

**MEETING OF THE STATES PARTIES TO THE  
CONVENTION ON THE PROHIBITION OF  
THE DEVELOPMENT, PRODUCTION AND  
STOCKPILING OF BACTERIOLOGICAL  
(BIOLOGICAL) AND TOXIN WEAPONS AND  
ON THEIR DESTRUCTION**

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**Improving International Capabilities for Responding to, Investigating, and Mitigating the  
Effects of Cases of Alleged Use of Biological or Toxin Weapons or Suspicious Outbreaks of  
Disease – The Need for Enhanced Co-Operation Between Law Enforcement, Defence, and  
Public Health Actors**

Submitted by Sweden

**Background**

1. Infectious diseases have influenced human history for thousands of years. They led to high mortality rates in a majority of societies until effective antibiotics and vaccines were developed and introduced in the twentieth century. They caused individual suffering and death but also epidemics of sometimes global reach. These epidemics were in most cases caused by a natural spread of a disease, but more or less successful attempts to deliberately spread disease have also been recorded.
2. It is difficult to differentiate between natural and intentional outbreaks of infectious diseases. Indicators and algorithms to make this possible have been published but their usefulness remains to be proven. In general, it can be stated that in epidemics where diseases suddenly appear at a new geographic locality or when the disease is new or changed (new symptoms, effects, ways of dissemination or contagiousness), the epidemics or outbreaks can be termed suspicious. They can be either an unusual normal outbreak or the result of an intentional release by an aggressor being either a state or criminal groups/persons.
3. There are today comparatively well-developed routines and infrastructures for managing normal outbreaks at an international level. The World Health Organization (WHO) is a key player in managing the consequences of both natural and suspicious outbreaks when the events have international implications. Through the Global Outbreak Alert & Response Network (GOARN) group at WHO and the network it has created, many outbreaks have been identified and managed

during the last years. WHO acts as coordinator for many different national and non-governmental organizations such as the Center for Disease Control (CDC) in the USA, the Médecins sans Frontières (MSF) and others. They have successfully managed outbreaks such as Ebola in Uganda and the worldwide spread of SARS. Through the ongoing revision of the International Health Regulations there is an attempt to formalize this new role of WHO in coordinating the fight against outbreaks of infectious diseases. There are still some limitations, both in quality but mainly in quantity. Limited outbreaks happen regularly and can be contained by national resources in most instances. When national resources are limited, a coordinated help-effort can be put in place and the problem resolved successfully. Only when new diseases such as HIV/AIDS or SARS start spreading, international efforts have not been completely successful. During later years with experiences from for example SARS and Foot-and-Mouth Disease, the structures and methods for handling the consequences and analyzing the epidemiology of the outbreaks have improved. These structures can also be used to responding to and mitigating the effects of suspicious outbreaks, but additional measures will be needed to investigate and verify if the outbreaks can have intentional origins.

4. With the increased perceived threat from intentional release of pathogenic microorganisms, additional aspects of the management of these outbreaks will have to be taken into account. Among them is the need for broader competence which covers both the epidemiological side of an outbreak, as well as the need for some type of forensic knowledge with the main objective of tracing the perpetrator. In investigations of both alleged use of biological agents and epidemics, the primary concern is to identify the infectious source and to control the outbreak to stop people from getting infected. Infectious material, disease patterns and case characteristics have to be analyzed to generate insight into the event. While for epidemiological purposes it usually is satisfactory to get information on the disease causing agent for control and disease prevention, a forensic investigation must be prepared to present evidence in a court of law.

5. Competence needed to investigate intentional releases can mainly be found in three different areas; Public health/veterinary, defence and the police/security services. The competences residing on the national level are often connected to similar organizations in other countries and many of these networks are connected with the public health sector. Some of the networks in the Public health and veterinary area have recently also incorporated the aspect of intentional releases into their agenda. International co-operations in the defence context and between police authorities in different countries are also increasing. Collaboration between public health/ veterinary, police/security and defence also exist at many different levels.

### **Demands for Handling Intentional Releases of Biological Agents**

6. The formalization of investigation and verification of epidemics caused by alleged use of biological agents must be further considered and discussed if the international community in the future is to be prepared to handle non-compliance with BTWC.

