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Health and Human Security:
From Establishment to Operationalisation

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The international community is now faced with an influenza pandemic and the rhetoric of global health security has become more urgent. Whilst our preparedness for such an emerging infectious disease is unprecedented, are we continuing to act mostly as crises arise? Here we consider progress to date in pandemic preparedness and explore reasons for our current lack of comprehensive health security. We conclude by reviewing what remains to be done and prioritising the remaining needs.

by Julie Balen

An Influenza Pandemic in the 21st Century

On 29 April 2009 the World Health Organization (WHO) announced that the first influenza pandemic since 1968 was imminent. Six weeks later, the novel influenza A (H1N1) virus outbreak was officially classified as a global pandemic by the WHO, as shown in Figure 1, based upon extensive community transmission of the virus in numerous countries. While the H1N1 strain does not appear to have a high mortality rate – a total of 163 confirmed deaths at the time of writing – there are fears that the infectious agent may mutate to a more virulent form. As a result of this latest outbreak and recent memory of Severe Acute Respiratory Syndrome (SARS) and Avian Influenza (AI) epidemics, coupled with the wide media coverage such events receive, the world has become increasingly aware of infectious disease crises. Here, we use the case of pandemic preparedness in Southeast Asia to highlight critical issues in health and human security in the region.

Asia's Toll of Disease

In Asia, people suffer a disproportionate burden of communicable diseases compared to the rest of the world. Of the 14 million deaths that occur annually in the region, 40 per cent are due to communicable diseases compared with the global average of 28 per cent. For instance, the region bears 80 per cent of the global leprosy burden, 34 per cent of tuberculosis (TB), and has the highest rate of drug-resistant malaria cases. Each year, 250,000 children die of measles and 750,000 adults die of TB. More than 5 million people in the region are living with HIV/AIDS, with India, Thailand, Myanmar, Indonesia and Nepal accounting for the majority of cases. In the case of malaria approximately 250 million people in the region are at risk, while age-old neglected diseases such as leprosy continue to tax large numbers of poor and socially marginalised populations.

Diseases That Emerge and Re-emerge

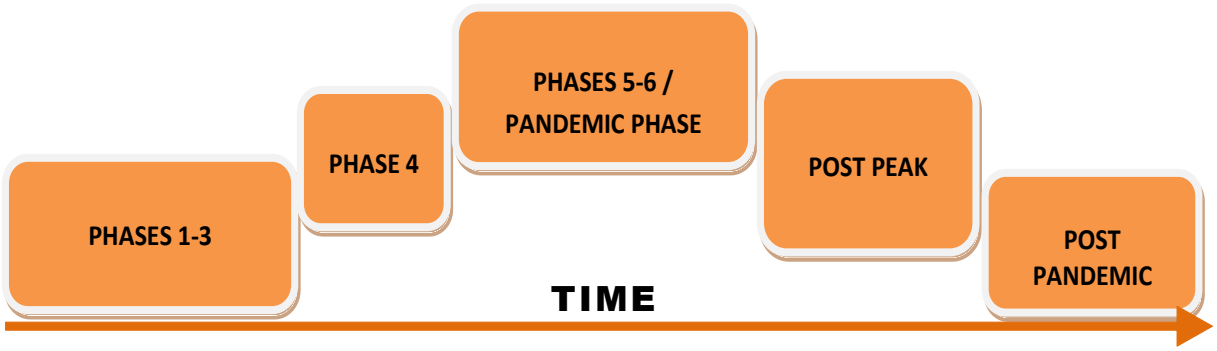
Over a decade ago, the first human cases of a disease caused by Avian Influenza A (H5N1) virus appeared in the Hong Kong Special Administrative Region, People's Republic of China, and six years ago it re-emerged to cause a highly lethal human disease in the Southeast Asian region. To date however, the H5N1 virus remains primarily a threat to poultry, having already caused tremendous losses to those involved in the poultry industry. Some years later, in 2003 and 2004, the epidemic outbreak of SARS spread rapidly from China to several other countries and demonstrated that even infectious diseases with very low incidence but high mortality rates can generate significant economic, political and diplomatic fallout. Dengue Haemorrhagic Fever (DHF), first recognised in the Philippines in 1953, has recently been seen in India, Malaysia, Singapore, Indonesia, Vietnam, Cambodia and Sri Lanka. Additionally, food-borne parasitic infections are significant emerging public health problems in East Asia.

