

Workshop on Lessons learnt in Outbreak Management Participant's Guide

Prepared by: Pilar Soler, Concha Martín, Roxana Tuesta, Martin Mengel
Revised by: Alicia Barrasa, Rosa Cano, Camelia Savulescu, Jaume Giménez

Background

The revised International Health Regulation 2005, entered into force in June 2007. It describes generic core competencies and protocols for investigating, responding to and reporting public health events of international concerning.

The roles and responsibilities in investigation and management of outbreaks could be different among countries and depend on the nature, magnitude, severity of the outbreak and the potential impact in people health.

To successfully investigate and control outbreaks it is necessary to work rapidly and responsibly.

“Therefore, clear systems and protocols must be in place, developed in advance, so that when an outbreak occurs all persons involved in the investigation can be clear on their course of action time is not lost with matters such as policy discussions. Therefore, the responsible authorities – in consultation with all agencies that may be involved in the investigation - should develop outbreak investigation and control plans to address:

- *The arrangements for consultation and informing the authorities at local, national and international level;*
- *The precise roles and responsibilities of organizations and individuals involved;*
- *The resources/facilities available to investigate outbreaks; and*
- *When to convene an outbreak control team, its composition and its duties.”¹*

With the perspective of sharing knowledge and find common solutions in the Mediterranean and Balkan regions, the Episouth project intends to create a framework

¹ WHO, Guide to ship sanitation, 2004.

http://www.who.int/water_sanitation_health/hygiene/ships/en/guidetoshipsanitation.pdf

of collaboration on epidemiological issues to improve communicable diseases surveillance, communication and training. As part of EpiSouth activities, we carried out a survey in 2007 aiming to identify common institutional training needs in surveillance and early warning among 22 countries a at to ensure consensus and necessary support for surveillance activities.

Decision-makers from Ministries of Health or national public health institutions in charge of epidemiological surveillance at central level were requested to fill the questionnaires. Out of 45 questions, four were devoted to dissemination of the results of outbreak investigations and lessons learnt in scientific papers in order to share knowledge.

Among the results obtained in the section of dissemination related to *outbreak investigation* at national level: 71% of respondents stated that they communicate information on outbreaks at international level only *sometimes*, while 19% of respondents *never do it*.

As part of the conclusions of this survey the corresponding lessons learned were at this time seldom included in Epidemiology curricula, only sometimes resulting in changes in public health procedures or in legislation.

If we move now into *Good Practices* issue, the concept of “lessons learnt” started from social sciences and it is commonly used in different fields of knowledge and processes. It is usually the result of an analysis which aims to identify what worked well, areas for improvement and recommendations regarding the experience on a certain domain.

Focused on the specific experience (for instance an outbreak management) we should to:

- *learn the most from the experience*
- *avoid repetition of errors and emulate success*
- *identify potential improvements that may be implemented and institutionalized in this case for management of future outbreaks²*

Drawing lessons learnt from a specific experience, like outbreak management, require not only time dedication from the team or organizational efforts but moreover decision-makers awareness and the whole team compromise.

² Canadian Food Inspection Agency: Lessons Learned Review: The CFIA's Response to the 2004 Avian Influenza Outbreak in B.C. January 10, 2005.
<http://www.inspection.gc.ca/english/anima/heasan/disemala/avflu/2004sum/revexae.shtml>

Activities

- **Round Table: Outbreak management (1:15h)**
 - Presentations Nation-wide outbreak of *Salmonella* Hadar in Spain, Brucellosis outbreak in Greece, *Salmonella* Kedougou linked to infant formula milk in Spain 2008. West Nile Virus infection outbreaks at European level.
 - Group distribution (15min). Facilitators & rooms (annex)
- **Group sessions: Lessons learnt (1:30h)**
 - Design the spokesman /woman who will take notes and prepare the presentation
- **Group presentation (1h)**
 - 10 minute presentation
 - Power Point support
 - presenter elected by the group

Objective: to identify difficulties and their solutions in management of outbreaks in order to draw lessons learnt from their own practice

Key issues to be discussed:

- a. Main issues for outbreak control team establishment
- b. Main logistical aspects
- c. Technical aspects
- d. Main lessons learnt drawn

Practical exercise

Group session 1: Lessons Learnt in outbreak management

The information contained in this document is confidential and given for teaching purposes only.

