Model framework and principles of emergency management

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Summary
If not handled quickly and effectively, animal health emergencies can create significant problems for governments and industry. Placing strong emphasis on preventing a disease incursion in the first instance through the judicious use of quarantine and inspection measures will continue to be the major preventive strategy. However, the discovery of new and emerging diseases, some of which may already be present in a country or region, necessitates a rigorous emergency outbreak response mechanism premised on thorough preparation for an emergency.

A generic approach to emergency management is the contemporary answer to preparing for, and dealing with, unpredictable events. In essence, generic emergency management plans encompass a set of core principles and key issues which are relevant to a particular industry or commodity. These principles and issues are then reflected in a model emergency management plan which guides participants through the various stages of preparing for, and responding to, an emergency situation and which forms the basis of more detailed farm/enterprise manuals and individual job cards.

The authors illustrate the integrated nature of the model emergency management plan and the interrelationship with the core principles and key issues of emergency management planning.

Keywords

Introduction
Outbreaks of an animal disease can have severe consequences for animal welfare, livestock production, exports of animal products and, in some cases, public health and the environment. For the more serious diseases, such as foot and mouth disease, an outbreak may have a significant impact on the national economy of a country in regard to control and eradication of the disease.

The need for rapid identification and response mechanisms is therefore of paramount importance when an outbreak occurs, to protect animal production, country status and public health. History shows that early detection and response to a suspected disease outbreak will maximise the effectiveness of the emergency response actions and minimise the social, economic and environmental costs associated with the repercussions from the outbreak.

The development and implementation of measures designed to minimise the risk of diseases entering a country or region have been two of the predominant animal health management strategies in most countries. However, even the strongest preventive management systems do not guarantee that outbreaks of animal diseases will not occur. For example, no system could have prevented the outbreak of previously unknown diseases such as equine morbillivirus which was discovered in Australia in 1994 and had significant animal health and public health implications.

As a result of these factors, many countries have developed contingency plans to ensure rapid and effective response to
animal disease outbreaks. Traditionally, these plans have been designed to deal with outbreaks on a disease-specific basis and have made provision for the involvement of a limited number of experts. However, in recent years, there has been a move towards the development of more general plans which can deal with outbreaks of disease, regardless of whether they are readily identifiable or not. This change in approach is a direct response to the need for plans to be capable of dealing with new and emerging diseases and the increasingly complex issues associated with managing these types of outbreaks, particularly in regard to zoonotic diseases.

The range of experts in managing an emergency has also expanded to ensure there is a multidisciplinary approach to decision-making. This is now a fundamental component of animal disease emergency management plans to facilitate proper handling of public health, environment and new species issues.

Core components of emergency management plans

Contingency plans for animal disease outbreaks have generally been based on the comprehensive approach to emergency management. This type of approach to emergency management encompasses a range of prevention, preparedness, response and recovery actions which can be applied in a generic sense to an unknown disease outbreak or, alternatively, in a narrower context, such as the response to a specific animal health emergency. The Australian Veterinary Emergency Plan (AUSVETPLAN), for example, is based on the comprehensive approach to emergency management (1).

The development and use of generic emergency management plans have been underpinned by the inclusion of a set of core principles and key issues in each plan (Fig. 1). These principles and issues are common across all types of plans ranging from broad-based sectoral plans, through to farm/enterprise manuals and down to individual job cards. The embodiment of these common principles and issues in each plan ensures there is a consistent approach at all levels of government and industry in dealing with a particular emergency. Further discussion on these principles and issues is presented below.

Core principles

The core principles establish the strategic framework for the generic plan and are based on contemporary emergency management philosophy (2). These core principles are as follows:

a) organisational principles which require that functional responsibilities for preparedness and response activities be formally established and recognised in plans

b) command and control principles which necessitate responsibility for overall control to be clearly specified in the plan prior to an emergency and not open to challenge

c) co-ordination of support principles which require that the authority and responsibility for assembling resources be clearly specified in the plan prior to an emergency

d) information management principles, wherein the effective management of information is essential, not only to assist the handling of an emergency but to protect trade, inform food industry participants and reduce consumer concerns

e) timely activation of actions arising from decisions taken by the designated decision-makers

f) effective emergency planning principles which require the plan to be written, simple, regularly tested and revised.