A combination of underlying eco-social determinants of disease provide prime hot-spots for emerging and re-emerging infectious diseases (ERIDs), whilst human migration patterns disperse vectors and viruses into non-endemic areas. Outbreaks of infectious diseases, including zoonoses, vector-borne diseases and drug-resistant pathogens, have been occurring more frequently and in new areas, with the potential of causing enormous socioeconomic hardship that extends beyond national borders. Indeed, with its large and dense population, Asia is at a high risk for ERIDs and has been a breeding ground for many new diseases over the past decade.

Preventing, Preparing For and Responding to Pandemics

Maximising public health benefits during an epidemic or a pandemic may come at an economic cost, and hence a severe pandemic will test socio-economic systems in addition to health care systems. In fact, in 2001 the World Bank estimated that the economic costs of a severe global pandemic could amount to US$ 3 trillion. This alone, apart from human and environmental factors involved, necessitates readiness against such a contingency. In recent years, considerable mounting pressure to develop early warning systems for ERIDs has indeed prompted noteworthy efforts among many nations. Accordingly, virtually all industrialised countries and many developing countries have by now mounted extensive pandemic preparedness efforts, which have evolved further with the introduction of the revised International Health Regulations (IHR) and the Global Outbreak Alert and Response Network.

Broadly speaking, the goals of national pandemic preparedness plans are to prevent and minimise the public health consequences of a pandemic, ensure that the economic consequences are limited, and maintain social stability for a speedy recovery.



Pandemic Preparedness in the Southeast Asian region

In Asia, the Association of Southeast Asian Nations (ASEAN), the ASEAN Regional Forum and the ASEAN+3 countries are among the important actors in the health security agenda. There have been several regional initiatives for combating ERIDs, such as the ASEAN Task Force on H5N1, the Regional Framework for Control and Eradication of Highly Pathogenic Avian Influenza, ASEAN Agreement on Disaster Management and Emergency Response, and a regional working group known as the ASEAN Technical Working Group on Pandemic Preparedness and Response. Beyond ASEAN, there have also been collaborations with other non-ASEAN countries and international organisations such as the WHO.

Most recently, health ministers from ASEAN member states released a joint statement on the H1N1 virus. They committed to, amongst other things:

- Improving inter-sectoral communication between relevant authorities;
- Strengthening core capacities of surveillance and response systems;
- Allowing the transfer of technology for the production of antiviral medicines and influenza vaccines; and
- Conducting logistical exercises to ensure effective and timely deployment of medicines and supplies in the event of a pandemic.

The Joint Ministerial statement also called upon international agencies such as the WHO to, when necessary, provide technical and financial help to deal with the crisis.

In general, the regional mechanisms proposed and developed in the past five years have greatly facilitated information sharing among experts, helped address existing gaps in expertise, capacity and information, strengthened disease surveillance systems, built

PANDEMIC INFLUENZA PHASES

Phase 1: No infections in humans are being caused by viruses circulating in animals.

Phase 2: Animal flu virus causes infection in humans, and is a potential pandemic threat.

Phase 3: Flu causes sporadic cases in people, but no significant human-to-human transmission.

Phase 4: Human-to-human transmission and community-level outbreaks.

Phase 5: Human-to-human transmission in at least two countries. Strong signal pandemic imminent.

Phase 6: Virus spreads to another country in a different region. Global pandemic under way.

Post-peak: Pandemic activity appears to be decreasing though second wave possible.

Post-pandemic: activity returns to normal, seasonal flu levels.

hospital isolation units and maintained stockpiles of Tamiflu. It is clear that the achievements have been substantial, although gaps still remain. Importantly, while regional co-operation continues to grow in Southeast Asia, situational analyses suggest that profound governance, capacity and operational hurdles remain widespread and must now urgently be addressed.

