Animal health emergencies: prevention and preparedness in Asia

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Summary
Besides response and recovery, prevention and preparedness are the two critical components of any contingency plan. The author discusses the various elements which must be present in the prevention and preparedness plan of countries in Asia. As the continent has such diverse peoples and veterinary infrastructures, the actual plan may vary from one country to another, but must incorporate those elements which are crucial to ensure the success of the preparedness plan.

Keywords

Introduction
Asia is a vast continent with tremendous diversity in culture, language and economic status. Half the human population of the world inhabits the region, with the corresponding demands on food, especially on food of animal origin.

The Veterinary Services on the Asian continent have a diverse collection of organisational structures, each representing different levels of development in their Services and various operating methods. Competence also differs and resources may or may not suffice to address all the issues which fall under the responsibility of the animal health sector. As one of the important constraints to animal production is the presence of animal disease, attempts have been made nationally and regionally to address animal health issues in a more meaningful manner.

In the traditional sense, the delivery of veterinary services included treatment and vaccination against animal diseases. Laboratory support, if available, varied in the level of capability and sophistication. The range of laboratory testing was and still is rather limited. Staffing at both the professional and technical support levels was not always adequate. In addition, funding was not always sufficient.

Besides response and recovery, prevention and preparedness are the two crucial components of any contingency plan. Countries in Asia have developed contingency plans in accordance with what are perceived to be the main threats to the national livestock population. An outbreak of foot and mouth disease (FMD) would be a total disaster in a country like Japan but would not necessarily have the same effects on many of the other countries in the region. Hence, a clear statement of policy needs to be enunciated, specifying exactly how the occurrence of a hitherto exotic disease should be dealt with.

In attempting to improve prevention, an understanding of the evolution of the disease in the international arena is clearly important. With means of land transportation constantly improving, even in a continent like Asia, diseases can occur in a matter of days in countries that are separated by thousands of kilometres. An assessment of other possible means of introducing the disease into the country will have to be made. The mechanism and pattern of spread will also have to be studied. If the introduction of a disease occurs through controlled movements of animals, official notification can be made much earlier. If movements of animals occur illegally, it is likely that reporting will be delayed.

Importance of planning and experience
As part of preparedness planning, disease control strategies that will be followed in the event of an outbreak need to be developed. Preferably, two or more alternative strategies should be prepared and the circumstances in which each option would be preferred should be identified. This is not
always as straightforward as it sounds. Based on first-hand experience (when applied in the control of FMD), the stamping-out policy was successful in containing the disease in many parts of Peninsular Malaysia in 1978. However, due to many insurmountable social, political and religious constraints, the strategy had to be adapted in the border state of Kelantan and the entire policy changed from one of stamping-out to vaccination as the principal means of control. This illustrates the point that policy should never be rigidly adhered to when failure is obviously imminent.

Adequacy of resources

Once two or more alternative strategies have been identified to deal with an outbreak, an analysis of available resources required to implement each strategy needs to be made. This analysis of resources must take into account the actual resources available in terms of capability, availability and mobility. Capability implies that staff deployed for the disease control efforts must be perfectly familiar with the disease, however foreign it may be. This implies that training and familiarisation programmes need to be organised. Availability means that those designated to deal with the emergency need to be available on a full-time basis to accomplish the tasks entrusted to them; mobility here means being available at short notice and, above all, being able to move about unimpeded. Any deficiencies which come to light during this analysis process will have to be addressed. The details of the alternative arrangements need to be identified. If necessary, outside help from regional and international organisations should be tapped for the expertise that may not be available locally.

As an integral part of preparedness plans, the capability of diagnostic laboratories to confirm a field diagnosis should be enhanced to include tests for exotic diseases. Test procedures should be updated and harmonised and reporting of test results should be made in a transparent manner. Where diagnostic tests cannot be performed within the country, recourse to overseas laboratories should be duly exploited.

While awaiting laboratory confirmation of a suspected disease, initial steps need to be taken to prevent the possible spread of infection through measures such as enforcing quarantine of suspected farms and livestock and initiating preliminary action in the implementation of an Animal Disease Emergency Plan (ADEP). The ADEP should determine the structure of the task force required to implement the prescribed disease control procedures, including the chain of command, delegation of authority and liaison between members. The establishment and organisation of the national and local disease control headquarters should also be considered. The precise description of the disease control procedures to be followed upon confirmation of an emergency due to the presence of an exotic disease should be contained in the ADEP (1). Job descriptions of each member of the task force should be clearly indicated and open lines of communication should be established to ensure that information is exchanged both regularly and promptly. An informal means for discussing problems which surface in the course of undertaking disease control efforts should also be made available.

