Pandemic influenza preparedness in the Asia–Pacific region

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Lancet 2006; 368: 886–89

Published Online
August 22, 2006
DOI:10.1016/S0140-6736(06)69209-X

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Summary

Concerns are mounting that the threat of another influenza pandemic will become a reality and that the epicentre of the outbreak could be the Asia–Pacific region. We assessed the documents that some Asia–Pacific countries have published as part of preparedness planning for an outbreak of influenza in people. Regional approaches were polarised. Thailand, China, and Vietnam had set out a strategic vision to strengthen future capacity in preparedness planning. By contrast, Hong Kong, Australia, and New Zealand took a strategic approach aimed mainly at harnessing available resources or preparing for the deployment of resources such as stockpiled antiviral agents and vaccines. The plans of Hong Kong, Australia, and New Zealand compared favourably with the best European plans. The plans of resource-poor countries addressed some issues that were largely neglected by most European plans. Other countries (including those that do not yet have plans) could benefit from analysis of the strengths and weaknesses of the plans drawn up by countries in the region and in Europe.

Introduction

The World Health Organization (WHO) has emphasised the importance of the Asia–Pacific region as a potential epicentre of emerging diseases such as severe acute respiratory syndrome (SARS) and avian influenza. During the past three decades, 30 new infectious agents have been detected in this region.[1] Since 2003, a total of 49 countries and one special administrative region (Hong Kong) have had outbreaks of the H5N1 subtype of influenza A in birds.[2] The H5N1 virus will continue to pose an important public-health threat in the short term.[2] More than 80% of the reported deaths from H5N1 have taken place in southeast Asia.

In a resolution issued in April, 2005,[3] WHO expressed concern about the general inadequacy of global preparedness for pandemic influenza. WHO's global influenza preparedness plan, which was launched in 1999, was updated in 2005. The plan outlines components that countries should include in their national preparedness plans to ensure an effective response.[4] In 2005, WHO published a checklist to facilitate preparedness planning.[5] The aims of such planning were to reduce transmission; decrease the incidence of new cases, hospital admissions, and deaths; maintain essential services; and reduce the socioeconomic consequences of a pandemic.[5]

In our own assessment of European national preparedness plans[6] we concluded that although Europe was broadly well prepared, important gaps, weaknesses, and inconsistencies remained. We identified a need for operational planning, in particular, to be strengthened. We also suggested that although European countries had explicitly expressed their interest in cooperating with international institutions such as the European Centre for Disease Control and WHO, regional cooperation between countries was inadequate. Here, we have analysed pandemic influenza plans from selected countries in the Asia–Pacific region, emphasising specific concerns about preparedness in this region.

	Nature of plan	Year of publication	English language version available	Reference	Linked documents
Australia	Final	2005	Yes	6	-
Cambodia	None	-	-	-	-
China	Draft	2005	Yes	7	*
Hong Kong (SAR of China)	Final	2005	Yes	9, 10	11
Indonesia	None	-	-	-	-
Laos	None	-	-	-	-
New Zealand	Draft	2005	Yes	12	13
Thailand	Final	2005	Yes	14	15
Vietnam	Final	2005	No	16	17

*China has issued several documents addressing preparedness, planning, and contingency implementation: Preparedness and contingency planning for influenza pandemic; Emergency planning for human infections-pandemic outbreak of avian influenza; Guidance for diagnosis, treatment, prevention and control of infections of avian influenza; National emergency planning for animal pandemic outbreak; National emergency planning for highly pathogenic avian influenza; Contingency implementation plan for the prevention and control on highly pathogenic avian influenza in autumn and winter in 2005; and Contingency working procedure of prevention and control on pathogenic avian influenza in autumn and winter in 2005.[8]

