T E R R E S T R I A L A N I M A L H E A L T H S T A N D A R D S C O M M I S S I O N

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C H A P T E R 4 . X .

GENERAL PRINCIPLES FOR ANIMAL DISEASE CONTROL

Article 4.X.1.

Introduction and objectives

This chapter is intended to help Member Countries identify priorities, objectives and the desired goal of *disease* control programmes in endemic, *outbreak* or emergency situations. *Disease* control programmes are often established with the aim of eventual eradication of agents at a country, *zone* or *compartment* level. While this approach is desirable, the needs of stakeholders may require a broader range of outcomes. For some *diseases*, eradication may not be economically or practically feasible and options for sustained mitigation of *disease* impacts may be needed. It is important to clearly describe the programme goals and these may range from simple mitigation of *disease* impacts to progressive control or eradication. The chapter highlights the importance of *disease* intervention options in the design of programmes, taking into consideration effectiveness, feasibility of implementation, and costs and benefits. The purpose is to provide a conceptual framework that can be adapted to a particular national and epidemiological context.

It is assumed that the country should have determined its *disease* control priorities and this chapter should help in the development and implementation of a specific programme that includes objectives, policies and strategies adapted to the full range of national needs. Specific outputs of this process will include the rationale for establishing a *disease* control programme, strategic goal and objectives, a control programme plan and implementation.

These general recommendations may be refined by the approaches described in the specific *disease* chapters. Where specific information on an *official control programme* is not available, suitable approaches should be based on the recommendations in this chapter.

Article 4.X.2.

Rationale for establishing a disease control programme

The country should clearly state the rationale for establishing a *disease* control programme. In addition to animal health, consideration should be given to public health, food safety, food security, biodiversity and socioeconomic aspects.

The justification for the *disease* control programme should include a summary of the current knowledge of the epidemiological situation in the country, providing for example detailed information on:

1) description of the *disease* situation;

2) description of *disease* impacts (animal and public health, food safety, food security and socioeconomic impact) and how these are distributed among stakeholders;

3) identification, level of interest and involvement of stakeholders.

Article 4.X.3.

Control programme goal and objectives

The goal of a control programme should be defined. Although eradication has traditionally been the goal for many *disease* control programmes, it may not always be achievable within a reasonable time frame or at an acceptable cost. The epidemiology of the *disease,* along with the availability of technical tools as well as social, environmental and economic considerations, should dictate if eradication is achievable or if control at a certain prevalence level is the desired outcome. For some *diseases*, or in certain situations, the emphasis of a programme may be limited to reducing health and economic impacts. In other cases a programme may not be feasible or cost-beneficial. Specific objectives and indicators leading to achievement of the programme goal should be established.

Some of the factors to define the goal of *disease* control programmes are listed (Table 1). An assessment of these factors should guide in the strategic planning and programme implementation.

Table 1 – Factors to consider in setting achievable goals for disease control programmes

Biological factors - Species affected - Genetic stability and diversity of the agent - Density of susceptible species - Wildlife reservoir - Vector transmission - Transmissibility - Current extent of disease - Survival in the environment - Carrier state - Ease of clinical recognition	**Availability of technical tools** - Diagnostic tests - Vaccines - Treatment - Disinfectants and insecticides - Disposal facilities
Control measures - Movement control - Stamping-out, slaughter or pre-emptive slaughter - Import or export restrictions - Zoning or compartmentalisation - Herd accreditation - Isolation and quarantine - Cleaning and disinfection - Vector and reservoir control - Treatment of products and by-products - Vaccination	**Socioeconomic considerations** - Cost and benefits of intervention - Availability of resources - Structure of livestock production systems - Public health implications - Logistics and ease of implementation, - Stakeholder engagement - Environmental impact - Political will - Incentives and compensation - Acceptance of the public (e.g. animal welfare implications, culling of animals, destruction of food) - Safe commodities for trade - Institutional arrangements

Article 4.X.4.