The Importance of Health Systems

Moving beyond the existing frameworks and mechanisms, health systems are at the heart of how individual countries, and the international community as a whole, respond to disease outbreaks. Local health systems often become rapidly overwhelmed, however, and too often fail to deliver care to those in greatest need in a comprehensive way and on an adequate scale. In order for the IHR and the global outbreak response system to be effective, every country must strengthen and maintain their respective health systems, since the effectiveness of international collaborations, partnerships and networks whose role it is to identify and respond to pandemic outbreaks depends on the alert and response capacities of the weaker health systems. If one looks at the key issues that affect the health security of states and societies in the region, the agenda for strengthening health systems in Asia is therefore critical.

Strong health care systems are created through continuous, long-term processes of economic change and political negotiation, and by the implementation of effective policies and management within the health sector. While the majority of the now-developed countries had built up universal services from a patchwork of public, private profit-making and charitable providers, this challenge now exists for many developing countries. It requires technical information, political knowledge and sustained action.

Going Back to Basics: Six Building Blocks of Health Systems

Health systems are highly context-specific, and hence there is no single set of best practices that can be put forward as a model for improved performance. However, there are certain characteristics that define a strong and robust health system. These include:

- Service delivery;
- Health workforce;
- Information;
- Medical products, vaccines, technologies and tools;
- Health financing; and
- Leadership and governance.

Enhancing these building blocks and managing their interactions is essential for effective targeting of the underlying barriers to health security.

In seeking to attain global health security, states and other actors must grapple with challenges such as the inequitable distribution of resources that largely lead to widening gaps in health outcomes of developed and developing countries. In the developing world in particular, in addition to financial limitations, health systems also suffer from a shortage of human resources and weak supply-chain management, poor information, an inability to scale-up interventions, crumbling infrastructures and poor access to health care for the most vulnerable. For example, at present there is an estimated shortage of 4.3 million doctors, midwives, nurses and support staff worldwide.

Increased efficiency and effectiveness can be achieved by ensuring standards and norms, enabling accountability and transparency through international health law, facilitating rapid

public-private responses and sharing available knowledge. Additionally, future agendas towards strengthening health systems should focus on socio-cultural aspects and the role of civil society organisations. Just as importantly, while pandemic preparedness frameworks and programs have proliferated, metrics to test their effectiveness remain mostly based on subjective indicators. Continued monitoring and evaluation of the performance, from policy and strategy development to implementation are essential, and approaches must be adapted accordingly. Indeed, it is in the interests of stakeholders to find novel ways of testing operational readiness and strengthening successful systems, using research that is grounded in local realities.

Other resource gaps include capacity limitations for the surveillance, case-investigations and treatments that are necessary in order to prevent the spread of diseases within the community. However, while externally funded capacity building efforts often reflect donor priorities, domestically supported programmes may be vulnerable to economic and political cycles; therefore capacity-building efforts have often focussed on near-term investments in physical infrastructure and equipment, but have somewhat failed to anticipate ongoing demands for quality control, quality assurance and continual workforce training. Hence there is an urgent need to focus on the human element of capacity building.

Surge and Surge Capacity

The concepts of surge and surge capacity form the cornerstone of pandemic preparedness and response. Surge capacity could be defined as the elasticity of a health system that enables it to expand quickly and cope with a surge in demand of services beyond usual levels. A disease outbreak will trigger the surge, leading to a rise in demand for both medical and non-medical services. It is important to control the surge (demand side), whilst maximising the surge capacity of the system (supply side). Whilst globalisation has increased the surge by enabling faster and easier spread of diseases, it has also increased the world's inter-dependence in terms of the goods and services that are indispensible for sustaining and maximising surge capacity.

Optimising the ability to control the surge and maximise the surge capacity may thus be possible through a proactive approach with an increased focus on prevention, strengthening government effectiveness and empowering local communities and civil society groups, who may play an important role in complementing an already stretched public health system. Effective civil society engagement can best be achieved by empowering health-promoting non-governmental, community-based and faith-based organisations via a free media. Furthermore, the ability of civil society to hold governments and other actors accountable should therefore be improved to enable sustained activism. Crucially, while capacity building in the health sector is vital, it must be matched by a strong capacity in education and other sectors, as well as in terms of overall governance.

