

Dengue and its likes – long term context

The explosive outbreak of Dengue raises several important policy questions for long term public health planning in Pakistan.

Dr. Sania Nishtar

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True that Dengue and its potentially lethal complication, Dengue Hemorrhagic fever should be a national public health concern – as they are. By way of contextualizing however, here is a disease that does not spread from person to person and therefore does not require patient isolation and barrier nursing and fortunately its vector (the mosquito) will not be able to survive and breed in the forthcoming winter season. On the other hand many other equally serious infectious diseases (such as Multiple Drug Resistant Tuberculosis) often go largely unnoticed by the general public and decision makers as they do not produce explosive epidemics.

This notwithstanding, the recent mayhem that Dengue has caused and the attention that it has generated, should provide an opportunity to put systems in place to address such epidemics in the future. The Dengue outbreak and the turmoil created earlier by the expectation that SARS and Avian Flu would cross Pakistan's territorial borders, flag some important policy considerations for long term institutional planning in the health sector.

These broad policy issues are being addressed herewith collectively because all these diseases – despite their etiological differences – fall within the category of emerging and reemerging infections, for which a unified strategy can be adopted nationally. Under the rubric are diseases not previously known, diseases which appear in a new location or in a new epidemic or epidemiological pattern or outbreak of diseases previously under good control. All of these pose a number of challenges; 'reemerging' infections such as Dengue need to be grappled with in the absence of vaccines whereas on the other hand, control and prevention strategies for newly emerging infections (such as SARS and Avian flu) suffer several limitations because researchers do not have the opportunity to formulate treatment modalities, vaccines and vector control strategies.

Pakistan has a number of programs aimed at controlling existing infectious diseases; these include the national programmes of HIV/AIDS, Malaria, Tuberculosis and Hepatitis and the National Expanded Programme of Immunization. However the unexpected emergence of new infectious diseases and the persistent threat of reemerging infections, have made it clear that efforts to control existing diseases, need to be accompanied by improved capacity for 'early detection' and 'rapid response' to newly emergent or re-emergent infections.

Configuring a program on these lines is not straightforward by any means; epidemics are unpredictable in time and place; surveillance efforts are difficult to maintain; sustaining readiness for infections is costly and developing and maintaining vector and rodent control programs are difficult. But this is not a justification not to act since the human and economic costs of these epidemics can be enormous. The influenza pandemic, hundreds of years ago killed millions of people; and even in this day and age of technological advancement, one of the envisaged SARS outcome scenarios predicted the same for the planet; the fact that it was fortunately otherwise, had little to do with manmade maneuvers! In terms of economic costs, the memory of the economic fall out in the Far East

The NEWS International:
Sunday, November 05, 2006

Why we need to think beyond dengue

The explosive outbreak of dengue raises several important policy questions about the long term reform of the health sector

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health

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subsequent to Avian influenza and SARS should bear testimony to the devastation that such diseases can bring in their wake.

The case for enhancing our capacity to address this public health issue on a sustainable basis is, therefore, compelling. The question is 'how'. It is within this context that three considerations merit careful attention.

First, there is a need to strengthen and consolidate the existing institutional arrangements and clearly define roles and responsibilities. Currently there is fragmentation in this aspect; policy making is the prerogative of the Federal Ministry of Health but also, in this case, the provincial departments of health given that health is constitutionally, a provincial subject. Diagnostic and technical human resource capabilities are supposed to exist within the Epidemic Investigation Cell, Public Health Laboratories Division of the National Institute of Health, which is in the Federal domain. Here gaps at the resource and capacity level exist and ambiguities about line reporting (provincial-federal vis-à-vis district-federal) have been noticed in the wake of the Dengue outbreak. Information collection and analysis functions exist at various levels; within the realm of provincial/district control, the District Health Officers (DHOs) are responsible for locally collating and analyzing information, but there are serious gaps at the District level in this respect. This information in turn relays to the central Health Management and Information System (HMIS), which is in under the MoH for central analysis and action. However, despite the existence of an elaborate and potentially brilliant infrastructure to collect information, simple easy to bridge gaps still abound. For example, there is currently more than a three month delay before information reaches from the districts to the central HMIS level which is where the analytical capability exists. This gap can be bridged cost-effectively through the appropriate use of technology. It must be appreciated that addressing these challenges at the resource, capacity, line responsibility and reporting levels are central to developing a response capability to emerging and reemerging infections.

The most suitable way of approaching this issue would be to create dedicated institutional responsibility for incident management as a public health program priority. Then there is a question of whether this should operate as a silo mechanism for emerging and re-emerging infections or should this be one that is configured to 'emergency response' within a broader context. The latter was underscored during and in the aftermath of the October 8, 2005 earthquake as an important consideration. Public health issues after the floods almost each year would also benefit from such an entity. More recently concerns about the intentional release of infectious agents, in a deliberate attempt to frighten, harm or kill should give additional impetus to this effort. Within this context, several acronyms for an institutional entity have been in circulation within the Ministry of Health, the Earthquake Rehabilitation Authority and UNDAC. These should 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.

