

## Disease diplomacy

*The world's first legally binding agreement on global health security, the International Health Regulations, 2005 came into force this week on June 15, 2007. Pakistan has responsibilities as a signatory to this agreement, which it must fulfill.*

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For most of us, disease pandemics are forgone history; plague killed 12 million people in 1855, but we think of it just as a setting in Jean Plaidy's novels. Influenza claimed 25 million lives in 1918, but it is just through references in written accounts that we know of that. Much as we would like to disbelieve it, we may, unfortunately, not be far from another infectious disease pandemic given that the imprints SAARS and Avian flu have left in epidemic outbreaks have many bearings, which can herald a pandemic. If that happens, in this day and age of global communication and travel, more than 60 million people can die worldwide – majority of these in high population developing countries such as ours.

Emerging and reemerging infections are therefore, the foremost threats to global health security with the potential to create catastrophic damage; however these are not the only threats. Public health emergencies of national and international concern can be nuclear, biological or chemical in nature – terrorism related or accidental. The Chernobyl disaster and the anthrax scare being cases in point. Though conventionally, natural disasters are not classified as threatening 'global health security', they too can cause devastation of similar scale and warrant institutional responses, which can be combined for disaster preparedness.

Despite these realities, health has never been a big ticket item in discussions of national interest – and if one contemporaneous event has changed that by demonstrating the potential that health has to incur 'economic losses', then it would be the SAARS and Avian influenza epidemics, both of which led to serious social, economic and political consequences. The unprecedented losses that both these outbreaks caused in a number of countries, enabled health to achieve the highest political profile whereas the transnational spread of these diseases challenged the limits of state sovereignty and redefined national responsibilities. Billions of dollars were lost by countries in the tourism, hospitality and transport industry. International trade and travel almost ceased, markets went into slide, economies were crippled and public health systems buckled. High levels of the governments got deeply involved and perhaps for the first time, a global multisectoral response in many countries was galvanized into action in an attempt to exploring ways of speedily ending the epidemic. Never before in the history had the media been so involved in a public health emergency. However, it must be noted that both SAARS as well as the Avian influenza erupted in epidemic proportions (sudden increase in the number of cases in a period of time); mankind was lucky this time round! Some characteristics of the SAARS virus made containment possible. Infected individuals usually did not transmit the virus until several days after symptoms began and most were infectious only by the 10<sup>th</sup> day or so of the illness when they developed symptoms. Therefore, effective isolation was enough to control spread this time round. If cases were infectious before symptoms appeared or if asymptomatic cases transmitted the virus, the disease would have been more difficult, perhaps even impossible to control – and a pandemic (epidemic outbreak spreading across a large region, world wide) could have been inevitable.

Of course there is no way of knowing what will come next, neither the timing nor the severity of the next pandemic can be predicted. However, the probability that a pandemic may occur has certainly increased. Understanding the role of migratory birds and viruses also leads us to believe that the risk of a pandemic influenza is serious. With the H5 N1 virus now firmly entrenched in large parts of Asia, the risk that more human cases will occur will persist. Each initial human case gives the virus an opportunity to improve its transmissibility in humans and thus develop into a pandemic strain. The only safeguard at this point with reference to preparedness is to ensure that we are better prepared than we were, when SAARS was unleashed.

The international public health community has not been silent to these realities. Invoking its constitutional prerogative to develop legally binding international regulations, the World Health Organization – the only agency with a globally embracing regulatory health mandate – has developed the revised International Health Regulations

2005 (IHR 2005); these came into force this week on June 15, 2007 marking a public health milestone and are the world's first legally binding agreement in the fight against public health emergencies of international concern. International Health Regulations 2005 are an update of the International Health Regulations of 1969, which focused on cholera, plague and yellow-fever. The revision was needed to address limitations in the International Health Regulations of 1969 given that in recent decades cross-border travel, trade, communication and technology has developed markedly and new challenges have arisen in the control of emerging and re-emerging infections. In addition to all diseases of international concern, the updated regulations also address all threats associated with acute chemical or radio-nuclear origin. WHO has termed IHR 2005 as the 'pillar of global health security' envisaging that this will enable building and reinforcing effective mechanisms for disease outbreak, alert and response at national and international levels; additionally WHO also regards it essential that every country fully implements these regulations.