Programme planning

The *Veterinary Authority,* in collaboration with stakeholders, should develop a plan based on the goal of the programme. Intervention options should be based on biological effectiveness, ease and cost of implementation, as well as the expected benefits. Tools such as value chain analysis may be used to help understand the role of

different players within the production system, identify critical control points to target measures and provide an indication on the incentives for and feasibility of implementation of the programme.

The decision on the most appropriate intervention options should take into account cost-benefit considerations, in conjunction with the likelihood of success of a particular set of *disease* control measures.

Institutional analysis examines the organisations involved in delivering services and the processes that govern their interaction. This type of analysis would be helpful to inform the strategic planning process and identify areas where a change would enable better programme implementation and facilitate effective collaboration.

The programme should include a continued review process to assess the effectiveness of the interventions being applied, identify gaps in knowledge and adapt the goals, objectives and methods or actions as required.

The programme should take into consideration the distribution of costs and benefits among different stakeholders and understand the factors limiting stakeholder participation in programme activities. These factors can affect the optimal selection of interventions. Programme policies need to include incentives for engagement including additional services for the holder or producer, appropriate compensation schemes, adding value to the final product and protecting public health. In addition, it may be necessary to include measures to raise awareness and ensure compliance including movement restrictions and fines. *Disease* control programmes should take into consideration non-financial factors (social, cultural, religious, etc.) affecting the livelihoods and well-being of animal owners such as pastoralists, indigenous communities or small-scale backyard holders or producers. These factors can be important incentives for participation or non-compliance and ultimately impact the success of the programme.

Article 4.X.5.

Implementation plan

A *disease* control programme should be based on an efficient and effective *Veterinary Services* and holder or producer participation. Countries are encouraged to follow the provisions of Chapter 3.1., as well as to undergo a Performance of Veterinary Services (PVS) evaluation and address the gaps that may be identified. In addition, the programme should have political support, and sustainable sources of funding, including government and private stakeholder contributions.

The implementation plan should address the following:

1. Regulatory framework

   The *disease* control programme should be supported by effective legislation at the primary and secondary levels. Countries are encouraged to follow the OIE standards on Veterinary Legislation (Chapter 3.4.). The *disease* should be notifiable throughout the country. The regulatory framework for the *disease* control programme should be adapted to evolving programme needs.

2. Programme management

   Disease control measures to be applied in the programme may be implemented by the *Veterinary Authority*, or private or community entities or a combination of all. In any event, the overall responsibility for oversight of the programme remains with the *Veterinary Authority*.

   The management of the application of *disease* control measures should follow standard operating procedures including:

   a) implementation, maintenance, monitoring of the measures;

   b) application of corrective actions;

   c) verification of the process;

d) record keeping including information systems and data management.

3. Epidemiological situation

The implementation of the programme needs to take into consideration:

a) distribution and density of susceptible species including *wildlife*, if applicable;

b) knowledge of animal production and marketing systems;

c) spatial and temporal distribution of *disease;*

d) zoonotic potential;

e) risk factors and critical control points;

f) *vectors*;

g) carriers;

h) reservoirs;

i) impact of *disease* control measures;

j) specific *disease* situation in neighbouring country(ies), if applicable;

k) evaluation of appropriateness of establishing *disease zones* or *compartments.*

4. Disease surveillance

The underpinning of the *disease* control programme activities is an effective *surveillance* system that provides guidance on priorities and targets for the application of interventions. The *surveillance* system should consist of general *surveillance* activities reinforced by pathogen specific activities. A clear *case* definition and *outbreak* investigation and response procedures are required. The provisions of Chapters 1.1., 1.4. and 1.5. should be referred to and specific *surveillance* guidelines where applicable for particular *diseases*.