The diversity and adequacy of resources may best be illustrated by figures taken from some South-East Asian countries in relation to national FMD control programmes (3, 4).

The range of the combined cattle/buffalo population varies from a low of 750,000 in Malaysia to a high of 12.6 million in Myanmar. A comparison of these two countries alone shows that there is no FMD vaccine production capacity in Malaysia while the production capacity of Myanmar (for two monovalent FMD vaccines) is approximately 130,000 doses per year. This figure is obviously well below the optimal quantity required for an effective vaccination campaign and would need to be supplemented by imported vaccines. Malaysia, on the other hand, relies solely on imports for her vaccine needs. This makes her vulnerable to vagaries of supply and price.

Thailand appears to be the only country in the region which is self-sufficient in regard to FMD vaccines.

All countries in the region have some laboratory capability for FMD diagnosis. This capability has been acquired only in the last few years in the case of Cambodia, Laos and Malaysia through assistance received from international agencies. The technology involved is essentially based on the enzyme-linked immunosorbent assay (ELISA) and similar tests because of a common donor source. It is most important to stress here that while initial support makes the technology workable, the continued sustainability of these diagnostic procedures is very important and donor support must be continued to maintain such technology in certain countries.

Many countries in the region also report inadequate technical capability, equipment limitations and inadequate financial support for FMD control programmes. No country in the region had participation in a vaccine bank as part of their preparedness plans.

Improving disease preparedness

The foregoing has given the broad guidelines for disease prevention and preparedness. The areas which require further attention to improve disease preparedness are described below.
A reliable and comprehensive quarantine system

The first line of defence in terms of prevention is a reliable quarantine system. The system should not be confined solely to the quarantine station in which imported animals are kept for a specified period and to tests performed to ensure that the animals are healthy and safe for release into the recipient country. Quarantine measures should include inspections at airports and harbours to ensure that only safe animal products are introduced. Waste from ships and aircraft should also be disposed of safely, preferably by incineration. A ban on swill feeding should be imposed in the case of certain diseases such as classical swine fever (hog cholera) and FMD. Inspections should be made of fishing boats, especially those which may carry live animals. It is thought that an incident of rabies south of the immune belt in Peninsular Malaysia was probably caused by dogs carried on these boats which were detained for fishing illegally in Malaysian waters. Strict inspection of ships, both passenger and cargo, must be performed to eliminate the possible entry of potential pathogens. Where animals crossing frontiers are not subjected to the normal quarantine procedures, alternative arrangements will need to be made to ensure relative safety and acceptable risk to the receiving country. This is not the same as a 'no risk' policy, as experience has proved in regard to FMD.

Effective disease surveillance and reporting systems

Disease surveillance must include passive disease surveillance where information is derived from various sources such as laboratory reports, clinical cases and abattoir condemnations. A more effective method is that of active disease surveillance. Included would be an antibody surveillance system and a disease surveillance system. These active systems imply a structured approach to the problem where surveillance is preplanned to achieve the desired goal. Sometimes, incentives may have to be introduced to facilitate disease reporting. Co-operation from producers is very important. In addition, continuing education for disease inspectors in the field and animal producers is crucial to ensure the early recognition of exotic diseases. An on-line reporting system should be installed and an early warning system developed to cope with impending situations.

Reliable diagnostic services

A reliable diagnostic service implies that results may be expected promptly after the submission of samples. The staff involved in the collection and forwarding of specimens should be well trained in the procedures to be followed for both the collection and safe transmission of the samples to the laboratory. Laboratories should be well equipped to handle the specimens submitted and provide a definitive answer in a speedy manner. Where laboratories are not in a position to conduct the required tests, the samples should be referred to an outside laboratory, preferably an accredited reference laboratory. The results of laboratory testing must be reported in a transparent manner.

National emergency task force

A national emergency task force should play a key role in the entire operation. This should include a field task force and various technical support groups. Training of staff at regular intervals should be imperative.