Nation-wide outbreak of gastroenteritis caused by *Salmonella* Hadar associated with the consumption of pre-cooked vacuum packed chicken July- August 2005 in Spain

On July 28th 2005 the National Centre of Epidemiology (NCE) received an alert from a Spanish autonomous region about the detection of outbreaks of food poisoning in families, with a clinical picture of gastroenteritis, possibly related to the consumption of a commercial food item (fried pre-cooked chicken, vacuum packed of one single brand "X").

On the same day the NCE and the regional services of epidemiological surveillance planned a coordinated strategy for the epidemiological investigation and follow-up of the epidemic. Simultaneously microbiological- and environmental investigations, as well as trace-back of the product under suspicion were initiated.

1. SETTING UP THE OUTBREAK CONTROL TEAM

1.1 What do you think are the functions of an outbreak control team in an outbreak?

Seventeen of the nineteen autonomous regions notified the NCE of the simultaneous occurrence of outbreaks of gastroenteritis potentially associated with the consumption of chicken. In total 3.451 probable cases were reported. One death was registered in a 90 years old case.

The first probable case started symptoms on July 11th. The peak of the epidemic was observed on July 25th. The date of onset of symptoms of the last notified case was August 6th. The epidemic affected both sexes and all age groups in a similar manner. On July 29th the isolation of Salmonella group C was confirmed.

1.2 What characteristics of an outbreak should you keep in mind when setting up the outbreak control team? How are these characteristics in this specific outbreak?

General characteristics of outbreaks	Characteristics of this outbreak

1.3 What professionals should be part of the outbreak control team of this specific outbreak given its characteristics?

Characteristics of the outbreak	Characteristics of this outbreak	Outbreak Control Team

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The great magnitude of the outbreak and its occurrence in August (the month in which the majority of people in Spain take their vacations. The services of epidemiology, the laboratories and the services of veterinary inspection are short staffed) made the adequate formation and the coordination of the investigation team enormously more difficult.

The investigation team was formed by one epidemiologist of each autonomous region, four national epidemiologists (three of which simultaneously covered the rest of the public-health alerts (legionellosis, meningitis, etc)). In the face of the risk of tourists catching the infection while on holiday in Spain and the magnitude of the epidemic, the CNE emitted the necessary European alerts through the respective early warning systems (EWRS) (ENTERNET). Cases were detected in France (3), the UK (4), Holland and Sweden in tourists having been in Spain.

A microbiologist from the reference laboratory for Salmonella participated in the team since the beginning.

Because a commercially distributed food item was concerned, the Food Safety Agency was immediately notified but at no point any personnel from that agency was directly involved in the outbreak control team.

The press cabinet was not contacted from the beginning although information leaked to the press at the moment the outbreak began.

Regarding the coordination of the outbreak, although a coordinator was assigned the competencies of each participating institution were not left clear (in this outbreak coordination was lead by the CNE, although the ultimate sanitary authority was with the food safety agency). There was no reunion of the team which included either the microbiologist, or the cabinet or the representatives of the food security agency.

Although the aetiology (Salmonella) and the vehicle of transmission (chicken-brand X distributing nationally) were immediately known and, hence, control measures (recall of product, official warning of non consumption) were implemented right away, media report in the outbreak raised politicians' interest in the outbreak.

1.5 What do you think are the consequences of the setting up of this outbreak control team?

1.6. How would have improved the aspects related to the setting up and coordination of the outbreak control team?

2. LOGISTICAL ASPECTS

2.1 What are the key aspects related to the logistics in this type of outbreaks?

The outbreak involving the chicken occurred in August when everyone in Spain is on vacation.

The microbiological confirmation could only be carried out in the national reference laboratory for Salmonella where only one person was on duty at the time. When the samples started arriving from all over Spain the head of the service had to interrupt his vacation to return to his post. The laboratory received 827 samples during July and August 2005. Besides suffering the shortage in personnel the laboratory ran out of one of the diagnostic tests (by phage typing) which led to delays in the diagnostics of some of the strains.

