INFOSAN
International Food Safety Authorities Network

Lessons learned from past crises

Department of Food Safety and Zoonoses (FOS)
http://www.who.int/foodsafety/en/

World Health Organization
One Mechanism in WHO:

Global Event Management System

- Identify events of potential international public health concern
- Verify with affected country
- Assess risk to international community
- Disseminate information to those who need to know
- Assist affected country
Old IHR (1969) only covered Yellow Fever, Cholera and Plague

New IHR (2005) include all public health emergencies of international concern - including those caused by food

Member States are obliged to declare all public health emergencies of international concern to WHO

Reports from sources other than Member States (media, private sector, NGOs, social networks, etc.)

WHO 24-hour monitoring, operations and response
What is unique about Food Safety Events?

- Requires collaboration of different partners in-country
- Requires different expertise than most infectious disease events
- Requires different types of questions to be asked
- Often multi-regional due to international distribution
- Sometimes treated with lower priority in the face of other infectious disease events
- Can have major economic and trade implications

Multi-disciplinary, Multi-sectoral, Integrated, Collaborative
The rapid globalization of food production and trade has increased the potential for food safety events to quickly become international.

Dealing with such events requires rapid exchange of food safety information at both the national and international levels.

By sharing information and experiences between countries, food safety issues can be managed more effectively and efficiently.

It is therefore important to have a mechanism in place to facilitate collaboration between countries.

To provide such a mechanism, INFOSAN was launched in 2004 and has been growing ever since.
What is INFOSAN and its Purpose?

- A voluntary network of food safety authorities from around the world managed jointly by WHO and FAO
- Aims to prevent international spread of contaminated food and foodborne disease and strengthen food safety systems globally, by:
  - promoting the rapid exchange of information during food safety events
  - sharing information on important food safety issues of global interest
  - promoting partnership and collaboration between countries
  - helping countries strengthen their capacity to manage food safety risks
International Food Safety Authorities Network (INFOSAN)

• 177 countries

• Multisectoral participation (human health, agriculture, food safety, animal health, trade, standards, etc.)

• Web-based platform to strengthen community practice & exchange information
INFOSAN Structure and Links to Key Partners

FAO & WHO Programs (including Regional Advisors)

Advisory Group

FAO/WHO INFOSAN Management Group
Secretariat in WHO & Focal Point in FAO

INFOSAN Focal Points (In various sectors at the national level, i.e. Health, Agriculture, Environment, Trade, etc.)

INFOSAN Emergency Contact Points (In the national authority responsible for coordination of national food safety emergency response)

Counterparts across the farm to table continuum

IHR WHO Regional Focal Point

IHR National Focal Point

Other Networks (i.e. GLEWS, RASFF, etc.)
Event Detection and Action

Information Sources
- Media/Internet Searches
- WHO Alert and Response Operations (ARO)
- WHO Regional Food Safety/IHR Contacts
- INFOSAN Contact and/or Focal Points
- Other Partners (WHO Programs, WHO Regional Food Safety/IHR Contacts)
- INFOSAN Contact and/or Focal Points
- External Partners (e.g., RASFF, GLEWS, etc.)

Internal Assessment and Verification
- <12hrs
  - WHO Programs
  - WHO Regional Food Safety/IHR Contacts
  - Outside partners (FAO)

Is follow up needed?
- Yes: Send information request to INFOSAN Emergency Contact Point
  - No further action
  - Further info needed
    - Assessment
      - Alert to network (consult with country)
      - Close File
- No: Monitor if needed; Close File
- Post Alert to Network; Consider lessons learned to be shared; Close File
Example of INFOSAN in Action
Melamine

- Rich in nitrogen, intentionally added to food to disguise a low protein content (e.g. in diluted milk)

- Initial focus on infant formula (Sep 2008 - infants affected)

- Knowledge from previous incidents in pet food (2004, 2007)

- High level of concern with immediate measures taken
  - WHO actions
  - National authorities

- Immediate global implications
Contamination chain of events

- Melamine addition
- Non-dairy creamer, protein powder
  - Instant non-dairy beverage products
  - Powdered infant formula
  - Liquid milk products
  - Powdered milk products
- Liquid milk
  - Processed foods containing milk or milk ingredients
- Animal feed
  - Milk
  - Processed eggs
- Eggs
  - Meat
  - Ammonium bicarbonate
  - Processed foods using ammonium bicarbonate as a leaving agent
47 countries with contaminated products

In China: over 22 mill patients screened, 300’000 children ill, 6 confirmed deaths
Actions taken by INFOSAN

**Within the first days**
- Epidemiology and treatment (suggested surveillance and case definition)
- Preliminary risk assessment of melamine
- Analytical methods to test for melamine

**Over the first three months**
- Compile list of products affected and their possible distribution (continuously updated)
- List of laboratories to test for melamine
- Assistance to countries on limits for melamine for products
- International expert consultation to evaluate health risk and recommend risk management actions (Dec 2008)
- Q & A (continuously updated)
Lessons Learned

😀 INFOSAN played important role as information exchange platform
😀 Rapid reaction and response possible in close collaboration with members
😀 With support of Health Canada rapid organization of scientific expert consultation, and subsequent discussion of outcome at Codex level to set international limits for melamine in food
😀 Codex standard for melamine in food and feed, and for infant formula established
😀 Fastest Codex standard adopted in response to international event (possible with direct support and leadership of Health Canada)

😔 INFOSAN resources limited

😢 Delay in reporting and verifying (response to INFOSAN)
😢 Need for global inventory of laboratory capacity
Outbreak of *S. Oranienburg* in Russia linked to internationally distributed powdered infant formula from Belgium