5. Diagnostic capability

The programme should be supported by diagnostic facilities with adequate capability and capacity. Samples for diagnosis should be collected and shipped in accordance with Chapter 1.1.1. of the *Terrestrial Manual.* The choice of diagnostic tests should ensure detection and confirmation of the *disease*. The tests should follow the specific requirements in Chapter 1.1.5. and the *disease* specific recommendations in the *Terrestrial Manual.* Diagnostic facilities, either official or accredited, should be under a quality assurance scheme coordinated by the designated national reference laboratory. The latter should establish communication with an OIE Reference Laboratory for the particular *disease*. National and sub-national laboratories need to ensure that diagnostic results are communicated to the *Veterinary Authority* as appropriate to the situation. National laboratories are also needed to provide independent and impartial quality control of vaccines. When appropriate, national laboratories are encouraged to submit samples to OIE Reference Laboratories for confirmation of findings and more detailed analysis.

6. Vaccination and other control measures

Vaccination is one of the essential tools in the control of many *diseases*, if an effective vaccine is available. However, *vaccination* on its own will not usually achieve the desired results unless the *vaccination* programme is part of an integrated control strategy utilising a combination of control measures as outlined in Table 1. If *vaccination* is applied the following points should be considered:

a) Role of vaccination

Depending on the epidemiological situation, the pattern of animal movements, population density and production systems within the country, the occurrence of *wildlife* reservoirs, targeted *vaccination* may be more effective than systematic mass *vaccination*. *Vaccination* campaigns should be serologically monitored for their effectiveness to ensure that immunity objectives are being met. When a validated strategy to differentiate infected and vaccinated animals (DIVA) is available, its use should be considered.

b) Vaccine quality

A vaccine quality assurance programme ensures the purity, safety, potency of vaccines as well as measures their efficacy in relation to the circulating strains. Vaccines used within control programmes should be licensed under the authority of the official *Veterinary Services* in accordance to the provisions of the *Terrestrial Manual* and preferably tested by an independent authority for safety and potency.

c) Vaccine delivery

Effective delivery of vaccine, including preservation of the cold chain requirements and proper administration, is essential for reaching an adequate level of population immunity. This could require the implementation of governmental or private schemes that include quality assurance controls of vaccine distribution.

d) Vaccine and antigen banks

Vaccine and antigen banks may be useful to ensure that sufficient stocks are available. These may be held at national or regional level and should comply with the provisions of Chapter 1.1.10. of the *Terrestrial Manual.*

e) Other measures

Regardless of whether *vaccination* is used or not, a disease control programme should utilise a mix of control measures and tools. Several measures frequently applicable in a disease control programme are listed in Table 1.

7. Traceability

An effective traceability system facilitates the identification of affected individual *animals*, *herds* or *flocks*. The design of the traceability system should follow the provisions of Chapter 4.1. and Chapter 4.2.

8. Regional integration

Many diseases are considered transboundary animal diseases and require a regional control approach. Regional and inter-sectorial agreements, including the *Veterinary Authority* in each country and representatives from international and other relevant regional organisations, should be established to ensure proper coordination. Where possible, Member Countries should cooperate on a regional basis to harmonise disease control programmes.

9. Social participation

Communication, awareness programmes and programme ownership need to be in place. Stakeholders should be involved in the development, planning, implementation, management and revision of the programme. This should be an on-going process.

10. Role of research in support of disease control programmes

During the strategic planning and assessment of programmes certain areas needing further research may be identified. Communication with national and international research institutions should be established to address programme needs.

11. Training and capacity building

Institutional capacity building is important in the development of systems and infrastructure. The personnel in charge of implementing the measures within the programme need to be adequately trained and updated on the current knowledge of the *disease*. Veterinary accreditation schemes of private *veterinarians* and *veterinary para-professionals* can be a useful tool to increase the veterinary presence in the field; however, training and supervision coordinated by the *Veterinary Authority* is required.

Article 4.X.6.

Outbreak investigation

An *outbreak* investigation is a systematic procedure to help identify the cause and source of *cases* with a view to control and prevent possible future occurrence. *Outbreak* investigation is an important responsibility of the *Veterinary Services* to ensure that preventive and control measures are applied. Investigations also help recognise intervention strategy failures and successes, identify changes in the agent, environment or events that may be beyond the scope of a disease control programme. It is important to maintain records of *outbreak* investigations including those which were not confirmed as this will help demonstrate the effectiveness of the *surveillance* system.

