

# Symposium on viral respiratory disease surveillance

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Recognition of the need for respiratory disease surveillance for informing prevention strategies dates back to the late 1940's. Sir Christopher Andrews realized that the development of a successful influenza vaccination programme would be hindered by the unpredictable nature of the influenza virus and proposed the formation of a world influenza centre and a network of linked national laboratories which tracked influenza epidemics, to the World Health Organization (WHO). This network, now the WHO Global Influenza Surveillance Network (GISN) remains in place today and, although its primary goal is still to inform seasonal influenza vaccine strain selection, it has had to widen its activities to address emerging public health needs. There has been a renewed focus on understanding the overall burden of disease caused by influenza, especially in countries with no seasonal influenza prevention programmes, as a strategy to increase influenza awareness. While the zoonotic and pandemic threats from the highly pathogenic avian influenza (HPAI) H5N1 and H7N7 viruses and the realization that pandemic influenza arises from avian influenza viruses have stimulated global and national pandemic preparedness activities. Nevertheless, improved surveillance systems for both animal (avian and pig) and human influenza viruses are needed for informing and refining prevention strategies.

Although the public health focus globally has been on influenza, the burden of disease caused by other respiratory viruses is also substantial and is largely under-recognised. A range of respiratory viruses are implicated in pneumonia, a disease recognised as a major killer of young children in developing countries and of the elderly in developed countries. There is also evidence that some respiratory viruses

may be evolving allowing virulent variants to cause outbreaks in certain at-risk populations presenting another possible pandemic risk, highlighting the need to monitor unusual outbreaks of respiratory disease and the importance of the surveillance of respiratory viruses in general. Overall, prevention strategies for respiratory viruses other than influenza are less well defined, undoubtedly contributing to their perceived lower public health priority.

Major advances in the diagnosis of respiratory virus infections have been made through the wider use of molecular diagnostic techniques which are now enabling rapid and sensitive respiratory pathogen surveillance. It is now possible to identify a wide range of respiratory pathogens in a higher proportion of respiratory infections, along with multiple pathogen infections. The application of these molecular techniques has also led to the discovery of a number of new respiratory viruses; the clinical importance of the human metapneumovirus (hMPV) is now well established, while with others such as the human bocavirus (HBoV) and human rhinovirus type C (HRV-C), their clinical correlates are only just being elucidated. The knowledge base on these viruses urgently needs expanding through well designed controlled studies and other activities, including widened surveillance.

The future challenge is to build on what has been achieved for the global surveillance of influenza by establishing standardized surveillance protocols which incorporate a widening range of respiratory viruses. The purpose being to inform and refine respiratory disease prevention strategies. These strategies must then be communicated to governments and public health messages developed for the education of the general public.