OIE standards and guidelines related to trade and poultry diseases

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SUMMARY
Recognizing the difficulty faced by some countries in fully eradicating animal diseases from their territories as a whole, or to maintain animal disease-free status in parts of their national territories, the World Organisation for Animal Health (OIE) has introduced the concepts of zoning and compartmentalization for purposes of disease control and international trade, in the Terrestrial Animal Health Code. Compartmentalization is based mainly on functional separation by biosecurity measures, whereas zoning is based mainly on geographical separation. Relevant animal subpopulations should be clearly defined, recognizable and traceable, and should be epidemiologically separated from other subpopulations. Veterinary authorities as well as the private sector have important responsibilities in the establishment and maintenance of compartments.

Key words: OIE, standards, guidelines, compartmentalization, zoning

1 INTRODUCTION
The World Organisation for Animal Health (OIE) is an independent intergovernmental organization founded in 1924, and having 172 member countries in January 2008. OIE’s mandate is to improve animal health worldwide. The organization achieves this mandate through its six primary objectives, which include ensuring transparency in the global animal disease situation, permanent update of disease prevention and control methods, provision of international solidarity in the control of animal diseases, publication of international animal health standards, and improvement of the legal framework and resources of veterinary services. For several years, the OIE has also had a strong focus on improving animal production food safety and animal welfare. OIE’s headquarters are in Paris (France), and there are nine regional offices in the five regions. The OIE now has two regional animal health centres operating in collaboration with FAO, based in Bamako and Beirut, and is planning to establish other centres that will serve as regional centres of expertise.

In order to fulfil the mandate to ensure transparency in the global animal disease situation, the OIE manages the World Animal Health Information System (WAHIS), based on
the commitment of member countries to notify the main animal diseases, including zoonoses, to the OIE. In 2004, OIE member countries approved the creation of a single list of diseases notifiable to the OIE to replace the former lists A and B. The content of the list is based on a decision tree which is part of the Terrestrial Animal Health Code. Currently, about one-hundred diseases are listed; thirteen of these are poultry diseases, among which are highly pathogenic avian influenza (HPAI), Newcastle disease, Marek’s disease, infectious bursal disease and avian infectious laryngotracheitis.\(^3\)

First outbreaks of all listed diseases should be officially notified to the OIE central bureau within 24 hours, and regular update reports should be provided on the outbreak situation. The information is immediately disseminated to the delegates of all member countries, who can use it to analyse the risk of introduction of diseases into their own countries. Member countries must also provide six-monthly reports on their animal disease situation. The World Animal Health Information Database (WAHID) interface provides access to all data held within WAHIS\(^4\). The OIE animal health information department actively approaches delegates to verify unofficial information on outbreaks of animal diseases in member countries. In the Global Early Warning and Response System (GLEWS), a cooperative mechanism between OIE, FAO and WHO, the official and unofficial outbreak information of the three organizations is shared to allow better intervention, better analysis of data and more targeted capacity-building in relevant member countries.

As the international standard-setting body for animal health, the OIE has defined standards on notification, trade aspects and surveillance of the listed diseases, including the poultry diseases. The aim of the Terrestrial Animal Health Code\(^5\) is to ensure the sanitary safety of international trade in terrestrial animals and their products, by detailing the health measures to be used by the veterinary services of importing and exporting countries. The measures are also meant to avoid the transfer of pathogenic or zoonotic agents without imposing unjustified trade restrictions.

The OIE is in a continuous process of updating its disease standards, while taking into account the latest scientific information on the diseases. For example, the chapter on avian influenza in the Terrestrial Animal Health Code was updated in 2004. The new chapter has several significant changes compared to the previous one, such as differentiating between low and highly pathogenic avian influenza and defining HPAI as an infection of poultry. The chapter gives trade recommendations for poultry and poultry products like fresh meat, meat products, eggs, feathers and down. The Terrestrial Animal Health Code also provides general guidelines for surveillance and specific guidelines by disease.

The specific disease standards are further defined in related chapters, appendices and definitions, which include: standards for surveillance that have to be met if countries are to declare freedom from disease; standards for conducting risk assessments; humane methods for killing animals if stamping-out of infected populations is necessary; methods for disposal of dead animals; biosecurity standards for poultry establishments; standards for

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\(^3\) http://www.oie.int/eng/maladies/en_classification2007.htm?e1d7

\(^4\) http://www.oie.int/wahid-prod/public.php?page=home

the inactivation of viruses; and definitions of “infected” and “uninfected” as applied to a
country, zone or compartment. The OIE also publishes guidelines on the use of vaccination,
when relevant (e.g. for avian influenza prevention and control).

The Code is accompanied by the *OIE Manual of Diagnostic Tests and Vaccines for Terres-
trial Animals* (referred to hereafter as the Manual)*, which outlines a harmonized approach
to disease diagnosis by describing internationally agreed laboratory diagnostic techniques.
The instructions in the Manual should be followed in order to allow comparison between
results from different laboratories in different countries; for this purpose, quality systems
should be implemented in laboratories. The Manual also gives general guidelines on prin-
ciples for the quality of veterinary vaccine production and guidelines for the development,
production and use of disease-specific vaccines.

