EMERGENCY PREPAREDNESS: FORMULATION AND IMPLEMENTATION OF ANIMAL HEALTH CONTINGENCY PLANS IN THE MIDDLE EAST

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Summary: Animal disease emergencies are often caused by transboundary animal diseases, which are of significant economic and food security importance. Since these diseases can spread very rapidly, their control requires advance planning, otherwise they become widespread and their eradication can be extremely difficult and costly. Animal disease emergency preparedness and particularly contingency planning should be regarded as an essential tool for the control of emergency diseases. Emergency preparedness planning is comprised of two main components:

The first component is early warning, which is the rapid detection of the introduction of any emergency disease of livestock. It is based mainly on disease surveillance, disease reporting and epidemiological analysis.

The second component is early reaction, which is to implement without delay disease control measures to contain the outbreak and to eliminate it progressively. To achieve this goal, national emergency contingency plans should be developed for high risk diseases and these plans should be tested and refined through simulation exercises.

Due to its geographical location, the Middle East is under continuous risk of high priority animal diseases from Africa and Asia. Most of the countries in the Middle East do not have well documented contingency plans in place for most of the high priority emergency diseases.

1. INTRODUCTION

The control and eradication of animal diseases are primarily the responsibility of individual countries whose executive for this purpose is the national Veterinary Service. Due to the transboundary nature of many important animal diseases, regional and global cooperation is required for the control of these diseases. The Office International des Epizooties (OIE), Food and Agriculture Organization of the United Nations (FAO), World Health Organization (WHO), Pan American Health Organization (PAHO) and the Inter-African Bureau for Animal Resources of the African Union (AU/IBAR) are some of the international organisations dealing with the control of such diseases.

Animal disease emergencies may occur when there are unexpected cases of epidemic diseases that can cause serious socio-economic losses.

These emergencies are often caused by outbreaks of transboundary animal diseases (TADs), such as OIE List A diseases, which are of significant economic and food security importance for many countries. Transboundary animal diseases may be defined as those epidemic diseases that are highly contagious or transmissible and have the potential for very rapid spread, irrespective of national borders, causing serious socio-economic and possibly public health consequences. Their control thus requires cooperation among several countries.

Such diseases may have serious consequences for countries for the following reasons:

- They cause significant production losses for livestock products, such as meat, milk, wool and skins,
- They compromise food security through significant loss of animal protein and loss of draught animal power,
They cause losses of valuable livestock of high genetic potential,

- They significantly increase the cost of livestock production through the necessity to apply costly disease control measures due to expensive control,
- TADs have the potential to seriously disrupt or inhibit trade in livestock and livestock products either nationally or internationally,
- They increase poverty levels particularly in poor communities that have a high dependence on livestock farming for sustenance.

The OIE recognises 15 List A diseases, most of which could also be regarded as being TADs. These are foot and mouth disease, rinderpest, peste des petits ruminants, contagious bovine pleuropneumonia, Rift Valley fever, lumpy skin disease, vesicular stomatitis, swine vesicular disease, bluetongue, sheep pox and goat pox, African horse sickness, African swine fever, hog cholera, fowl plague and Newcastle disease. All of these diseases may have serious consequences. However, this list is not exclusive. Other viral, bacterial, rickettsial and mycoplasmal diseases may also be regarded as having the potential to cause animal disease emergencies under some circumstances.

Although, in general, exotic or foreign animal diseases are accepted as emergency animal diseases, unusual outbreaks of endemic diseases may also cause an emergency.

1.1. The need for animal disease emergency preparedness planning

As mentioned earlier, an outbreak of a transboundary animal disease can have serious socio-economic consequences. Therefore, it is crucial to recognise a new disease quickly while it is still localised and take necessary measures promptly to contain the disease and then progressively eliminate it. If the recognition of the disease is delayed and it becomes widespread, eradication may be extremely difficult and costly.

The aim of an emergency planning should always be to eliminate a disease progressively and finally eradicate it. The alternative of this approach is limitation of the disease by vaccination campaigns and other disease control measures. This alternative approach will in the end prove more costly and will be a permanent constraint to efficient livestock production systems. In addition, the presence of a TAD in a country will be disease emergency preparedness and in particular contingency planning should be regarded as an essential tool to mounting early effective action during emergencies. These programmes should be accepted as an important function of national Veterinary Services.

