



**Animal disease agents including those transmissible to humans (zoonoses) have the potential to be used as biological weapons because they have wide economic and social ranging impacts and are readily available. Thanks to efficient national Veterinary Services, countries applying good veterinary governance are in a better position to early detect and respond to animal disease outbreaks resulting from natural, accidental or deliberate release of pathogens.**

#### **PATHOGENS OF ANIMAL ORIGIN AS WEAPONS**

The economic cost of large scale animal disease outbreaks including direct losses to production, of controlling the disease, of market access, local economies, can be immense. Disease agents like foot and mouth disease virus are readily available in endemic countries and can offer potential to be released deliberately to cause economic losses and disruption.

Many zoonotic animal diseases also pose a threat to public health. About 60% of human infectious diseases are zoonotic and 75% of emerging human infectious diseases have an animal disease origin. Animal pathogens can be easily acquired in nature and from laboratories and are easily concealed.

The release or threat of release of animal pathogens may result in significant economic and health impacts or social disruption, and this may make animal pathogens attractive to terrorists.

#### **The rinderpest post-eradication phase**

Now that rinderpest has been eradicated worldwide a critical stage known as the post-eradication phase has begun and countries must remain vigilant in case the disease resurfaces. Although eradicated from animal populations, rinderpest virus material is still held in a number of laboratories where it is stored or used for vaccine development to protect against re-emergence and for essential research. OIE and its Member Countries, together with FAO, are committed to encouraging their Member Countries to ensure that remaining stocks of rinderpest virus and vaccines are destroyed or stored safely and securely so that the risks of accidental or deliberate release are mitigated.

#### **EARLY DETECTION AND RAPID RESPONSE TO ANIMAL DISEASE OUTBREAKS**

Whether animal disease outbreaks result from natural events, accidental or deliberate release, the mechanisms for disease detection, notification and control are very similar. These mechanisms should be in place in all countries to deal with the day to day risks posed by disease outbreaks.

When there is suspicion that a malicious act is behind an animal disease outbreak it is important to know about it at a very early stage so that the appropriate response mechanisms are quickly engaged. The role of farmers and veterinarians before laboratory diagnostic confirmation is essential and they should receive appropriate continuous training.

In addition to early detection of the disease outbreak, it is always important to carry out a thorough investigation to identify the source of the outbreak. The use of bio molecular technologies can be a valuable source of information.

Effective veterinary services complying with OIE standards for quality (<http://www.oie.int/en/support-to-oie-members/pvs-evaluations/oie-pvs-tool/>) are the best protection against natural or deliberate attempts to introduce animal pathogens within animal and human populations because they enable early disease detection and a rapid response to any disease outbreak when they comply with these standards.

#### **Biosafety...**

**Some pathogens handled in veterinary laboratories are dangerous to human health as well as animal health. Effective risk-based biosafety measures are essential for protecting the safety of personnel exposed to hazardous material. *The OIE Manual of Diagnostic Tests and Vaccine Production* Chapter 1.1.2 (2010) provides guidelines for biosafety in veterinary laboratories and animal facilities..**

#### **...and biocontainment (and biosecurity) in the lab**

Effective biocontainment and biosecurity prevents the release of pathogens from the laboratory. This is essential for protecting animal and human populations and the environment from dangerous pathogens. Effective biosecurity should prevent pathogens which have the potential to be used as bioweapons from falling into the wrong hands. Four biocontainment levels, with increasingly stringent requirements, are defined by the OIE based on the risk to animal and public health.



## THE ROLE OF THE OIE

The OIE works to make sure national Veterinary Services throughout the world are effective in preventing and controlling animal diseases. OIE has global programmes that aim to continually improve world animal disease security.

1. The OIE World Animal Health Information System (WAHIS) is a global mechanism that ensures transparency of the animal disease situation for each country of the world so that the international community can be alerted and respond to outbreaks of OIE-listed, new and emerging animal diseases, and significant sanitary events. OIE Members have a legal obligation to immediately report events in domestic and wild animals through WAHIS. All information processed through WAHIS is made available online on the World Animal Health Information Database (WAHID, <http://www.oie.int/wahis/public.php?page=home>).

The efficiency of the WAHIS system is also based on the capacity of countries to maintain efficient networks for early disease detection in their entire territory and to comply with OIE standards.

2. The OIE has access to world leading expertise in over 265 OIE Reference Laboratories and Collaborating Centres. The OIE is building laboratory capacity in all regions of the world through the OIE Laboratory Twinning Programme which links existing OIE Reference Laboratories and Collaborating Centres with selected national laboratories wishing to improve their capacity and expertise. Over 30 OIE Laboratory Twinning Projects have been launched so far.

3. The OIE provides a mechanism for official recognition of country disease freedom status from 3 major animal diseases: foot and mouth disease, contagious bovine pleuropneumonia, and bovine spongiform encephalopathy.

4. The OIE assesses the performance of national VS through the OIE PVS (Performance of Veterinary Services) evaluation process. The aim is to evaluate countries' abilities to comply with OIE standards on quality, based on an assessment of specific critical competencies including human, physical and financial resources; technical authority and capability; interaction with stakeholders and access to markets.

5. The OIE continuously cooperates with international partners including BTWC and the UN Office for Disarmament Affairs, World Health Organisation, Food and Agriculture Organisation, and IATA on matters relating to biological threat reduction, and biosafety.
6. *The OIE Terrestrial and Aquatic Animal Health Codes* provide international guidelines, recommendations and standards on the prevention and control of agents that are pathogenic for animals, humans, or both - i.e. zoonoses.

**Effective prevention and control of disease agents** relies on sanitary measures which should include: surveillance, early detection and notification followed by rapid response – sometimes based on elimination of infected animals, proper disposal of carcasses and prompt disinfection of the premises – vaccination can also be a useful recourse.

**The Biological and Toxin Weapons Convention (BTWC)**  
**The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, commonly known as the Biological Weapons Convention (BWC), or Biological and Toxin Weapons Convention (BTWC), entered into force in 1975. It now counts over 160 State Parties. The Convention prohibits the development, production and stockpiling of biological and toxin weapons, and ensures their destruction. Through the national implementation of its provisions, the BTWC helps to ensure that modern biology is safe, secure and used solely for our collective benefit. No organisation has yet been given the responsibility to verify the compliance and obligations of signatory States to the BTWC. Through its overarching missions for the safeguard of animal health the OIE manages a number of mechanisms able to help countries meet their obligations as required by the Biological and Toxins Weapons Convention requirements (BTWC).**

*The OIE Terrestrial Animal Health Code 2011*  
<http://www.oie.int/en/international-standard-setting/terrestrial-code/access-online/>

*Manual of Diagnostic Tests and Vaccines for Terrestrial Animals 2011*  
<http://www.oie.int/en/international-standard-setting/terrestrial-manual/access-online/>

## References

- International organisations and their role in helping to protect the worldwide community against natural and intentional biological disasters (Rev. sci. tech. Off. int. Epiz., 2006, 25 (1), 163-172).
- OIE Quality Standard and Guidelines for Veterinary Laboratories: Infectious Diseases – OIE, Paris.
- Emerging and Exotic Diseases of Animals, Iowa State University, Institute for International Cooperation on Animal Biologicals (OIE Collaborating Centre)
- The Biological and Toxin Weapons Convention (BTWC): <http://www.unog.ch/bwc>
- UNSCR 1540: <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N04/328/43/PDF/N0432843.pdf?OpenElement>