2 AVIAN INFLUENZA AND NEWCASTLE DISEASE

The spread of the current HPAI strain H5N1 has given rise to an unprecedented situation
over the past few years.⁷ The disease has important economic and social consequences in
affected countries, and humans may be infected due to its zoonotic nature. An important
risk is the possible development of a human pandemic virus by mutation or recombination
with a human influenza virus.

The OIE strategy focuses on eradication at the animal source through the following key
actions: early detection; early warning; rapid confirmation of suspects; rapid response; and
rapid and transparent notification. The main goal is to reduce the virus load and circula-
tion in poultry and spread to unaffected areas or countries, and therewith also decrease
the risk of human infections or the development of a human pandemic virus (FAO and
OIE in collaboration with WHO, 2007). High-quality veterinary services complying with
OIE standards, legislation and a clear national chain of command are the basis of animal
disease control and eradication.⁸,⁹ Important constraints to the effective control of animal
diseases exist in developing and transition countries, as many of these countries have weak
or non-existent veterinary services. Newcastle disease is a disease of poultry that is endemic
in many parts of the world, and is an important differential diagnosis for HPAI, as the dis-
eases can not be differentiated clinically. Most areas affected by HPAI are also affected by
endemic Newcastle disease infections with high mortality in poultry. Many countries have
expressed an interest in introducing the concepts of zoning and compartmentalization for
these two diseases.

3 ZONING AND COMPARTMENTALIZATION

Recognizing the difficulty that some countries have in eradicating animal diseases from
their territory as a whole and in maintaining an animal disease-free status, the OIE has
introduced the concepts of zoning (Figure 1 below) and compartmentalization (Figure 2
below) for purposes of disease control and international trade, in the *Terrestrial Animal*

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⁷ The OIE Avian Influenza Website: http://www.oie.int/eng/info_ev/en_AI_avianinfluenza.htm
⁸ Capacity-building of veterinary services: http://www.oie.int/eng/OIE/organisation/en_vet_serv.htm?e1d2
⁹ The new tool for evaluation of veterinary services (PVS Tool) using OIE international standards of quality and
Health Code. Utilizing these concepts, countries may eradicate a disease from only a part of their territory while the country as a whole is not yet free of the disease. Countries can do this by defining an animal subpopulation with a distinct health status ("free from a certain disease") within its boundaries. They may then resume trade from this part of the territory. Compartmentalization is defined as "one of more establishments under a common biosecurity management system containing animals with a distinct health status", and is therefore based on a functional separation. Zoning applies to animals with a distinct health status on the basis of geographical separation. Zoning has been used regularly by countries in their disease eradication programmes, whereas compartmentalization is a relatively new concept. Both concepts allow concentration of personnel and financial resources where there is greatest chance of success in controlling or eradicating the disease and in gaining or maintaining market access for certain commodities.

The international standards on zoning and compartmentalization can be found in Terrestrial Animal Health Code Chapter 1.3.5 on “Zoning and Compartmentalization”. The “General Guidelines on the Application of Compartmentalization” are currently under development and should be added as an appendix to the Terrestrial Animal Health Code in 2008 after endorsement by the OIE international committee.\textsuperscript{10}

For countries that wish to quickly implement compartmentalization for avian influenza and Newcastle disease as part of their disease control programmes, the OIE has developed a checklist on the practical application of the concept. This checklist is not yet part of the Terrestrial Animal Health Code, but can be found on the OIE website.\textsuperscript{11} To implement zoning or compartmentalization, other factors like strong veterinary services, a good identification and traceability system, and good surveillance programmes are crucial. Relevant information on these issues can also be found in the Terrestrial Animal Health Code: Chapters

\textsuperscript{10} See Footnote 5.
\textsuperscript{11} http://www.oie.int/eng/info_ev/Other%20Files/En_final_Compartimentalisation_AI_ND_10_05_2007.pdf
1.3.3 and 1.3.4: Evaluation of Veterinary Services; Appendix 3.5.1: General Principles for the Identification and Traceability of Live Animals; Appendix 3.8.1: General Guidelines on Animal Health Surveillance; and Appendices on disease specific surveillance.

The OIE feels that the time is right to emphasize the possibility of introducing the concepts of zoning and compartmentalization in disease eradication programmes. However, it should also be recognized that the concepts are not automatically applicable to all situations. The basis for applying the concepts is the possibility of clear epidemiological differentiation between the animals that belong to the zone or compartment and those that do not. The effective implementation of the concepts will be influenced by several technical issues, such as the epidemiology of the disease(s) in question, the structure and distribution of the animal population, country and infrastructure factors, the biosecurity measures which may be applicable, the health status of animals in adjacent areas, and the necessary surveillance inside and outside the compartments or zones, which is linked to the efficiency of the veterinary services. For a disease that is transmitted only through direct contact between infected and non-infected animals, the biosecurity measures are different from those needed for diseases that can also be transmitted by air over long distances or that are transmitted only by feed. In the case of the poultry sector, it will in general be easier to implement biosecurity measures in areas where there is a high percentage of highly industrialized commercial poultry compared to areas with a high percentage of smallholders or backyard poultry.