Table: **Country pandemic influenza plans**

Preparedness in Asia–Pacific region

Using a data-extraction method developed from WHO's checklist for influenza epidemic preparedness,[4,5] we aimed to assess the national influenza preparedness plans of eight countries (Australia, Cambodia, China [and Hong Kong], Indonesia, Laos, New Zealand, Thailand, and Vietnam) (table). However, we could not obtain copies of any national preparedness plans for Cambodia, Laos, or Indonesia. We included plans that were published between Jan 1, 2002 and Feb 28, 2006. The six plans were reviewed according to seven themes: planning and coordination; surveillance; public-health interventions; health-system response; maintenance of essential services; communication; and putting plans into action.[18]

Some countries—Thailand, China, and, to a lesser degree, Vietnam—had set out a strategic vision to strengthen future capacity in preparedness planning. Others, including Hong Kong, Australia and New Zealand,

took a strategic approach similar to that of most European plans. These strategic plans focused on management of currently available resources and preparation for the deployment of resources such as stockpiled antiviral agents and vaccines. The polarisation of approaches in the region contrasts with the uniform approach taken by countries in Europe. The plans of Hong Kong, Australia, and New Zealand compared very favourably in terms of completeness and quality with the best European plans. However, as in Europe, all of the plans contained some gaps. The plans of lower-income countries in the region addressed several issues that were largely neglected by most European plans. The potential therefore exists for countries (including those which are still formulating their plans) to draw on the strengths of preparedness plans developed by other countries. The panel summarises some strengths, weaknesses, and gaps in the preparedness plans of these selected Asia–Pacific countries. For brevity, differences between countries and areas of coherence are presented by comparing planned public-health interventions.

Lessons for future planning

There were some substantial differences between the strategies described in the Asia–Pacific plans and those in Europe. As any outbreak in an Asia–Pacific country would probably originate in a rural area, all the Asia–Pacific plans focused on this setting, and on early containment strategies. For example, specific situations with cases in animals were included in the planning for human pandemic phases. As a result, the Asia–Pacific countries more closely and explicitly linked their planned responses to human influenza pandemics with those for avian influenza. The Asia–Pacific plans also emphasised the integration of human and animal health more than did the equivalent plans in Europe. The Hong Kong plan was especially strong in its attention to issues that could be important to countries of southeast Asia and that had not been fully addressed elsewhere. These issues included the need for improved exchange of surveillance information between health and animal sectors, the capacity for joint investigation and response, and the education of poultry smallholders and wet-market poultry workers.

Another notable strength of the Asia–Pacific plans was that the countries we selected had incorporated lessons learned from the recent past, including from H5N1 and SARS outbreaks, into their pandemic preparedness plans.[11,13] For example, during the SARS outbreak, databases linked to the police system for tracking down criminals were used to coordinate mass-contact tracing. This so-called major incident and disaster support system will, during an influenza pandemic, be used again. A further important difference between the Asia–Pacific countries' plans and those in Europe was their focus on the early containment of disease, and their coherence in strategies such as social distancing. For example, all countries in the Asia–Pacific region recommended use of travel restrictions or screening measures. Whether this coherence was by design is unclear. The common reliance on such strategies might also indicate that these countries had few supplies of antiviral drugs and little access to vaccines. Many of the gaps identified in the plans of European countries were more acute in the plans of low-income Asia–Pacific countries. For example, countries had not done sufficient planning to identify priority groups to receive vaccines and antiviral drugs; make logistical arrangements for distribution of scarce resources; develop strategies to maintain essential services; anticipate the probable response of different health systems during emergency situations; or ensure that preparedness plans could be implemented.

Regional coordination

Regional institutions can have an important role in encouraging coherent responses to transnational public-health threats. European institutions are coordinating national plans in an attempt to align their approaches. This is proving to be a substantial challenge,[19] but one from which other regions might be able to learn. Even in the face of a global pandemic, public health is still governed by the principle of national sovereignty; nation states retain ultimate authority in decision-making, and regional institutions can only offer guidance and support. But guidance and support can be a powerful means of ensuring coherence. By working closely with countries, institutions might be able to plan for and respond effectively to issues that could become politically charged. The new International Health Regulations have been substantially improved by