- **16 cases of Salmonellosis** reported in Usoile, Russia, including 13 infants, 1 child (age 4) and 2 adults
- **Product sent to 24 regions in Russia**

**International distribution** (Three WHO Regions: EURO; AFRO; & AMRO)

- **Shelf-stable product** (+1 year)
- **Vulnerable population** (infants)

**Good Traceability System**
- allowed producer to quickly identify the specific product and institute very targeted recall (minimizing economic impact)
- quickly eliminated further exposure (protecting public health)
Outbreak of Salmonellosis in USA linked to pine nuts imported from Turkey

- 43 individuals infected, source identified in USA: pine nuts from Turkey
- On request of US FDA (an INFOSAN member) INFOSAN Secretariat contacted Turkey for further information (including distribution details, etc.)
- Same product potentially also exported to Australia and Italy; INFOSAN notified these countries (no illness identified)
- Turkey launched investigation into the implicated pine nuts to ensure safe production

US authorities identified source – requested INFOSAN assistance – investigation identified other countries potentially affected – corrective action in producing country
Outbreak of Botulism in Finland linked to olives stuffed with almonds from Italy

- 2 cases of Botulism identified in Finland: olives stuffed with almonds from Italy
- Reported to INFOSAN Secretariat: implicated product was also distributed to several countries around the world, incl. the USA
- INFOSAN Secretariat provided relevant information from Italy to US FDA for recall activities
- INFOSAN Secretariat sent a global alert out to all INFOSAN members to product removal from the international market to prevent further cases

Country informed INFOSAN – INFOSAN provided relevant information to USA for product recall (no cases identified) – global alert
Outbreak of *E. coli* O104:H4 infections in Germany and France

**Overview:**

- Unusually large foodborne disease outbreak caused by a novel strain of *E. coli* with characteristics resulting in more virulent behaviour than is normally observed.

- Outbreak demonstrated high attack rate in female adults and a high rate of hemolytic uremic syndrome (HUS) as a severe complication (~1 HUS case for 3-4 EHEC cases; typically only seen in 10% of cases of EHEC).

- 16 countries in Europe and North America reported 4045 cases and 51 deaths; onset dates range from 1 May to 4 July 2011.

- 3052 EHEC infections resulting in 17 deaths, and 852 HUS cases resulting in 32 deaths were reported in Germany alone.

- European Food Safety Authority led a trace back investigation which identified fenugreek seeds imported into Germany from Egypt as the most likely source.
Trace back investigation

- Sprout producer, Lower Saxony
- Supplier, yellow (GER), other (European c.)
- Retail France
- Seed producer
- Outbreak cluster
- Delivery of sprouts
- Delivery of (sprout) seeds

EHEC Outbreak 2011
Investigation of the Outbreak
Along the Food Chain
BfR 03/2012
EHEC outbreak: lessons learned

● Systemic Delays Hinder Outbreak Response
  – Reporting procedures: Data flow should be accelerated, e.g. by use of an electronic notification system by physicians and laboratories, and a common central data base.
  – Surveillance systems: routine surveillance needs to be enhanced

● Risk communication is critical
  – To avoid 'blame and shame'
  – To avoid undue economic consequences
  – To remain credible and reach consumer

● Further investigations and studies are needed to better understand the origin of this pathogen and its ecology
Some key lessons learned
A local event can quickly become global

Japan
Hong Kong
Singapore
Australia
New Zealand

United Kingdom
Ireland
Spain
Cyprus
Need for national food safety emergency response plans

No single agency has the responsibility for all aspects of foodborne disease outbreak response.

Representatives from each agency involved must be part of a coordinated response.

Response plans should reflect the need to adapt the response either up or down to meet the needs of the event.
International collaboration and information sharing mechanisms are vital

A) Cooperation at the EU level and beyond

B) Microbiology Networks

C) Clinical Exchange Networks

D) INFOSAN
Foodborne outbreaks can have major economic/trade impacts

A Romanian farm worker throws another case of cucumbers onto a huge pile waiting to be taken away as waste at an agriculture facility in Popesti Leordeni, near Bucharest, Romania.

Risk Communication is critical
WHO Food Safety and Zoonoses

5 June 2012

Food and Agriculture Organization of the United Nations

Fresh produce continue to be a high risk food item, e.g. sprouts

- Worldwide, at least 40 outbreaks of foodborne illnesses have been linked to sprouts since 1973

- Scientists believe that the most likely source of contamination is the seeds that are used to grow the sprouts; seeds may become contaminated by animal manure in the field or during storage, and the conditions required to grow sprouts (like warmth and humidity) are ideal for the rapid growth of bacteria

- Poor hygienic practices during production of sprouts have also caused some sprout-related outbreaks of foodborne illness in the past

- Difficult to 'pin-point' since consumed as mix e.g. salad
WHO provides guidance

- FAO/WHO framework for developing national food safety emergency response plans
  

- FAO/WHO guide for application of risk analysis principles and procedures during food safety emergencies
  

- FAO/WHO guide for developing and improving national food recall systems
  
  In preparation

- Five keys to growing safer fruits and vegetables: promoting health by decreasing microbial contamination
  
  http://www.who.int/iris/bitstream/10665/75196/1/9789241504003_eng.pdf
Move from reaction to prevention

- Integrated surveillance: farm to table information sharing

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<th>Farm</th>
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<th>Slaughter</th>
<th>Processing</th>
<th>Food product</th>
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- Global Early Warning System for Major Animal Diseases, including Zoonoses (GLEWS)
- International Food Safety Authorities Network (INFOSAN)
"Only if we act together, can we respond effectively to international food safety problems and ensure safer food for everyone"

Dr Margaret Chan – Director-General

infosan@who.int for more information