1.2. Main components of animal disease emergency preparedness planning

An efficient national quarantine system is very important to prevent the entry and establishment of TADs. However, even the best quarantine system cannot provide an absolute barrier. Therefore, the development of contingency plans and capabilities to respond quickly to highly contagious diseases should they enter a country is essential for the control of such animal diseases.

If a disease can be diagnosed early and a disease control programme rapidly implemented, the chance of its eradication with minimal cost is high. Otherwise, if the disease becomes widespread in the country, eradication may be very costly and difficult.

Two essential parts of animal disease emergency preparedness planning are the development of capabilities for early warning and early reaction to disease emergencies.

Early warning is the rapid detection of the introduction of, or sudden increase in, any disease of livestock, which has the potential of developing to epidemic proportions and/or causing serious socio-economic consequences or public health concerns. It embraces all initiatives and is mainly based on disease surveillance, reporting and epidemiological analysis. These lead to improved awareness and knowledge of the distribution and behaviour of disease outbreaks and infection, allow forecasting of the source and evolution of the disease outbreaks and the monitoring of the effectiveness of disease control campaigns.
The success of a country’s capability for rapid detection of the introduction or increased incidence of transboundary and potentially epidemic animal diseases depends on:

- Good farmer and public awareness programmes for livestock diseases,
- Training of field veterinarians and veterinary auxiliary staff on recognition of important epidemic diseases,
- Sustained active disease surveillance,
- Availability of reliable livestock identification systems for enhancement of disease tracing capabilities,
- Efficient emergency disease reporting mechanisms,
- Implementation of an emergency disease information system,
- Availability of laboratory diagnostic capacity,
- Presence of links between national and international reference laboratories,
- National epidemiological capacity,
- Prompt and comprehensive international disease reporting to the OIE and neighbouring countries.

**Early reaction** is to carry out without delay the disease control activities needed to contain the outbreak and then to eliminate the disease and infection in the shortest possible time-frame and in the most cost-effective way, or at least to return to the status quo that existed previously and to provide objective, scientific evidence that one of these objectives has been achieved.

To achieve this, the following elements need to be in place:

- Development of national emergency contingency plans, both generic and for specific identified high risk diseases, which should be established, tested and refined through simulation exercises,
- Establishment of a national animal disease emergency planning committee,
- Establishment of a consultative committee on emergency animal diseases charged with the responsibility of implementing the national animal disease emergency plans,
- Installation of diagnostic capabilities for all high threat diseases. These should be fully developed and tested in national and, where appropriate, provincial diagnostic laboratories and linkages established with world and regional reference laboratories,
- Ensured arrangements for involvement of the private sector,
- Arrangement for epidemic livestock diseases to be included in national disaster plans so that the police, army and other services can be involved as and when necessary,
- Preparation of legislative and administrative frameworks to permit all necessary disease control actions to be implemented without delay,
- Arrangements whereby funding for disease control campaigns can be rapidly provided,
- Ensuring that Veterinary Services are structured in such a way as to facilitate disease reporting and implementation of a nationally coordinated disease control/eradication campaign without delay during an emergency,
- Provision of trained personnel and other necessary resources,
- Compensation arrangements whereby farmers or others can be paid fair and quick compensation for any animals or other property destroyed as part of a disease control campaign,
- Ensured access to quality assured vaccines through a vaccine bank or from other sources,
- Harmonisation of disease control programmes and cooperation with neighbouring countries to ensure a regional approach,
- Determination of the available international agencies involved in epidemic disease control, which could provide early reaction assistance if needed and establishment of regular communication channels with such organisations.
2. CONTINGENCY PLANS

Countries need to have in place well-documented contingency plans for specific, high priority emergency diseases, together with a series of generic plans for activities common to the various specific disease contingency plans. The purpose of a contingency plan is to:

- Provide policy and guidelines for the consistent management of an animal disease emergency by appropriately trained personnel,
- Provide coherence of emergency disease plans,
- Provide compatibility of operation and procedures between animal health authorities and emergency management organisations,
- Provide guidelines for the development of standard operating procedures for response personnel.