Panel: Features of Asia–Pacific influenza preparedness plans

Strengths of plans

- All recognised the effect of a potential influenza pandemic and gave political support to preparedness planning.
- All linked surveillance and response measures for animals and humans, including specific measures targeted at bird handlers
- All incorporated wide multisector cooperation, involving major stakeholders from health, animal, and civil-response sectors.
- All proposed measures for early containment, on the basis that an original outbreak within their country was a likely scenario.
- Several recognised the need for surveillance to be strengthened, and for laboratory capacity in the region to be reinforced. They contained provisions for developing financial and organisational support.
- All discussed use of various social distancing measures, including travel restrictions (both internal and international).
- Most outlined strategies for organisation of the response from health services, relying mainly on specialised units. Several countries had advanced preparations for cooperation with other countries in the region (eg, New Zealand's arrangement with Australia about supply of vaccine).
- All addressed education and awareness for the population, and in many countries educational materials have already been developed.
- Several outlined ethical principles that govern access to scarce resources.
- Several, such as the Hong Kong plan, included the private health-care sector in preparation and implementation.

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Gaps and weaknesses in plans

- Although most identified which organisation would be responsible for achieving a specific response, operational responsibility remained somewhat unclear, especially at the local level.
- All countries organised their responses according to pandemic phases which identify specific alert mechanisms. Because in some plans these phases differ from WHO pandemic phases, confusion could occur during the management of a regional or international crisis.
- Some focused solely on situations involving outbreaks of H5N1 that originated within their borders, and did not discuss measures to address an imported epidemic.
- Several combined short-term and long-term actions. Some needed to create operational plans for pandemic response, to supplement long-term capacity development.
- Most did not detail drug strategies or logistics for provision of antiviral drugs to the population. Most did not identify or enumerate groups within the population who should receive these drugs as a priority. Several described stockpiling of antivirals at a level that would only provide coverage for a very small proportion of the population. They did not clearly specify treatment or use of prophylactics.
- Most had poorly developed policies for vaccination of the population. Some discussed the inadequate vaccine manufacturing capacity in the region, and suggested that access could be very restricted. Several countries (China, Thailand) discussed the possibility of setting up local production. Only a few plans defined priority groups for vaccination.
- Most relied on health care institutions for the treatment of influenza patients (notably special infectious diseases hospitals). Some designated specific facilities as hospitals for infectious diseases. Few developed the possibility of caring for patients at home.
- Many did not make adequate provision for the maintenance of essential services (although this issue might be covered in generic contingency plans).
- Most addressed communication, although some did not plan on a phase-by-phase basis. Strategic communication could prove critical during a pandemic, and needs to be improved in some countries.
- Several did not provide adequate operational procedures for key stakeholders during each phase of the pandemic. The Thai plan in particular retained the format of a strategic framework rather than an operational guide.

measures to strengthen global surveillance and response, and make it incumbent on states to develop capacity in these areas. But national responses aimed at controlling potential pandemics remain just that—national. Although the Association of SouthEast Asian Nations (ASEAN) remains a loose coalition, it could nevertheless draw on the early experience of initiatives such as the European Centre for Disease Control, and attempt to steer the preparedness planning of Asia–Pacific countries.

The international community has recently been giving substantial support and attention to the issue of emerging infectious diseases in the Asia–Pacific region. For example, WHO's Asia–Pacific strategy for emerging diseases aimed to strengthen capacities to detect, prepare for, and respond to disease, and offered a framework to achieve this in the short, medium, and long term.[1] Although the WHO Strategy addressed the broader notion of emerging diseases, the threat of pandemic influenza was clearly a driving factor and provided a sense of urgency. The document did not, however, "contain implementation guidelines or work plans, as these will be developed later, as part of implementation planning".[1]