The CNE disposed of only 4 epidemiologists who were not only occupied with this outbreak but also with all the other alerts occurring that summer (legionella, meningitis, etc).

3. 2 How would you have solved the problems related to logistics?

4. TECHNICAL ASPECTS

4.1 What are the key points related to the technical aspects in this type of outbreaks?

Conclusion³:

An outbreak investigation like any other field investigation involves considerable organizing efforts, but moreover it is carried out in circumstances where an answer urges considering the anxiety of the community where the outbreak occurs. It is precisely this anxiety that creates a tension, many times real other times fictitious, but nevertheless frustrating which impedes the usual thoroughness of epidemiological investigations.

The management of such situations requires, apart from the availability of a high level group of professionals and the adequate resources, a decisive political will to support the surveillance activities, which might not always exist.

As the only administrative result of the outbreak, one year later, a law was published which stated the obligation to notify any food-borne outbreak of Salmonellosis. This applied to outbreaks where either more than one autonomous region was affected or it could be suspected that the transmission could be linked to the distribution of a commercial product.

This legal guideline had already been created ten years before in the law of creation of the Spanish Surveillance Network.

³ Salvador de Mateo. Aprendiendo de la historia. Ejemplos cercanos y lejanos. Los brotes masivos por la comercialización de alimentos. Brote de gastroenteritis por Salmonella Hadar asociado al consumo de pollo pre-cocinado envasado al vacío; España, julio-agosto 2005. XXVI Reunión Científica de la Sociedad Española de Epidemiología. ¿Quién es quién frente a las emergencias en la salud pública?. Girona, 14-17 octubre 2008.

I have never got to know the justification for this reiteration but it is easy to conclude that it was following the old tradition of “to know for the sake of knowing”, instead of the more rational approach of “to know for the sake of acting”. This would not matter if the objective of surveillance was different but it is precisely the motivation that should drive all the professionals who work in this field to help to transform the information into action.

Annex 1: Causes and Symptoms of Salmonellosis

Salmonellosis is an infection with a *Salmonella species*, gram-negative, rod-shaped, flagellated, mobile bacilli. Over 2,300 serotypes are known, of which *Salmonella* Enteritidis and *Salmonella* Typhimurium are the most common serotypes to cause infection in humans.

The serovar typhi causes typhoid fever. *Salmonella* live in the intestinal tracts of animals, including birds (zooanthroponosis). *Salmonella* are usually transmitted to humans by eating foods contaminated with animal faeces.

Salmonella bacteria have been known to cause illness for over 100 years. They were discovered by an American scientist, Dr. Daniel E. Salmon.

In Europe, twenty-six countries (25 EU Member States and Norway) reported 183 447 cases to Enter-net.

Salmonella serovars S. Enteritidis was the most frequently reported serovar on the Enter-net database, followed by *Salmonella* Typhimurium. Enter-net received 69 290 (69.1%) *Salmonella* Enteritidis and 12 828 (12.8%) *Salmonella* Typhimurium cases. The unusually high ranking of the serovar *Salmonella* Bovismorbificans was due to a large outbreak of *Salmonella* Bovismorbificans in Germany.

Symptoms

Symptoms include:

- diarrhea
- abdominal pain and cramps
- fever

Symptoms usually begin within 12 to 72 hours after exposure, but can begin up to a week after exposure.

However, *Salmonella* infections can be life-threatening especially for infants and young children, pregnant women and their unborn babies, and older adults, who are at a higher risk for foodborne illness, as are people with weakened immune systems (such as those with HIV/AIDS, cancer, diabetes, kidney disease, and transplant patients).

Duration of Illness

- *Salmonella* infections usually resolve in 5-7 days.

Four possible ways of clinical evolution exist:

- a) general, cyclical infection
- b) general, septic infection

- c) gastro- enteritis
- d) chronic excretion

A small number of persons who are infected with *Salmonella* may develop *Reiter's syndrome*: pains in their joints, irritation of the eyes, and painful urination.

Problems due to increasing cases of drug resistant strains have emerged, esp. in *S. typhimurium* (Lysotype DTb 104)

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