Legal considerations in managing biological threats: Introduction to a biothreat simulation exercise

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World Organisation for Animal Health
Founded as OIE

Organisation mondiale de la santé animale
Fondée en tant qu'OIE

Organización Mundial de Sanidad Animal
Fundada como OIE

Background on the simulation exercise

Overall Objective

The simulation exercise is intended to test the capacity and resilience of your country's existing national legal frameworks to prevent, detect and respond to a disease event involving the intentional introduction of a zoonotic disease agent by non-state actors, i.e. 'agroterrorism'.

How might an agroterrorism event challenge existing laws, procedures, practices, etc.?

- Existing legislation may not reference or account for 'intentional introductions'
- Veterinary, public health and law enforcement sectors may be unfamiliar with agroterrorism and lack standard procedures, coordination mechanisms, and lines of communication
- Agroterrorism requires a joint 'criminal-epidemiological investigation'
- Public perception of a novel threat – rumors, speculation, false information
- Possible hoaxes and copycat events
- Intense media coverage, etc.

Scenario-based approach

- The simulation is based on a fictitious scenario that describes an evolving crisis – from the first identification of sick animals to the conclusion of the outbreak.
- This scenario was developed with the support of experts in biothreat legislation, animal health, human health and law enforcement.
- The scenario exercise has been designed to elicit constructive discussion and decision-making as participants identify and address problems as the events of the scenario evolve over time.

Details on Foot-and-Mouth Disease (FMD)

- FMD is a highly communicable viral disease affecting livestock
- It is a WOAH-listed animal disease – having serious trade implications – that must be reported to WOAH
- There are 7 FMD serotypes – 5 of which occur in Africa: SAT1,2 and 3, A and O
- The virus is spread by direct contact and as an aerosol (up to approx. 10km)
- Incubation period between 2-14 days
- Clinical signs include high fever and lesions on the mouth, feet, etc.
- Morbidity rates approach 100% in susceptible (non-vaccinated) animals
- Fatalities are rare, with the exception of young animals
- FMD is viewed as as a top candidate for agroterrorism due to its serious economic implications, its ease of dissemination, and its environmental stability

The Scenario

1 September 2022

- On the morning of 1 September 2022, a farm worker at a cattle farm in the South of the country notices that a large number of cattle are not eating the supplemental feed being offered. He takes temperatures on some and discovers they have fevers.
- The cattle farm is one of the largest in the country.
- It is located in an official FMD-free zone of the country and cattle from the farm go into international export chain.
- The farm borders several smaller neighbouring farms and is located 1km from the international border.

2 September 2022

- The next day, some of these animals are drooling and appear lame. Also, the farm worker notes blisters in the mouth and on the feet and a couple of the animals are showing bloody diarrhea.
- Concerned, the farm manager contacts the local veterinary practice to request an on-site visit.
- Based on the clinical signs, the veterinarian is highly suspicious of foot-and-mouth disease (FMD) which is endemic in other parts of the country and in some neighbouring countries, but also wants to rule out other possible enteric diseases
- The vet collects several samples of lesion material for submission to the veterinary laboratory.

3 September 2022

- Following diagnostic analysis, the local diagnostic lab is unable to identify the disease agent responsible for the outbreak.
  - BVD and salmonellosis are also excluded.
  - Diagnostic results for FMD are inconclusive – the virus appears to show characteristics of FMD, but the samples do not react as expected to available diagnostic tests.
- Concerned they may be dealing with an emerging animal disease – possibly a novel variant of FMD – the samples are urgently sent to a reference lab capable of performing advanced molecular diagnostics.

4 September 2022

- The reference lab reports that that the virus has a genetic profile that is nearly identical to FMD, but with several mutations that make it distinct from known serotypes.

- Based on the available evidence, the pathogen is characterized as “a novel variant of FMD”.

5 September 2022 (morning)

- The next morning, a livestock handler from the Southern index farm reports to the local hospital with flu-like signs and oral blisters.
- During routine questioning by medical staff, he explains he is probably just “run down”, as he has been working day and night to take care of “sick cattle”.