Health Information

Research is a critical part of any effort to improve the world's health. In many developing countries, however, the benefits of health research are not optimised due to low investments, an absence of a culture of evidence-based decision-making and/or a lack of capacity. Moreover, inadequate resources for data collection and analyses mean that within Asia, several countries have a weak health information system that lacks vital registration data on births, deaths and other demographic information. Research for health can therefore make a major contribution, both to health and more generally to social development. International aid effectiveness could be amplified by ensuring that health research forms part of the total package in a manner that enhances national health information systems.

There is an urgent need for increased problem-based and evidence-based health policy planning, including spatio-temporal approaches that focus on disease dynamics and improved ways of

setting priorities that direct resources toward the most critical challenges. Increased training for local scientists and public health practitioners in field epidemiology and laboratory methods is vital. Indeed, local research capacity strengthening is an important tool for developing local ownership and improving long-term sustainability of any health project. On a more cautious note, it is important to be aware that while translating evidence into policy is clearly vital, pandemic preparedness plans often assume that people will act rationally in a crisis, which cannot be counted upon in the event of a severe global pandemic.

Global Health Governance

It has been noted that improvements in the detection, surveillance, management, prevention and control of pandemic and epidemic infectious disease outbreaks will depend not just on technological and systemic advances, but also on a wide range of behavioural and other societal factors, including sound governance. Governance can be understood as 'organised efforts to exercise power to achieve ends'; it is not restricted to governments, but involves a wide range of players. The emergence of new actors such as civil society organisations, businesses and the media in the international health landscape will surely redefine global health governance in the years to come. At each level, from local to global – recently coined 'glocal' – governance involves setting substantive goals and generating mechanisms designed to achieve such goals.

A good governance system should support and coordinate local and national initiatives and establish global ground-rules for health security by fostering linkages between the public and private sectors, and building the new architecture for global health. The environmental, ecological, social, economic and cultural aspects of disease control require partnerships and networking with social scientists, environmentalists, health economists and policy makers, among others, in developing research proposals and conducting theoretical and field-based research. Given the complexities of these tasks, no single institution can perform them all and a multi-sector approach is essential. Indeed, global health efforts will founder unless and until nation-states cooperate, both within and between state boundaries, to combine their national interests with a more inclusive 'global public goods' approach to create efficient and sustainable policies and strategies.

A Multi-sectoral Approach to Pandemic Preparedness

Multi-sectoral pandemic preparedness is based upon the need to maintain optimum readiness for the government and the health sectors which, as a result of widespread inter-dependence between different parts of society, is impossible if other sectors remain unprepared. However, most so-called 'multi-sectoral pandemic preparedness plans' are actually just health sector preparedness and national response plans, with little guidance on how to ensure the operational continuity of other sectors. Prolonged absenteeism in the agricultural sector, for example, could lead to a decrease in food production as a result of reduced manpower in harvesting. Absenteeism may also result in an increase in demand for particular resources in the telecommunications, health protection and military sectors. Furthermore, the key to interrupting emerging pathogens is early detection of the disease as close to the source as possible. Approximately 60 per cent of recently-identified ERIDs affecting humans have been diseases of animal origins. Because these have affected humans as a result of close interactions between humans and livestock, veterinary expertise is essential. Strengthening capacity to detect and respond to zoonotic diseases hence requires enhanced partnerships and co-ordination between the ministries of agriculture and ministries of health within every host country – an added challenge for nascent surveillance systems.

Concluding Observations

In conclusion, it is clear that pandemic preparedness and, more broadly, global public health

security have improved substantially over the past decade, albeit from a very low starting point. However, in spite of efforts to highlight the severity of pandemic diseases, national strategic goals remain somewhat unclear and under-developed. While the outbreak of H1N1 has highlighted that governments are now both willing and able to report outbreaks, many nations, including some within the Southeast Asian region, have considerable and indeed expanding gaps between strategic focus and real-time surveillance, response and operational capacities, particularly in the animal health sector. Bridging this gap and going beyond discourse to action remains a monumental task which will require deeper institutionalism and a more integrated, multi-sectoral and comprehensive approach to pandemic preparedness and health security. This will undoubtedly improve the organisation, resource management, technical guidance, capacity, monitoring, evaluation and overall mechanics of health care delivery.

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