Key issues

The key issues are more specific to the sector for which the plan is developed and need to be relevant to the types of emergency likely to be dealt with by the plan. In the context of animal health, these issues are as follows:

a) the nature of potential diseases and the implications of these diseases for animal and human health (this issue is critical in determining the category of response needed to deal with an outbreak)

b) the risk of a disease being introduced (in considering this issue, a comprehensive risk assessment process is necessary to determine the nature and extent of preparedness activities; cost/benefit analyses are a useful tool in this process)

c) the legal basis underpinning the proposed emergency preparedness and response arrangements (important matters to be considered in this context include: access to farms and processing plants; the liability of decision-makers and their understanding of, and adherence to, due diligence principles; access to information; and legislation)

d) clearly established jurisdictional responsibilities (ambiguity of jurisdictional responsibilities or duplication can lead to costly delays in responding to emergencies)

e) clear definitions to ensure decision-makers are on firm ground in triggering an emergency (high-level agreement to definitions is essential)

f) stakeholder involvement in all stages of preparedness and response (the involvement of industry and other stakeholders in the emergency management process has assumed greater importance in recent years as the nature and extent of response actions has required a multi-disciplinary approach to management)

g) adequate resourcing arrangements including dedicated resources (particularly in government agencies) to manage the emergency and readily available funding for scoping and response actions

h) the communication channels for managing the public relations aspect of an emergency, with particular emphasis on
Fig. 1
Model emergency management plan

Underlying principles: organisation, command and control, co-ordination of support information management, timely activation and effective emergency planning

ensuring that industry and government leaders are well equipped to respond to media and international inquiries

i) regional implications of an animal disease outbreak, including operational arrangements for managing the outbreak and the potential impact on local businesses and communities

j) the impact of an animal disease outbreak on marketing (this is a particularly important issue to address in respect of export marketing). 

These issues need to be considered throughout the process of preparing for and responding to an animal disease outbreak. In many instances, they will be interrelated.

Model framework for emergency management

The second major element of the generic emergency management plan is the model framework for the plan. In any emergency plan, there are five critical stages of activity as follows:

- pre-event stage
- trigger and containment stage
- scoping stage
- response stage
- stand-down stage.

The pre-event stage

Pre-event activities focus on preparing for possible emergency situations and have a critical bearing on the likely success or otherwise of managing an emergency. In essence, the greater the investment in pre-event activities, the greater the chances of success in containing and resolving an emergency situation.

In the context of animal health emergencies, there are a number of key activities in the pre-event stage. The establishment of a response categorisation mechanism is fundamental to the emergency action framework and provides a logical starting-point. In essence, this mechanism provides the basis for decision-makers to determine how and when a potential disease outbreak should be addressed.

The roles of stakeholders need to be determined and formalised to ensure organisational arrangements for emergency management can be activated rapidly in the event of a suspected outbreak. Given the increasing complexity of some animal disease outbreaks, a multi-disciplinary team would ensure that all issues are addressed in a timely and effective manner.
At the operational level, organisations and individuals in all segments of the production and marketing chain need to be prepared for an emergency and be perfectly familiar with their obligations. Accordingly, operational management arrangements need to be formalised and widely distributed. Experience to date has shown that manuals are the most appropriate means of providing this information as they can articulate, in fine detail, the actions required in the event of a suspected incident.

A strong focus on the public relations aspects of an emergency is critical and can have a large influence on the overall management of a crisis. Accordingly, a pre-determined public relations plan is essential.

