samples with the WHO in 2007.¹ However, the Pandemic Influenza Preparedness Framework (PIP Framework), referred to in the question, is a global agreement, which all member-states of the WHO have adopted. At the end of the negotiations, the Norwegian delegate stated that the PIP Framework was a “victory for global health diplomacy under the auspices of the WHO.” What Indonesia first highlighted became an issue for everyone.

¹ In 2007 Indonesia was asked to share domestic virus strain samples with the World Health Organization, which in turn would share them with vaccine manufacturers to assist with the creation of targeted vaccines. Indonesia refused, arguing that the expense of the new vaccines precluded Indonesia from purchasing them, and therefore from benefiting from the resource sharing.



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is both Director of the Global Health & Security Program and Senior Researcher with the Chemical and Biological Security Project of the Arms Control and Non-Proliferation Program at

SIPRI (Stockholm International Peace Institute). A trained virologist, he currently focuses on the linkages between health and security in developing countries and coordinates research specifically aimed at supporting health as an integral part of foreign and security policy. Dr. Clevestig is also a specialist on biosecurity and biosafety, and the procedural aspects for laboratories in the public and private sectors.



Rachel Irwin

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The PIP Framework aims to strengthen the existing WHO Global Influenza Surveillance and Response System. It offers a transparent mechanism for sharing virus samples, based on two Standard Material Transfer Agreements that specify the conditions for samples passed within and outside of the GISRS. The PIP Framework also provides a traceability mechanism to monitor the movement of samples. The most notable example of benefits-sharing within the Framework is that vaccine manufacturers are required to contribute 50% of the operating costs of the system. The SMTA covering the transfer of samples outside the GISRS commits the recipient—if a pharmaceutical or medical devices producer—to donate a negotiated percentage of its product to the WHO for use in low- and middle-income countries (LMICs) and/or to grant royalty-free licenses via the WHO to pharmaceutical producers in LMICs. Under the Framework, the WHO will also establish its own stockpile of vaccines for LMICs, continue to provide surveillance and risk response support, and work together with member-states and vaccine producers to support pandemic influenza preparedness.

This is a real achievement in global health—the notions of fair access, equity, and transparency have become international norms and already the WHO is supporting a number of countries, including countries in Asia, to make their own vaccines.

Q. Mutant H5N1 strains appeared in Vietnam and China in September 2011, and continue to surface in Indonesia. How effective would animal immunization be at mitigating the development of novel flu viruses from a public health perspective, and is this even a feasible option for prevention given the commercial cost of immunizing animals? To what extent do current global flu prevention programs address the issue of animal health and immunization?

Overall the Food and Agricultural Organization (FAO) and the World Organisation for Animal Health (OIE) are clear that there is a range of actions to be taken in addressing an outbreak of highly pathogenic avian influenza (HPAI) with vaccination considered to be one of these actions. Generally, there are reliable and effective animal vaccines against H5N1. However, one of the main issues with making vaccines for influenza is the extreme propensity of the virus to change genetically. A related issue is how long it takes—from identification of a new subtype variant of the virus to the development of a vaccine—for safe and effective immunization. Although there is a lot of work being done

to speed up vaccine development, as well as to develop vaccines with higher efficacy toward multiple genetic variants, vaccination alone cannot control avian influenza. The decision to vaccinate is very much based on the setting—in terms of the mix and density of animals and the social and economic feasibility of carrying out the vaccinations. According to the FAO, an improperly managed vaccination campaign can even be counterproductive and worsen the situation. According to the FAO and OIE, an improperly managed vaccination campaign can even be counterproductive and worsen the situation. For example, as in human health, there are concerns over both counterfeit vaccines and vaccines of unknown quality, safety and efficacy, as well as concerns over proper testing of new vaccines before they are introduced. In addition, if poultry are improperly vaccinated, this may lead to undetected circulation of the virus through birds that are only partially protected. These birds may transmit the influenza to other birds and increase the risk for variants of the virus to emerge.

Countries must also promote “non-technical” solutions: improved surveillance and facilitating changes in farming and marketing systems—both commercial and small-scale, including individual homes. This involves securing farms by preventing interactions between wild and/or domestic animals, appropriately disposing of dead animals, and ensuring proper sanitation in all areas, especially farms and markets. For example, avian influenza can be transmitted through poultry feces—so promoting hygiene is really key. Vaccination is one tool, but by no means is it a silver bullet. There has to be a combination of public health interventions.

Q. Have policymakers and researchers given sufficient attention to the interface between animal and human health since 2007? How might more exploration and understanding of this interface improve our ability to address the threat of pandemic flu? Is animal microbial resistance to flu vaccines a serious concern for pandemic flu prevention?

Historically, animal and human health sectors have been siloed, despite clear overlaps in their respective activities. However, since the emergence of HIV, and increasingly throughout the 1990s and early 2000s as concern over infectious diseases such as SARS, bovine spongiform encephalopathy (“mad cow” disease), and avian influenza mounted, the concept of “One Health”²—for animals and humans—has taken a clearer place on the international agenda. Now we see considerably more collaboration—both

² The European Union has adopted an animal health strategy centered on this concept. For more information, see <http://www.one-health.eu/ee/en/>.

formally and informally—between the animal and health sectors and among organizations such as the WHO, FAO, and OIE. This includes shared surveillance systems. SIPRI would like to see research continuing along these lines, as well as more linked education between veterinary and (human) medical training.

Q. In recent years, Asia has been the source of many new flu strains. To address this potential threat, China has significantly increased its vaccine manufacturing capacity. To what extent have other Asian countries, where domestic vaccine manufacturing capacity has historically been low, followed China's lead? What is the current state of vaccine manufacturing capacity in low- and middle-income countries in Asia?

Indonesia's withdrawal from virus-sharing in 2007 and the support among other LMICs are examples of the increased leadership and voice of LMICs in global affairs and in global health specifically. Vaccine manufacturing capacity is not simply about building a factory, but fits more broadly into building surveillance systems, laboratory capacity, and a pharmaceutical industry—which includes putting in place regulatory bodies. Generally speaking, LMICs are keen to do more analyses of samples within their respective countries and to increase their surveillance and production capacities, rather than to rely on assistance from the WHO Collaborating Centers in other countries. The previous virus-sharing governance structure supported the status quo, rather than furthering these goals. With the PIP Framework, LMICs in Asia and throughout the world are further supported in vaccine manufacturing capacity.

More broadly, under the revised version of the International Health Regulations (IHR2005), which went into effect in 2007, the WHO and other UN organizations have offered technical support to countries in surveillance and laboratory capacities. Certainly the Framework has only been in place a few months, but Dr. Margaret Chan, Director-General of the WHO, recently stated that the organization is currently supporting eleven countries to make their own vaccines, three of which are ready now. Considered together, the revised IHR and the PIP Framework provide a global plan for LMICs to take more ownership over their pandemic influenza preparedness plans. 