Such an agency would have unique normative tasks even out of the 'implementation' mode. For example, it can develop protocols for different phases of operations in envisaged disasters and procedures for seeking assistance, locally and internationally. It can also develop mechanisms for ensuring pharmaceutical supply flows and identify potential sources in addition to mapping health sector infrastructure and human resource. The agency can also plan for hazardous waste disposal, inventorize public health demands, develop plans for the provision of needed medical equipment and medical supplies and identify potential sources. The latter can obviate shortages of the kind currently being experienced by DHOs in the field with respect to anti-mosquito sprays needed to contain the Dengue outbreak. Moreover the agency can also ensure regular capacity building of Communicable Disease Control Officers and Sanitary Patrol Officers on an ongoing basis.

Secondly, at a more technical level and relevant to the emergence and reemergence of infectious diseases *per se*, is the need to strengthen health information systems or more specifically, infectious disease surveillance mechanisms so as to gather evidence needed for an effective response. A lag at this level results in delayed response and increased opportunity for epidemic spread. Effective surveillance is also particularly important in Pakistan because illnesses with similar initial manifestations (malaria, influenza, typhoid fever, hepatitis) are common in the country.

Infectious disease surveillance is largely based on acute epidemic reporting from facility sources. Several vertical infectious disease surveillance systems exist in Pakistan as part of the respective programmes on Polio, Tuberculosis, Malaria, HIV/AIDS. These involve acute case detection and reporting from several sources including HMIS. The AFP/polio surveillance system in particular taps all possible sources for information through active surveillance methods and is recognized as being effective. However, this initiative is part of WHO's global drive to eradicate polio and has received significant support from it. Other pockets of good practice also exist in various aspects of surveillance. However, by and large, systems have minimal coordination between vertical programmes and they usually do not tap into all sectors, thereby reflecting incompleteness. At the district level, there is limited capacity to analyze and interpret data and utilize it for action, as already mentioned. In addition, these systems have limited capacity to confirm clinically diagnosed cases of reportable diseases because a functional laboratory system does not exist outside of urban areas. This is compounded by gaps in legal requirements to report notifiable diseases. On the other hand, HMIS, which serves as the State's mechanism of collecting data suffers from several limitations including resource constraints; HMIS does not capture data from several government hospitals and none of the private sector facilities.

In view of these considerations, a number of gaps need to be bridged. Existing piecemeal epidemic infectious disease surveillance activities within individual programs should be strengthened and integrated into a comprehensive public health surveillance system consisting of peripheral data collection arms linked to a central system; this would mean supporting HMIS, broadening its base and enhancing data connectivity through the appropriate use of technology, which can bridge the unacceptable time lags in data transfer. Management information systems in hospitals and private sector should be developed/standardized and data flows to HMIS established.

In addition surveillance efforts should be backed by a legal system that mandates the notification of priority diseases and regulates laboratory practice; within this context, a functional laboratory system for infectious disease surveillance should be supported to the extent that a credible cost-effective analysis suggests. Capacity is key to surveillance efforts as ultimately the purpose is to utilize information for decision making; this is all the more relevant in the post-devolution scenario, where health related decision making is a district prerogative. The recently launched Field Epidemiology and Laboratory Training Program is an important step in the establishment of a surveillance capacity in the country and should be leveraged for building capacity at various levels.

Thirdly, and more broadly again, incident management – as other contemporary considerations in health – reiterate the need for *strengthening health systems* rather than *piecemeal solutions*. Indeed many of the measures necessary to address the current challenge are embedded in systems-level solutions. These depend on how the system is governed at various levels; on how clear the federal-provincial-district roles and responsibilities are in the health sector; on how effective the state is in harnessing the role of the private sector; on the effectiveness and transparency of administration and procurements and how effective they are in plugging pilferage and leakages from the system. Moreover, it depends on the capacity of the health care providers, the health service delivery fabric of the State and its capacity to regulate the delivery of services by the private sector. This is a long winded way of saying that new institutions can only be effective in well oiled systems; this once again calls for the need to think strategically about a health reform in the country without which creating regulatory or legal or institutional interventions will remain just acronyms.

Some of these broader policy issues relating to restructuring the mode of health service delivery in the country are fundamental to addressing public health threats, which emerge from time to time. There is every reason to believe that a number of factors will be shaping the public health landscape very differently to the manner in which it is currently configured presently over the next decade or so. Microbial adaptation, travel, environmental changes such as global warming and changing ecosystems have implications for spread of disease and its control; humanitarian crises, conflict and intent-to-harm related public health challenges are a contemporary reality and there is not guarantee that seismic activity of the kind witnessed last year will not continue.

Within this context and from a policy perspective, it is important to rely on institutional preparedness rather than *ad hoc* responses. There can be no argument against capacity for Incidence Management, but what is more important is to also focus on systems through which they will be delivered.

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