All 193 member states of the World Health Organization have agreed in principle to the revised regulations. However as part of its stipulations, countries are expected to build institutional capacity to strengthen global public health security and management systems for addressing public health emergencies and risks of international concern.

Pakistan has in place some measures to comply with international health regulations; these include public health infrastructure for surveillance at ports, air ports and ground crossings and an Integrated Disease Surveillance Plan. However, these suffer from several limitations. Furthermore, there are renewed responsibilities of governments under IHR 2005. These include setting up early warning components of national surveillance, public health actions at points of entry and responsibilities of national and international health focal points. Specifically, under these regulations, countries are expected to nominate international health focal points and mandate them with the task of notifying all events that may constitute public health emergencies of international concern and not just diseases. These focal points would be expected to communicate detailed public health information to WHO including case definitions, lab results, number of cases and deaths and conditions affecting the spread of disease in case of an epidemic. Pakistan has designated the focal point role to the National Institute for Health (NIH) in Islamabad. However the focal points are now expected to play the roles assigned to them and it is here that their several limitations need to be addressed as a priority.

Augmenting diagnostic and technical human resource capabilities within the Epidemic Investigation Cell of the National Institute of Health would be a critical first step. The recent Dengue outbreak outlined a number of weaknesses in the resource level and capacity; it is important to use evidence from lessons learnt to bridge gaps. In addition, information collection and analysis functions need to be strengthened at the District level; in terms of capacity building, existing initiatives such as the Field Epidemiology and Laboratory Training Program should be leveraged. It is also important to use technology to bridge the currently unacceptable delays in information relay through the Health Management and Information System (HMIS).

In addition, the existing infectious diseases surveillance systems need more resource inputs to bridge gaps. These systems do not capture data from all sources – the private sector in particular. In addition, there is limited capacity to confirm clinically diagnosed cases of reportable diseases because a functional laboratory system does not exist outside of urban areas. Limited capacity is compounded by gaps in legal requirements to report notifiable diseases. Therefore in addition strengthening surveillance, legal and policy requirements that can mandate the notification of priority diseases and regulation of laboratory practices should also merit attention. Effective surveillance is also particularly important in Pakistan because illnesses with similar initial manifestations (malaria, influenza, typhoid fever, hepatitis) are common in the country; surveillance protocols should take this locally reality into account.

To assist the implementation of the IHR 2005, WHO has created the Global Alert and Response Network – a technical collaboration of the existing institutions and networks coordinated by WHO that can pull technical and human resources for the rapid identification, confirmation and response to outbreaks of international importance. For countries such as Pakistan with limited capacity, it would be important to create active linkages with this initiative and to assess how this resource can be tapped into.

It would also be important to create linkages between the IHR focal points and other institutional arrangements relevant to 'emergency response', which are currently being housed under the Earthquake Rehabilitation Authority, in the aftermath of the October 8, 2005 earthquake. Both these should ideally be reconfigured as a *Health Incident Management System* in Pakistan – a system which incorporates disaster planning within its realm with a focus on preparedness, response, and recovery. Such an institutional entity should foster collective responsibility to complex and unique emergencies – natural or manmade.

The context of the October 8, earthquake tragedy has an additional important relevance here. In the aftermath of the earthquake, Pakistan received considerable international assistance. However it must be appreciated that in pandemics other countries are also likely to experience emergency conditions, and therefore, opportunities for inter-country assistance such as those seen during the October 8 earthquake or local disease outbreaks may be curtailed. This is precisely why reliance on indigenous capacity is a prerequisite.

Another caveat here relates to the supply of medicines. It is now well established that the world has very limited supply of anti-viral medication; and not just that, global capacity to produce these medicines is also constrained. At the present manufacturing capacity, which has recently quadrupled, it will take about a decade to produce enough anti-viral medicines to treat 20% of the world's population. Mathematical modeling has shown that the use of these drugs near the start of the endemic can reduce the risk of transmission; therefore the World Health Organization is currently stockpiling anti-viral medication. It is important that the government of Pakistan should think in terms of earmarking resources for procuring anti-viral drugs and placing its orders in the pipeline.

Contemporaneous challenges related to global health security are a downside of globalization. The world community now expects accurate, complete and timely information about diseases and events that threaten global health security and effective action to control them. Pakistan must comply with its international obligations. The budget of 2007-08 earmarks Rs. 100,000 million for the surveillance of these diseases; it would be critical to use this budget strategically to build infrastructure that is both sustainable and effective.

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