4 PRINCIPLES IN DEFINING A ZONE OR COMPARTMENT

The first basic principle in defining a zone or compartment is clear definition of the animal subpopulation belonging to the zone or compartment. For a zone, this means that the extent of the zone, including its geographical limits including buffer zone, should be clear. For a compartment, it is necessary to define which establishments and related functional
units (feed production units, slaughterhouses, etc.) are included. The functional relationships between the units belonging to the compartment, showing their contribution to the compartment, should be described. The animals belonging to the subpopulation in a zone or compartment should always be recognizable and traceable.

The second important principle is to ensure the epidemiological separation of the subpopulation in the zone or compartment from other populations and potential sources of infection. Physical and spatial factors, such as the location of the nearest flocks outside the zone or compartment, the structure of those populations and their health status, and the presence of wild-bird populations, may affect the status of the zone or compartment. Environmental factors, such as existence of nearby wetlands, or seasonal factors may also be important for epidemiological separation. A good biosecurity plan should always be provided for a zone or compartment.

In the case of zoning, the veterinary authority will be primarily responsible for providing the biosecurity plan, whereas in case of compartmentalization, the management of the compartment has the primary responsibility for providing such a plan. The biosecurity plan must describe all factors relevant to the integrity of the zone or compartment, and must show that the zone or compartment is epidemiologically closed. It must provide clear evidence that critical control points for introduction of the pathogen are well managed. Well-described standard operating procedures to implement, maintain and monitor the measures used to manage the critical points should be provided.

Important elements of a biosecurity plan include quality-assurance schemes, procedures for animal and human movement controls, poultry health measures including vaccinations, medications and other veterinary care, control over vehicles, security of feed and water sources, and control of pests and wild-bird populations.

To ensure that the subpopulation in the compartment complies with the defined health status, a surveillance programme should be implemented. Many different combinations of testing and surveillance may be applied to gain the necessary confidence with regard to freedom from the disease in question. However, they should be in compliance with the OIE general and disease-specific surveillance guidelines. Information on the baseline health status of the subpopulation before the zone or compartment was established, and on the surveillance system implemented, should be available, as well as standard operating procedures to be followed in case of suspicion or confirmation of the presence of the disease. A prerequisite for a surveillance programme is the availability of high-quality diagnostic services.

5 RESPONSIBILITIES OF THE VETERINARY AUTHORITY AND THE SECTOR

Veterinary authorities as well as the sector/industry have responsibilities for the establishment of zones and compartments. The veterinary authority is responsible for the essential national infrastructure needed to maintain a zone or compartment (appropriate legislation, national reference laboratories, identification and registration systems, etc) and for the quality of the veterinary services.

Compartmentalization should ideally be the initiative of the private sector; it is par-
ticularly applicable in intensive industries that are vertically integrated. The compartments’ responsibilities will lie primarily in the application and monitoring of biosecurity measures, including the use of corrective actions and the implementation of quality-assurance schemes. The management of the compartment should also provide information on the baseline health status of the subpopulation and the surveillance implemented to ensure early detection of disease introduction. The compartment should have standard operating procedures for all actions related to the maintenance of the compartment, and these actions should all be documented. The records should be readily accessible for supervision by the veterinary services. The management of the compartment also has the responsibility to clarify the relationships between the different units comprising the compartment.

The veterinary services are responsible for the supervision, auditing and certification of the compartments. Veterinary services should implement the surveillance programmes in cooperation with the private sector. The veterinary services may also provide model biosecurity plans and generic compartmentalization criteria to facilitate the establishment of the compartments. The costs of maintaining the integrity of compartments should be borne by the private sector.

The initiative for zoning will normally be taken by the government, and the veterinary services will be responsible for the implementation of the zone. Nevertheless, establishments in the zone will be responsible for the implementation of all measures required by the veterinary services, including the biosecurity measures.

Zones and compartments can be established for national disease-control purposes or for international trade purposes. The steps to be taken by veterinary services to resume or maintain trade between exporting and importing countries depend on the circumstances within the countries and on their previous trading history. The importing country must have confidence in the integrity of the zone or compartment as defined by the exporting country. The dossier provided to the importing country must, therefore, contain all information needed for the evaluation and for the country to determine whether it can accept imports from the designated zone or compartment. In the case of compartmentalization, a big part of the dossier will have to be provided by the management of the compartment itself. The importing country must be authorized to conduct an audit in situ at any moment.

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