Funding arrangements for the emergency management system need to be determined and formalised. Agreed funding mechanisms and apportionment of contributions to the funding pool are an essential component of the emergency management system. These arrangements need to identify the types of activities which require funding and the source (or sources) of these funds. The designated authority for the release of these funds also needs to be identified. Failure to establish pre-agreed funding arrangements may result in delayed activation of scoping and response activities which, as a consequence, could jeopardise the overall success of the management strategy.

Adequate diagnostic facilities need to be identified and made available for emergency testing of animals or animal products. Rapid diagnosis is essential to avoid delays in responding to a particular incident.

Effectively targeted research and development (R&D) has the potential to lay a solid, scientific basis to preventive management and emergency management activities. Thus, stakeholders need to identify R&D priorities for emergency management and convey these priorities to R&D service providers.

Monitoring and surveillance is a critical component of the pre-event stage and can pre-empt a major emergency situation.

The management of emergencies relies heavily on the skills and experience of personnel involved in the response process. The development and implementation of training programmes in emergency management are an important component of pre-event activities and are essential for those people with little practical experience in dealing with animal disease outbreaks.

Finally, industry and community awareness of animal diseases and a broad understanding of the arrangements in place to deal with emergencies can be helpful in managing a specific incident. Quite clearly, the less people know about animal disease crisis management arrangements, the more concerned they will be when an incident arises. Accordingly, properly targeted awareness campaigns can enhance industry/public understanding and confidence in animal disease emergency management arrangements.

**Trigger and containment stage**

The trigger and containment stage ensures the initiation of action to investigate the nature of a suspected animal disease outbreak. In respect of animal health emergencies, key activities in this stage are the initial report of a suspected incident, preliminary assessment of the nature of the disease, and containment of the problem. This latter activity is critical and requires swift and effective action to prevent potential repercussions which may become both costly and permanent. This stage may need to be completed within a few hours, often with limited information.

It is at this point that a number of the pre-determined emergency management arrangements are initiated. These include:

1. Convening a meeting of the key industry and government personnel
2. Making a preliminary assessment of the category of the problem based on the most up-to-date information available at the time
3. Agreeing to a work programme for initial scoping and related activities
4. Approving the release of funds under the pre-agreed funding arrangement to cover the costs of the initial scoping and related activities.

**Scoping stage**

The scoping stage is linked intrinsically to the trigger and containment stage and may also need to be completed within a few hours. The principal objective of activities undertaken in the scoping stage is to determine the type and magnitude of the response. Key issues to be addressed when scoping a suspected animal disease outbreak include the implications for animal and public health and whether the suspected outbreak can be contained on a farm, within a district or within a region.

Activities in the scoping stage primarily concentrate on testing and diagnosis, animal/public health assessments and economic/trade analyses. In the final analysis, a judgement must be made on an appropriate response strategy based on the most reliable information available.

**Response stage**

Activities in the response stage depend on the outcome of the scoping exercise. In most cases, these activities need to be supported by appropriate legislation, funding, infrastructure, operational plans and administrative support. While the management committee has overall control of the process, the emergency room is the focal point of response stage activities.
and is responsible for facilitating co-ordination and co-operation between stakeholders.

At the operational level, government agencies in particular have critical roles to play in managing animal disease outbreaks. These agencies fulfil a number of important functions, such as managing the animal health and public health aspects of the disease outbreak, conducting tests and diagnostic procedures, monitoring the impacts on trade and addressing problems related to trade as they arise. This latter role is particularly critical when disruption to trade is imminent. Under these circumstances, high-level government involvement is usually required.

**Stand-down stage**
The stand-down phase follows successful resolution of the problem and should facilitate a review of the outbreak and initiate recovery actions. Issues to be reviewed would include:

a) effectiveness of the organisational arrangements, with particular emphasis on co-ordination efficiencies
b) effectiveness of communication arrangements and information flow
c) effectiveness of the response activities
d) future R&D needs
e) the need for further education and awareness programmes.

Should improvements to any response plans or manuals be considered necessary as a result of the review, these would obviously need to be made.