A contingency plan for a specific disease should include a disease strategy, which is the authoritative reference to the control/eradication policies for that emergency animal disease in that particular country. It should provide information about:

- The nature of the disease,
- The principles of its control and,
- Control policies.

Each strategy should provide sufficient information to allow authorities to make informed decisions on what policies and procedures should be used to control an outbreak of that disease in that country.

Although they can be formulated in different formats, contingency plans should have detailed information on the following components:

2.1. Legal powers

The most important component of animal disease emergency preparedness is the availability of legal powers to carry out all necessary disease control actions. This legislation may include regulations on:

- Compulsory notification of animal diseases,
- Obligation of animal owners to cooperate in control of infectious animal diseases,
- Establishment of restrictions (quarantine, surveillance zone, control of movements),
- Destruction of infected or suspected products and materials,
- Vaccination,
- Compensation for damage caused by the disease,
- Animal identification,
- Sanitary measures.

2.2. Financial provisions

Emergency disease control is a costly operation and therefore financial planning is an essential part of any contingency plan. Without available funds, rapid response to emergency disease outbreaks may be delayed. The availability of special funds, which are accessible during emergencies, will help to save major expenditure. Financial plans thus need to be developed that provide for the immediate provision of contingency funds to respond to disease emergencies.

2.3. Chain of command

The success of any contingency plan for emergency disease control depends on the organised management of all operations. In order to achieve this, the chain of command from the Chief Veterinary Officer (CVO) to field staff should be clearly mentioned in the contingency plan.
2.4. National Disease Control Centre (NDCC)

The structures, responsibilities and powers of NDCC and Local Disease Control Centres (LDCCs) and the list of equipment that should be available within these centres should be listed clearly.

The NDCC is responsible for:
- maintaining disease preparedness and awareness,
- direction of local disease control centres,
- liaison with diagnostic laboratories,
- liaison with agricultural and trading bodies, and the media,
- arranging financial provisions for the contingency plans,
- arranging training programmes,
- arranging disease awareness campaigns,
- directing the national strategy in the event of an outbreak of disease,
- deployment of staff and other resources to local disease control centres and liaison with other employers for the release of staff,
- determination of protection and surveillance zones,
- provision of information to and liaison with the media and national agricultural and trading bodies,
- sanctioning the release of vaccine and the determination of vaccination zones,
- negotiating emergency financial provisions to cover the costs associated with an epidemic.

2.5. Control at local level (LDCC)

The responsibilities of the local centres include:
- maintaining disease awareness and preparedness within its territory,
- directing and implementing the local control strategy in the event of a disease outbreak.

2.6. Expert groups

In the event of an outbreak report, the group(s) will be alerted by the NDCC and mobilised in the field as soon as the disease is confirmed. The primary task of the expert group is to provide the national and local disease control centres with a report. The team will also advise on sanitation and carcass disposal.

The composition of the expert groups may vary, but it is advisable that each will consist of:
- a senior veterinarian,
- 1-2 veterinarians,
- 1 member of staff from the diagnostic laboratory,
- field staff with training in epidemiology and meteorology.

2.7. Required resources

Contingency plans prepared for animal disease emergency preparedness should include detailed information on personnel, equipment and other physical resources. A list of all personnel, who are likely to be involved in emergency disease control, should be maintained. The qualifications and expertise of these personnel should be recorded and regularly updated. Arrangements should be made for the temporary employment of veterinarians and other staff.

2.8. Standing instructions
2.9. Diagnostic laboratories

Information on the diagnostic laboratories, such as trained laboratory staff, laboratory equipment, diagnostic reagents and the capability of the laboratories is essential. It is worth mentioning that for the overall success of any contingency plan the time period between the introduction of the disease and its detection at the laboratory is crucial.

2.10. Emergency vaccination

Vaccination may be used as an option for the control of emergency animal diseases. If so, arrangements should be made for the emergency vaccine stocks, vaccination teams, equipment for vaccination and equipment to maintain cold chain. If there is no vaccine production in the country, special agreements should be made with vaccine producers to obtain the vaccine.