The importance of coherence between national approaches has been acknowledged by political commitment from ASEAN, along with other institutions such as WHO, the UN Food and Agriculture Organisation, and the Asian Development Bank. The first East Asia Summit on avian influenza, held on Dec 14, 2005, promoted the "active cooperation and various regional initiatives of ASEAN in responding to the challenges posed by avian influenza, inter-alia, through strengthening institutional linkages, developing partnership with all stakeholders, sharing information and coordinating regional initiatives".[20] Substantial investment has been planned for efforts to combat avian influenza and pandemic human influenza in the region. National governments have committed additional funds, the World Bank has launched a programme of support, the Asian Development Bank has contributed funds, and a January, 2006, conference in Beijing pledged US$1·9 billion.[21,22] Concerns have been raised within the region, however, that much of this money would not be new, that many of the funds would be made available as loans rather than as grants, and that tangible benefits to populations in the region would not be certain. The slow pace of disbursement of funding has also been criticised.[23]

Conclusion

The quality and completeness with which the plans of Hong Kong, Australia, and New Zealand addressed the most important issues of preparedness planning were high. The key institutions in these countries had developed comprehensive guidance manuals to facilitate national responses to outbreaks of influenza. By contrast, the plans of Thailand, China, and (to a lesser extent) Vietnam consisted of development strategies for building the capacity to detect, prepare and respond to disease in the future. Several countries seemed not to have finalised their plans yet.

We suggest that preparedness plans that focus on developmental strategies need to be complemented with operational guides that provide greater detail about implementation of the plans and management of the available resources and existing health-care capacity. A pandemic might not wait until capacity is developed. These operational guides would need to be modified as capacity grows.

Overall, the weaknesses of preparedness plans in the Asia–Pacific region were much the same as those described for Europe. Most plans did not adequately address operational responsibility at the local level; logistical aspects of vaccination and antiviral stockpiling, distribution, and delivery; or the maintenance of essential services.

There were wide disparities in the preparedness of affluent nations and lower-income nations. Perhaps with good reason, several low-income and middle-income countries in the region perceived that they would be disadvantaged in the event of a serious global pandemic, despite the likelihood that they would be at its epicentre.

Under current plans, the distribution of scarce resources (notably antiviral drugs and vaccines) would probably be inequitable. Most affluent countries have stockpiled antiviral drugs and, in the event of a pandemic, could also rely on their capacity to produce vaccines or agreements to obtain vaccine rapidly. By contrast, one could argue that lower-income countries in the Asia–Pacific region would find it difficult to access sufficient quantities of these globally scarce resources. These countries also face challenges in dealing with other communicable diseases.

Without a greater international commitment to share scarce stocks of antiviral drugs and vaccines more equitably, countries in the Asia–Pacific region will not be able to access these resources, or to distribute them effectively. Massive logistical challenges would have to be met for any pandemic, which will probably originate in this region, to be contained at an early stage.[24] If this were to prove unattainable, some have warned of a potential risk that poor countries in the region would be reluctant to cooperate with the international community—eg, by providing information to assist with disease surveillance, or isolates of the virus to facilitate vaccine development and production. Countries might choose not to prioritise these tasks if faced with uncertain returns and a range of other pressing demands.

In an interconnected world, investment in preparedness planning should provide benefits that extend beyond influenza pandemic control. However, the global effort to prepare for and control outbreaks of the disease will need to ensure that the countries that will probably be affected early on in any global pandemic receive support. The necessary support would involve reinforcement of the capacity of health systems in these countries. It would also need to extend to allocation of scarce resources in a globally equitable fashion. The next pandemic will test notions of global solidarity. If the pandemic were to occur tomorrow, we would probably be found wanting.

Role of the funding source

This research was undertaken through an unrestricted educational grant from F Hoffmann-La Roche. The sponsor of the study had no role in study design, data collection, data analysis, data interpretation, or writing the report. The corresponding author had full access to all the data in the study and had final responsibility for the decision to submit for publication.

Conflict of interest statement

We declare that we have no conflict of interest. During part of the research process Richard Coker was seconded part-time to the UK Department of Health. His responsibilities did not include planning for pandemic influenza preparedness.

Acknowledgments

We are grateful to experts and representatives of government ministries who offered their insights and provided references to public documents.

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