The main steps of outbreak investigation include:

1) preparation for field work;

2) establishment of the validity of the report triggering the investigation;

3) confirmation of diagnosis;

4) intensive follow-up and tracing;

5) collection and analysis of data including the characterisation of the event describing the *animals* involved and the spatial and temporal distribution;

6) implementation of control and preventive measures;

7) documentation and reporting.

A field investigation often entails doing several of these steps simultaneously. Two pathways are possible after the clinical investigation. If in the context of the disease control programme, clinical and epidemiological information may be sufficient to take action and no further laboratory investigation may be required. On the other hand, if the information is inconclusive, further laboratory and epidemiological investigation are needed. Control measures are usually implemented from the beginning of the investigation and modified as appropriate during the process. Laboratory characterisation of the agent may be important to the long term management of the programme.

Article 4.X.7.

Emergency preparedness and contingency planning

1) Member Countries should develop emergency preparedness and contingency plans for immediate action for *listed* and *emerging diseases*. Emergency response plans should be up to date, tested in a simulation exercise and embedded in the legal framework. Emergency funds should be available to cover operational costs and indemnities. The chain of command and coordination with all key participants and relevant support services, when necessary, should be well established to ensure control efforts are executed rapidly and with success.

2) A contingency plan is a set of activities, including immediate actions and longer term measures, for responding to *disease outbreaks*. The process in developing a contingency plan is important to ensure successful implementation when an emergency occurs. It involves organising a team representing relevant authorities and stakeholders, identifying critical resources and functions, and establishing a plan for recovery. The plan should be simple and implementable. It should be documented, tested and updated regularly.

   The plan should be put together by the *veterinary authority*, involving representatives from local government, different relevant agencies and private sector representatives. Key components in a contingency plan include:

   a) established chain of command;

   b) systems for rapid detection and confirmation;

   c) *outbreak* investigation procedures;

   d) rapid containment measures (e.g. movement control, *disinfection*, *vaccination*, culling);

   e) communication strategy.

3) Notification of disease confirmation should be sent immediately to appropriate ministries, trading partners, stakeholders and should generally be made available to the general public. In addition, notification to the OIE should follow the provisions of Chapter 1.1.

4) Following the official confirmation of an *outbreak*, control areas may be established around the affected premises. The extent of these areas depends on a number of factors, in particular, the epidemiology of the *disease* in question. The measures imposed will often include movement restrictions, intensified *surveillance* as well as specific measures applied to affected premises. In addition, for ease of management and for trade purposes, a larger area surrounding the control areas may be designated corresponding to administrative boundaries, geographical or other appropriate features.

5) Disease control measures usually have a significant economic impact; therefore, appropriate compensation mechanisms are needed to ensure cooperation by farmers. Lack of compensation could result in non-compliance. Partnerships between government and the private sector have proven effective to develop sustainable contingency funds in several parts of the world.

6) It is important that this plan be coordinated on a regional level, particularly for transboundary animal diseases.

Where possible, Member Countries should act on a regional basis to ensure that funds and resources are available in an emergency and to protect the region from disease incursion and spread.

Detailed guidance and examples of contingency plans are available on the OIE web site: (http://www.oie.int/en/animal-health-in-the-world/the-world-animal-health-information-system/national- disease-contingency-plans).

Article 4.X.8.

Monitoring, evaluation and review

The programme should include a continued review process to assess the effectiveness of the interventions applied, identify gaps in knowledge and adapt the goals, objectives and methods or actions as required. This process should begin with the establishment of baseline data on the epidemiological, economic and social impact of the *disease*. The programme should collect data on process and impact indicators. This enables measurement of the effectiveness of interventions on epidemiological indicators such as incidence and prevalence, and identify areas needing strengthening.