2.11. Training programmes

The personnel to be involved in an emergency situation should be trained in their roles, duties and responsibilities. The key personnel should be given more intensive training. Back-up staff should also be trained for each position.

2.12. Publicity/Disease awareness

The success of even the best contingency plan depends on the support and cooperation of farmers, public and the media. Therefore, these interest groups should be very well informed on the consequences of specific animal diseases.

3. CONTINGENCY PLANS IN THE MIDDLE EAST

Due to its geographical location, the Middle East is under risk of high priority animal diseases from Africa and Asia. At present, foot and mouth disease, rinderpest and peste des petits ruminants are accepted as the most important diseases for the livestock sector in the Middle East. Contagious bovine pleuropneumonia, Rift Valley fever, pox viruses, Newcastle disease are also seen as a threat for the region. Foot and mouth disease, peste des petits ruminants, pox viruses and Newcastle disease are still causing outbreaks in many countries of the region.

A simplified questionnaire was distributed by the OIE to the 19 Member Countries of the OIE Regional Commission for the Middle East. Twelve countries completed and returned the questionnaire. These countries are Bahrain, Cyprus, Egypt, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, Sudan, Syria, Turkey and United Arab Emirates.

All countries that replied to the questionnaire have schematically well-organised Veterinary Services to control animal diseases. This shows that if they are provided with required resources, better control of animal diseases will be achieved in the region.

The questionnaire showed that most of the countries in the Middle East do not have well documented contingency plans in place for most of the high priority emergency diseases. Although some countries have prepared contingency against some diseases, these plans have not been reviewed and updated on a regular basis. Contingency plans should not be regarded as fixed documents. These should be regularly reviewed and updated by the national animal disease emergency planning committee. In addition, the questionnaire showed that the available plans have hardly ever been tested with simulation exercises for refinement. Simulation exercises are very useful for testing and refining contingency plans before facing the real disease emergency. The preparation of contingency plans against high priority emergency diseases of animals with international standards should be achieved in the region. The contingency plans that have already been prepared should be tested with simulation exercises and the failing components should be reviewed.

All the countries that replied to the questionnaire have the necessary legislation for the control of animal diseases.

Similarly, there is a direct chain of command from the CVO to field staff in all countries.
Only half of the countries that responded to the questionnaire have special funds available to be used for emergencies. The control of emergency animal diseases requires a substantial amount of financial resources that are readily accessible. The countries of the region should give more importance to the allocation of such funds to be used for the control of emergency animal diseases.

The National disease emergency planning committee and the national disease control centre are two important bodies for the control of emergency diseases. Most of the countries reported the presence of such structures.

The diagnostic capabilities of the countries that responded to the questionnaire are quite variable. While some of the countries have no diagnostic capability to any of the OIE List A diseases, some countries have the capacity of diagnosing most of the OIE List A diseases. The countries of the region should be encouraged to build up their national diagnostic capacities for high risk animal diseases. On the other hand, the possibility of regional and global cooperation for the diagnosis of animal diseases should be sought. If feasible, the establishment of OIE regional Reference Laboratories for the highest risk diseases for the region may be considered.

The vaccine production capacity of the countries in the region is also variable. Some countries can produce vaccines against all major emergency diseases and, on the other hand, some countries have no vaccine production at all. In addition, some countries have no arrangements to obtain vaccines in case of emergencies. The vaccine production capacity of the region for specific diseases should be determined and the use of excess capacity in the region should be encouraged. The experiences and expertise of the individual countries for vaccine production may also be shared for the benefit of the whole region.

Active and passive surveillance systems are among the essential parts of any disease control programme. These are the most important components of early warning systems. Regular surveys should be planned and implemented to detect the introduction of a transboundary animal disease and/or to determine unusual outbreaks of endemic diseases. Therefore, contingency plans should include programmes for surveillance. The questionnaire showed that the countries in the Middle East have been conducting surveys at least against major diseases. It seems that more attention should be given to active surveillance and better organised surveys should be planned against all high risk diseases in most of the countries.

REFERENCES

5. Foot and Mouth Disease Contingency Plan (2001). DEFRA, UK.