7. For both intentional releases and normal outbreaks there is a need to identify the event at an early stage. There is a need to track infectious disease outbreaks in real time during the event to quickly adapt countermeasures in an effective way. Systems to achieve early detection are under

development. This includes a wide range of efforts to use existing data to find early signs of disease, such as an increased sale of antipyretics or increased absence from work among others. Another avenue has been to get an earlier report from the health systems by reporting symptoms instead of established diagnosis. Also better coordination between different actors in different countries is needed to reach good and fast surveillance and control. One example of this is the European Centre for Disease Prevention and Control (ECDC) that has recently been established in Sweden. Such improved systems/communication could alert public health and agriculture officials to the existence of a potential bio-attack earlier than when waiting for a report of a suspicious cluster of similar clinical cases from traditional surveillance systems.

8. Once what could be defined as a suspicious event has been identified, co-operation between authorities responsible for human and veterinary epidemiology and forensic investigations are needed to verify if the outbreak is natural or man-made. While epidemiology and forensics are similar sciences with similar goals when applied to investigating alleged use of biological agents, they have different priorities and focus. While the priority of public health epidemiology would be to quickly control the outbreak, the priorities of forensics makes it necessary to have additional and more stringent requirements on an investigation, such as:

- (a) maintaining a chain of custody for evidentiary samples,
- (b) establishing guidelines for a proper collection of samples to allow for optimal laboratory testing as well as guidelines for the transportation of the samples,
- (c) identifying a bio-attack organism in greatest detail, i.e. at strain and substrain level,
- (d) analyzing additional substances in the sample, e.g. growth medium constituents and additives for stabilization.

9. High levels of reliability in testing results of these complex types of samples have to be accomplished. One way to achieve this is through the establishment of a network of test-laboratories among which the responsibility is shared. For example the detailed strain identification can be concentrated in a few specialized accredited laboratories.

10. It is important to remember that the handling of an alleged use of biological agents and the investigation that goes with it have two components (disease control and forensic investigation) that have to work both in parallel and in different tracks, but at the same time be integrated to achieve a maximal output. It is highly likely that the first signs of an intentional release are recognized by the public health/animal health authorities. This means that the disease control will be dealt with before a forensic investigation, but it is of vital importance that both partners have knowledge about each other's missions and co-operate so that an optimal result is achieved.

11. A process to meet this challenge has been initiated in Sweden. Examples of governmental authorities that are involved in this process are the Swedish Institute for Infectious Diseases, The Swedish National Police Board, Swedish Rescue Services Agency, The Swedish National Board of Health and Welfare and the Swedish Defence Research Agency. The implementation will probably take some years due to different objectives of the actors and the need for the actors to identify the borders between their responsibilities. An international coordination of similar resources would be welcomed.

12. In this context the establishment of an independent international support team would be desirable so that the consequences of an alleged use could be handled in an expedient manner. The competence of such a team would comprise collection of samples, including keeping the chain of custody, epidemiological and forensic analysis as well as knowledge in the field of biological weapons etc. This group could be called upon in cases where a country is uncertain about the origin of the disease and want to have guidance on the investigation following the outbreak. Furthermore, an independent international team would add a higher degree of credibility to any result coming out of the extensive investigation if the results are questioned.

### **The Need for Improved Co-operation Between Law Enforcement, Defence and Public Health Actors**

13. As discussed above, there are both national and international organizations/networks that are active during a disease outbreak, and the involvement of additional actors are needed in managing an intentional release. The different sectors, i.e. public health, defence and law enforcement authorities have their guidelines and regulations and also frameworks for international co-operation. The co-ordination of resources and common frameworks for co-operation will result in an increased possibility to meet an alleged use of biological agents.

14. The missing part today is primarily a lack of structures to integrate the different areas in an investigation. This is maybe less true at national level and more so in the international structures discussed. The impression is, however, that even if the technical expertise does exist on an international level it can be difficult to assemble a complete team for all types of releases. An event discussed in this context could result both in the handling of a national epidemic as well as having to deal with a spreading of disease to other countries. In most countries this would result in national resources being fully occupied with the tasks needed to handle the situation nationally, and as a result not being able to assist other affected countries.

15. An international organizational structure, not coupled to the ordinary national resources, that has the capacity to support the already existing national operational structures preferably with expertise within the field of biological weapons, epidemiology, public health and legal matters would therefore be of vital importance.

16. To make such a structure work there are however problems that need to be solved. For example:

- (a) the format for the co-ordination between the different national and international actors would need to be defined,
  - (b) the possibilities of using national expertise in international teams investigating events in other countries,
  - (c) the disposition of national experts to an international organizational structure with the authorization to work in requesting country.
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