ECDC approach in biological emergency preparedness to a potential bioterrorist Ebola Viral Disease (EVD) attack

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1 INTRODUCTION

Today, a whole range of complex challenges and threats to EU security, requires to be prepared to protect and defend against both State and non-State actor threats. Since May 2005, the EU independent agency ECDC (European Centre for Disease Prevention and Control) works actively in the European health security for the surveillance of infectious diseases, establishing a common mechanism of medical countermeasures and preparedness plans among Member States (MS). It is delivered through epidemic intelligence and training activities, not only of concern to the European Union but also, providing updates on the global situation and changes in the epidemiology of communicable diseases, with potential to affect Europe. Ebola Virus (EV) is classified as a biological agent with the maximum level of risk according to Centers for Disease Control and Prevention(CDC) and World Health Organization (WHO). It has been classified as a highly potential agent of bioterrorism, because if used in bioterrorist attacks, EV can cause severe and often fatal diseases through its potential widespread dissemination and severity of morbidity and mortality rates, maximizing the public panic terroristic effect. ECDC efforts to challenge potential bio-threats, evaluate dual use research and technological diffusion, that could be directly applied by terrorists.

ECDC role is to identify, assess and communicate current and emerging threats to human health from communicable diseases (ECDC Founding Regulation 851/2004, Article 1)

2 DUAL USE APPROACH !

"Every outbreak should be treated as a natural outbreak until demonstrated otherwise. This frees the health system to concentrate on its first priority: saving lives and containing Spread. Each year, over 14 million people die from infectious diseases. Preparedness for bioterrorism should not compromise the world's capacity to respond to existing threats"(*)

(*) WHO, Preparedness for the deliberate use of biological agents, WHO/CDS/CSR/EPH/2002.16.

3 THE 2013-2015 EBOLA VIRUS OUTBREAK: PREPAREDNESS & RESPONSE IMPROVEMENTS

The study of Ebola Virus Disease (EVD) 2013-2015 epidemic in West Africa as an emerging infectious disease of high consequence (IDHC), can provide essential information to design a *preparedness activities*, resulting in major improvements in ECDC ability to respond to bioterrorism attack

4 ACTIVITIES IN PREPARING FOR "SERIOUS CROSS-BORDER HEALTH THREATS" : A NEW LEGISLATION (Decision 1082/2013/EU)

PREPAREDNESS

- Response evaluation
- Risk analysis
- Interagency cooperat.
- Information exchange
- Network building
- Awareness
- Training & exercises
- Guidance on prevention
- Epidemic intelligence
- Interoperability of plans

→ MONITORING & EARLY WARNING OF CROSS-BORDER THREATS TO HEALTH

5 PREPAREDNESS ACTIVITIES

DIFFICULT OF PREDICTING / PRE-EMPTING A BIOTERRORIST ATTACK !

ASSESSMENT / PLANNING

THREAT ASSESSMENT
(law enforcement)
↓
RISK ASSESSMENT
(law and public Health Authority: RISK OF.../RISK FROM.../RISK FOR)
↓
IMPACT ASSESSMENT
(on health care systems /Potential spread in a MS/Effectiveness treatments and Control Measures...)

Needing of careful "Bio Terrorism Preparedness planning" on SPECIFIC THREATS: Type, character, magnitude **(TARGETED ANTICIPATORY STRATEGY)**

Needing of "All Hazards Preparedness Planning " to develop, strengthen and maintain their CAPABILITIES **(RESILIENCE STRATEGY)**

INTEROPERABILITY OF MS PREPAREDNESS PLANNING

Develop plans for implementation of formalization/resources allocation/exercises for coord. levels and operational functional areas

INTERSECTORAL DIMENSION OF PREPAREDNESS AND RESPONSE PLANNING (EU lev.)