**Conclusion**
A generic approach to animal disease emergency management through the development and use of a model emergency management plan has a number of inherent advantages. Firstly, the approach has a significant degree of flexibility which means it can be used effectively in dealing with a large range of known and unknown diseases. This is critical in current times given some of the unusual incidents which have occurred.

Secondly, the approach ensures that governments and industry have a consistent approach to preparing for, and responding to, an emergency. This has significant benefits in terms of resource requirements.

Thirdly, it is 'user friendly' in that it involves all stakeholders on a partnership basis. This sense of ownership and involvement strengthens the capacity of the plan to fulfil its objectives, namely: containing, controlling and eliminating the problem.

Finally, the approach ensures that all participants are aware of their roles and responsibilities during an emergency.

**Cadre type et principes applicables à la gestion des urgences**

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**Résumé**
Lorsqu’elles ne sont pas suivies d’un traitement rapide et efficace, les urgences zoosanitaires peuvent créer de graves problèmes pour les gouvernements et pour l’ensemble de la filière de production animale. Certes, la meilleure stratégie préventive reste d’empêcher toute introduction de maladie, en recourant à des mesures de quarantaine et d’inspection appropriées. Toutefois, la découverte de maladies nouvelles et émergentes, dont certaines peuvent être déjà présentes dans un pays ou une région, impose la mise en place d’un mécanisme rigoureux de réponse aux urgences, qui repose sur une très sérieuse préparation.

Une approche générale de la gestion des urgences constitue la réponse permettant de se préparer dès aujourd’hui à des événements imprévisibles et d’y faire face. Par définition, les programmes généraux de gestion des urgences englobent un ensemble de principes de base et de questions importantes pouvant s’appliquer à un secteur ou à un produit en particulier. Ces principes et questions sont intégrés dans un plan type de gestion des urgences qui guide les intervenants à travers les divers stades de préparation et de réponse aux situations d’urgence, et qui constitue le fondement de manuels plus détaillés destinés aux élevages ou aux entreprises et de fiches précisant les responsabilités de chacun.
Les auteurs donnent des exemples sur le caractère intégré des plans types de gestion des urgences et sur leurs interactions avec les principes de base et questions essentielles de la planification appliquée à la gestion de ces situations.

Mots-clés
Australie — Épidémies — Gestion des urgences — Santé animale.

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Modelo genérico y principios de la gestión de emergencias

Resumen
Cuando no se afrontan con rapidez y eficacia, las emergencias zootécnicas pueden crear problemas considerables tanto a gobiernos como al sector agropecuario. La estrategia preventiva más fiable sigue consistiendo en dar la prioridad a fórmulas que prevengan la penetración de enfermedades a través de medidas coherentes de cuarentena y de inspección. Con todo, el descubrimiento de enfermedades nuevas y emergentes, algunas de ellas quizás presentes ya en una región o país determinados, exige un mecanismo riguroso de respuesta a las emergencias causadas por brotes de enfermedad, fundamentado en una preparación exhaustiva para tal eventualidad.

Un planteamiento genérico que se aplica hoy en día a la gestión de emergencias consiste en prepararse para hacer frente a acontecimientos imprevistos. En esencia, los planes genéricos de gestión de emergencias contemplan una serie de principios fundamentales y aspectos clave para un sector o un producto determinados. Dichos principios y aspectos clave se vierten después en un modelo de plan de gestión de emergencias que sirve para orientar a los participantes en las diversas fases de la preparación y la gestión de una situación de emergencia y que sienta las bases de manuales de granjas o empresas más detallados y pliegos de instrucciones para cada puesto de trabajo.

Los autores exponen e ilustran el carácter integrado del modelo de plan de gestión de emergencias y su interrelación con los principios fundamentales y los aspectos clave de la planificación de la gestión de emergencias.

Palabras clave
Australia — Brotes de enfermedad — Gestión de emergencias — Sanidad animal.

References