5 September 2022 (afternoon)

- That afternoon, national veterinary authorities receive a call from a veterinary epidemiologist in the North of the country.
- During the call, they learn that a cluster of Northern farms are experiencing an outbreak resembling FMD, but that diagnostic tests are inconclusive.
- The first livestock cases were reported several days earlier at the largest cattle farm in the region and several of the farm's workers have subsequently reported to hospital with flu-like signs and oral blisters.
- According to the farm manager, there has been no movement of livestock on or off the Northern index farm which is at least 300 km away from the Southern index farm

6 September 2022

- The next morning, social media posts describe “massive outbreaks on cattle farms in the South and North of the country”; other posts refer to “poison meat and milk”.
- Local news stations pick up the story and videos of dead cattle are shown on national television.
- Later, an “anonymous government source” suggests the outbreaks “may be linked to criminal/terrorist activity”.
- Public concern grows rapidly and a response is demanded from government authorities.

7 September 2022

- Three quarters of the livestock on the first farm (the Southern index farm) have now fallen sick, with a case fatality rate approaching 50%.
- Livestock on several neighbouring farms have begun to show similar signs, despite movement restrictions.
- The first farm worker to report to hospital has died, and several additional farm workers have reported to hospital with flu-like signs and oral blisters.
- There are calls on social media to avoid consuming *any and all* domestic beef.
- In light of the severity of the growing crisis, and the proximity of the affected farms to neighbouring countries, (additional) sanitary measures are taken (both nationally and regionally).

8 September 2022

- Three members of the public – men in their mid-to-late twenties – admit themselves to hospital with severe flu-like symptoms and oral blisters.
- During routine questioning by medical staff, they are found to have no connection to any of the affected farms.
- Upon further questioning, one of the men admits they are part of an environmental activist group called ‘Protectors of Wildlife’ or ‘POW’.
- Expressing regret, and willing to speak to the police, he claims: “Things got out of control. The aim was only to send a message to the cattle industry – to kill a few cows – not to harm humans...”

Breakout Session

Summary

The scenario evolves over 8 days and includes several key developments, as follows:

- An outbreak of vesicular disease of cattle occurs on a commercial cattle farm in a zone of the country officially free of FMD
- Farm workers in contact with affected cattle become ill
- Diagnostic tests suggest the involvement of a virus that is FMD-like but not identifiable as a know variant of FMD.
- The occurrence of the disease in different parts of the country and the unusual nature of the organism suggest the possibility of bioterrorism and a criminal investigation is launched
- Public alarm ensues.

Breakout Session Procedure:

World Café approach

In the breakout room, a separate discussion station will be set up for each ‘key development’ in the scenario. Each station will have a facilitator.

Participants will be divided into groups and each group assigned to a station to begin.

At the station they will discuss the relevant legislative considerations and institutional arrangements that should be in place to effectively deal with the key development identified at the station

After a set time, the groups will move to the next station so that by the end of the exercise, each group will have attended each station

The time spent at each station will progressively decrease as most of the considerations for each station will have been identified by earlier groups visiting the station (e.g., 12 min, 8 min, 6 min, 4 min)

Breakout stations

Station 1 – Managing a vesicular disease outbreak in cattle

Station 2 – The disease outbreak becomes zoonotic and media attention and public alarm ensue

Station 3 – Novel organism detected as cause

Station 4 – Criminal investigation initiated

At each station, identify the legal powers and institutional arrangements that should be in place to ensure a swift and effective response. These will be recorded by the facilitator. Also, think about whether these legal powers and institutional arrangements are in place in your own country.

Station 5 (bonus) – Use the opportunity to suggest scenarios relevant to your own country/region for use in simulation exercises at home.

Legislative issues

Legislation to detect and respond to an agroterror event

- Disease notification and reporting
- Disease response:
  - Contingency plan; chain of command; framework for internal cooperation; enforcement powers;
  - access to relevant facilities, laboratories, equipment and personnel;
  - implementation of disease control measures; emergency vaccination; restricted zones; coordination with neighbouring states; epidemiological enquiry; communication plan
- Criminal investigation and prosecution, appropriate offences and penalties, jurisdiction, international cooperation on criminal matters

Legislative issues

Legislation to help prevent an agroterror event

- Biosecurity measures:
  - control lists for biological agents;
  - licensing system;
  - obligations of laboratories, facilities and others handling biological (disease) agents;
  - accounting measures;
  - physical security measures;
  - Transport
- Transfer and border controls