Legal power

Legislation should be enacted to provide for the following disease control activities:
- quarantine of infected herds and the creation of infected zones
- prohibition of movements of animals, humans, vehicles, etc.
- vaccination of susceptible animals
- closure of animal shows, markets, abattoirs, etc.
- prohibition of exports of contaminated materials and foodstuffs
- implementation of stamping-out policies
- payment of compensation
- safe disposal of infected animals, carcasses or materials
- decontamination of infected premises, freezer equipment, etc. (with the prohibition of restocking of susceptible animals for a fixed period)
- mobilisation of the police, military and other forces in the case of a national emergency.

Legislative coverage for each of the above activities is decisive to ensure success in the disease control efforts.

Training of field teams

All field teams should receive regular training and refresher courses. Members should be equipped with at least a manual on emergency operations and a manual for specific diseases. The manual on emergency operations should be comprehensive. Training may involve simulation exercises at regular intervals and the use of audio-visual aids is encouraged.

Emergency disease control manuals

A set of written manuals should be prepared, detailing work procedures and containing specific instructions on how disease control work is to be conducted (2). Those responsible for the tasks assigned should be clearly identified. The manuals should contain details of how duties are shared and should explain the precise objectives of the control campaign. This set of manuals should be reviewed and revised from time to time to suit changing conditions and in the light of new experience gained from previous episodes of disease incursion.
Provision of funds, equipment and supplies
Funds are never quite adequate but nevertheless must be sought and provided. A special emergency fund should be available at short notice. Funds must also be available for purposes of compensation when a stamping-out policy has been implemented. To ensure proper disbursement of compensation funds, adequate guidelines must be drawn up to enable field officers to implement the compensation scheme efficiently. Funds for the safe disposal of destroyed animals should be secured. Capital item purchases such as mobile incinerators and cleaning and decontamination equipment must be made, and chemicals and disinfectants should be made readily available.

Sourcing for vaccines at short notice will always be a problem. Hence, it may be advisable to create or join a vaccine bank.

Communication and public education
Public education and communication are tools which can assist greatly in deciding the final outcome of a disease control campaign. Mass media should be used to communicate factual information. Printed material in the form of bulletins and pamphlets may be used to convey messages. There may be a need to engage the services of communication and information specialists to assist in this area.

Environmental problems
In this day when all things must be ‘environmentally friendly’, there is an urgent need to ensure the selection of a proper burial site where contamination of ground water should not occur. The disposal method should be standardised. The environment should be monitored thereafter for possible contamination. Surveillance should be performed on wildlife and potential carrier animals.

Co-operation of producers
Commercial producers of animals and animal products must provide co-operation on matters of disease reporting and be willing to surrender animals when a stamping-out policy is enforced. They must fully understand the processes and procedures required to obtain the status of freedom from designated diseases and, of course, the benefits to be derived by the industry as a whole.

Conclusion
Prevention and preparedness must be part of the everyday vocabulary of the staff of departments responsible for animal health. One cannot entertain the idea that an emergency ‘would not happen to us’; there is not a country on this planet that is protected against such a possibility. Some might wish to disregard the possibility because they are too busy or believe they would be able to deal with it on the day. Deciding what to do on the day is one thing, having the wherewithal to do so is quite another. Others would say that planning is expensive and the task is too onerous. However, like the proverbial thousand-mile journey, one must begin with the first step. Contingency planning is a series of sequential steps. ‘Being prepared’ is an appropriate motto and this is what contingency planning is all about.

Urgences en santé animale : prévention et préparation en Asie
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Résumé
Outre les phases de réaction et de récupération, la prévention et la préparation constituent deux composantes majeures d’un plan d’urgence. L’auteur passe en revue les divers éléments devant figurer dans les programmes de prévention et de préparation des pays asiatiques. Eu égard à la diversité des peuples et des infrastructures vétérinaires de ce continent, ces programmes peuvent varier d’un pays à l’autre, mais ils doivent néanmoins comporter tous les éléments indispensables au succès du plan de préparation.

Mots-clés
Emergencias zoosanitarias: prevención y preparación en Asia

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Resumen
Junto con la respuesta y la recuperación, la prevención y la preparación constituyen los pilares que deben sostener cualquier plan de atención de eventos imprevistos. El autor expone los diversos elementos que deben estar presentes en el plan de prevención y preparación de los países asiáticos. Dada la diversidad de pueblos e infraestructuras veterinarias que alberga el continente, en la práctica dichos planes varían de un país a otro, pero todos ellos deben incorporar determinados elementos que resultan imprescindibles para garantizar su éxito.

Palabras clave

References


