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The AsiaFluCap Project

Health system analysis to support capacity development in response to the threat of pandemic influenza in Asia

This project is supported by the European Commission and the Rockefeller Foundation

Project objectives:
* to provide a strategic framework to evaluate operational capacity in countries at risk of being at the epicentre of a future influenza pandemic
* to determine systematically operational capacity gaps in order to inform containment and mitigate the consequences of pandemic influenza in these countries and elsewhere

Study countries:
Indonesia, Thailand, Vietnam, Cambodia, and Lao PDR

Project timeline:
July 2008 to June 2011

Project Co-ordinator:
Prof. Richard Coker (LSHTM)

Collaborators:
Cambodia: National Institute of Public Health and Department of Communicable Disease Control, Ministry of Health
Germany: Hamburg University of Applied Sciences
Indonesia: University of Indonesia Lao PDR: University of Health Sciences
Lao PDR: University of Health Sciences
Thailand: Centre for Data Dissemination and Management Engineering University

The emergence of the H1N1/2009 pandemic has led to an increased attention since 2008 to health system capacity to respond to the threats from the disease. In Asia-Pacific, particularly Southeast Asia, there has been active investment in preparedness strategies and planning in many countries following previous experiences from SARS and Avian Influenza. However, an earlier review of pandemic preparedness plans in the region revealed that the translation of these strategic plans into operational plans is still lacking in many countries. Most of them have very limited information on the availability of health system resources to respond to the pandemic.

The AsiaFluCap project was conceived and has been implemented since 2008 at a time of uncertain pandemic threat. With funding support from the European Commission for Thailand, Vietnam, Indonesia, and Taiwan and the Rockefeller Foundation for Lao PDR and Cambodia, it builds upon and extends an innovative pilot project conducted in Thailand linking coherently quantitative analyses of resource gaps with qualitative assessments of governance constraints given different epidemiological scenarios. The goal of the project is to provide a framework to evaluate health system capacity and to systematically determine operational capacity gaps in order to support containment and mitigation of pandemic influenza in the region. Although still ongoing, the results from this project have already been used to inform policy decisions on pandemic responses.

Rapid Situational Analyses
Our study shows that the health system context has very strong influence on the approach adopted towards pandemic preparedness within a territory. The interfaces and linkages between health system contexts and pandemic preparedness programmes are particularly strong in three areas: governance and stewardship, resources, and service provision. Investment in pandemic preparedness activities in the region has contributed to the strengthening of health system functions in many countries, specifically in regards to surveillance, laboratory capacity, monitoring and evaluation, and public communication.

However, the low investment in clinical care and pandemic mitigation preparation is still a major challenge. In a number of countries, information on stockpiles of antiviral medicines or other key health system resource is not readily available to policy makers. At service delivery level in several countries, operational plans to respond to later stages of a pandemic are still not in place.

The results from our rapid situational analysis have been communicated to policy makers in the countries. At the regional level, the findings were presented at regional forums such as the Regional UN Pandemic Influenza Donor Coordination Meeting and the Southeast Asia Pandemic Preparedness forum. The six RSA country reports are available for download at the AsiaFluCap website.

Resource Characterisation
Through an extensive review of the literature and guidelines related to influenza and severe respiratory disease infections we identified a list of health system resources that are likely to be drawn upon for surveillance, case investigation, case management, community control, and overall management of a pandemic. A panel of experts was formed and a Delphi process was used to form a consensus on the health system resources that can practically inform planners in SE Asia.

The final list contains 57 resource items relating to infrastructure, equipment, materials, and human resources. The list was reviewed and prioritized by international and local experts to identify essential resources for the region for both containment and mitigation.

Resource Mapping
To evaluate the availability and distribution of health system resources for pandemic response in the six countries, fieldwork was conducted to enumerate the quantity of essential resources at district level. Data were collected on 57 key resource items from district health offices and hospitals using standard questionnaires. Additional data were collected at national levels to capture the central stockpiles such as antiviral drugs or supplies.

For more information about the AsiaFluCap Project
Please visit http://www.asiafluicap.org

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A training workshop was organized to equip country collaborators with general concepts of geographical information systems (GIS) and necessary skills to be able to produce their own resource maps for policy communications and dissemination. Advanced GIS analyses will be conducted for specific assessment and comparative analyses of selected key resources.

Scenario Development
The AsiaFluCap project is also using mathematical modelling as a tool to simulate and predict the transmission dynamics of a pandemic virus in each country under various scenarios. The compartmental models being developed incorporate latest findings from the ongoing H1N1 pandemic in the regional contexts. These models will simulate a number of pandemic scenarios, allowing for variations in the disease spread among and within the study countries.

By incorporating existing knowledge on the level of resource use and the rate of resource depletion in severe respiratory cases from earlier studies by local partners, the models will be used to estimate the level of key health system resource needs in a given pandemic scenario. The assessment of resource requirements will take into account potential reserve (shared) capacity in the health system for scaling up of necessary services. Importantly, the models will allow for resource depletion/commitment effects (ventilators, vaccines, antivirals, hospital beds) on the disease transmission patterns. The effects of key interventions (antiviral administration, vaccination, social distancing) based on various scenarios can also be tested and evaluated.

Resource Gaps Analyses
The existing gaps of key health system resources will then be estimated based on the scenarios developed. Comparative analyses of resource needs and gaps across countries, and between provinces within countries, will be carried out to identify the types and quantities of critical resources required to respond to pandemic spread. Governance arrangements will be evaluated according to the same pandemic influenza scenarios.

Results from the analyses of resource availability, needs and gaps will be very useful for policy makers to prioritize their resource allocation plans towards an effective pandemic response given limited resources. Data on the distribution of existing resources can also be used for other policy-linked health system analyses in the future.

Governance Analyses
Pandemic preparation and responses are not merely a technical process. They are political processes involving multiple stakeholders where technical inputs are only one aspect of the decision-making process. It is therefore important to understand the political context and the roles, responsibilities, and power of key institutions and individuals who can shape the dynamics of pandemic preparations and responses. Without this, the risk is that unclear lines of authority and accountability leave the perception that no one with any authority is in charge.

The AsiaFluCap project will provide a framework to describe the key stakeholders/institutions in the country, assess their political resources, and understand their roles, responsibilities, authority and influence relating to pandemic preparedness. Fieldwork for the governance analysis will begin in early 2010. An analysis of the governance architecture will be conducted based on the existing realities relating to pandemic influenza. The objective of the governance analysis is to identify stakeholder capacity strengths, gaps, and constraints and inform the evaluation of governance architecture and processes, and inform the resource and transmission dynamics models where delays in deployment of resources are likely to have a major public health impact.

Policy linkages and utilisation of research results
Policy linkages and utilisation have been central to the design of the AsiaFluCap project. At this halfway stage in the project, our research results from various work packages have already been disseminated and used by partners.

With ministerial support across sites, the results from this project will inform revisions of strategic and operational pandemic influenza plans, provide a critical resource for the ‘war room’ in various ongoing stages of the current and future pandemics, and inform decisions about effective resource allocation.

The project and its initial results have already been highlighted through various forums including the World Economic Forum preparation meeting, Disaster management conference, and at a number of research centres around the world. We welcome any questions, comments, and collaboration requests to further expand our work and its policy utility.

Adult Ventilators in Cambodia 2009

Project collaborators:

[Project logos and names]