EBOLA VIRUS AS POTENTIAL BIOTERRORIST THREAT:
LOW PROBABILITY / HIGH CONSEQUENCES

Obtain and Weaponize Ebola virus is not simple:
- difficulty of recruitment of individuals attempting secretly, to collect virus samples from a dead infected animal or from a patient, collaborating with medical staff;
- difficulty of living virus samples transportation from the site of acquisition to a predetermined place (EV requires ideal conditions that would be difficult to replicate during transport);
- Ebola virus lifetime on dry surfaces outside of a host, is only a couple of hours but virus can survive in bodily fluids on surfaces for days;
- low basic reproductive rate (the average amount of people that are infected by an Ebola patient is only between one and two people);
- Ebola attack would take more time to spread and for this reason could be easier to contain (infected individuals do not become symptomatic and contagious for an average of 8-10 days with a full incubation period can last from two to 21 days);
- the heat and shock generated in a suicide device's explosion of an infected terrorist, would likely kill most of the virus, on the other hand Ebola infected people could not strong enough to walk into a crowded area to accomplish a terroristic mission

After 1993, the Japanese "Aum Shinrikyo" cult attempt to obtain in Zaire EV samples with insulting intent, led by Shoko Asahara, even if bioterrorist risk is therefore low, but an EVD attack must not to be excluded.

EVD can produce the greatest impact if used in bioterrorist attacks due to their:
- potential widespread dissemination,
- fatal diseases for severity of morbidity and mortality rates, no effectiveness treatments;
- Maximization of public panic terroristic effect with a shock of health care systems and public order threat (possible introduction of Martial law).

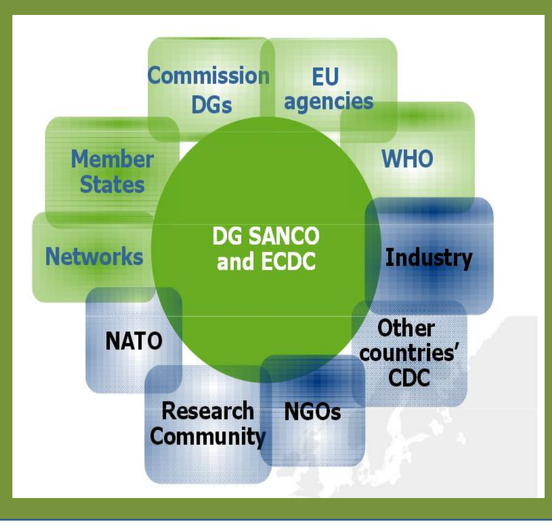
EVD PREVENTION

Four vaccines are currently in clinical trials of which safety is assured by preliminary studies:
- chAd3-EBOV:
- VSB-ZEBOV;
- Ad26-EBOV;
- MVA-EBOV.

Drug Treatments are categorized by WHO in five groups:
- Group A (drugs currently under evaluation in formal clinical trials);
- Group B (drugs that have been prioritized for testing in human efficacy trials, including trials not yet underway are included)
- Group C (drugs given to patients for compassionate reasons or in ad-hoc trials)
- Group D (drugs that demonstrate anti-Ebola activity in vitro or in mouse models, but which need additional data);
- Group E (drugs that had been prioritized/considered for prioritization and have now been deprioritized based on new data or more detailed analysis of old data).

INFORMATION Management/ NETWORKING/TRAINING

INTERAGENCY COOPERATION and NETWORK BUILDING



International Health Regulations (2005) implements: cooperation with WHO on notification procedures, and coordination among EU Agencies and Authorities (Partners), Stakeholders and States Parties to the WHO (which include all the EU States), of the "preparedness for", and "response to" an international public health emergency.

INFORMATION EXCHANGE AND COMMUNICATION

In case of a deliberate release of a biological agent as EBOLA, communication among ECDC and MS, is guided with two contradicting needs: 1) need for advice, guidance and possibly assistance; 2) to deal with sensitive information within the security sector

EPIDEMIC INTELLIGENCE

Process to detect, verify, analyze, assess and investigate public health events that may represent a threat to public health.

Weekly Scientific publication "COMMUNICABLE DISEASE THREATS REPORT (CDTR)". Last Week 46, 8-14 November 2015, reports:
- Sierra Leone declared Ebola-free on 7November 2015;
- Liberia declared Ebola-free on 3September 2015;
- In the past 21 days from Guinea have been reported a total of 4 cases, as members of the same family, while 69 contacts have been scheduled to complete their 21-day follow-up period on 14 November: 60 of the contacts are at high risk, and one contact from Forecariah has been lost to follow up within the past 42 days.

ECDC Epidemic Intelligence TOOLS (Improve data management):
- The Epidemic Intelligence Information System (EPIS);
- Threat Tracking Tool (TTT).

TRAINING/EXE.

ECDC develops simulation exercises on outbreak detection, investigation and response, and has been developing its own exercises with Health Protection Agency (HPA), involving players from the Member States (Ebola simulation exercises, Portugal, 2014...)