

# Developing practical risk assessment in public health: a multidisciplinary approach

## **Amy Cawthorne**

World Health Organization, Geneva  
cawthornea@who.int

## **Angela Merianos**

World Health Organization, Geneva  
merianosa@who.int

## **Mike Nunn**

Australian Government Department of Agriculture,  
Fisheries and Forestry  
mike.nunn@daff.gov.au



# Overview

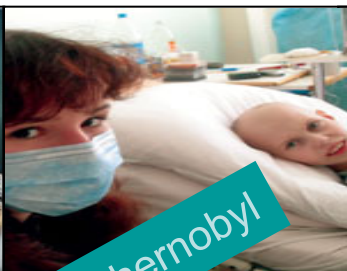
- The problem
  - risk assessment in acute public health events
- The solution
  - the approach
  - the target audience
- Some challenges
- Next steps



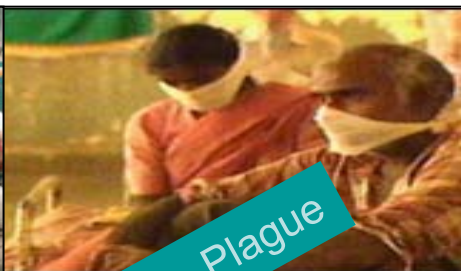
# Public health events



HIV/AIDS



Chernobyl



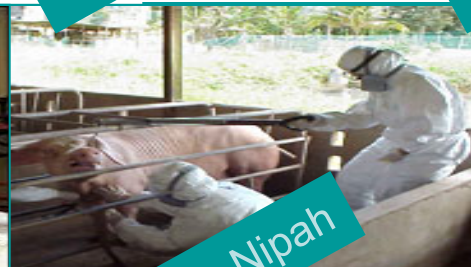
Plague



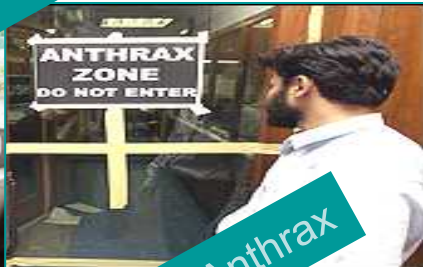
Ebola / Marburg



vCJD



Nipah



Anthrax



SARS



Meningitis



Cholera



Chemical spill



Polonium-210



Avian Influenza



Melamine

# The approach

- The problem
  - risk assessment in acute public health events
  - little guidance available on *how* (or *who*)
  - ‘silos’ lead to
    - lack of experience working in multidisciplinary teams
    - poor sharing of lessons
- The solution
  - develop some training
    - multidisciplinary input
    - multidisciplinary participants
  - ‘pilot’ training in workshops



# Participants (target audience)

- Multiple disciplines
  - Human health: clinical, lab diagnostic etc.
  - Animal health: field, lab.
  - Other
    - food safety
    - chemical
    - radionuclear
- Multiple levels
  - sub-national
  - national
  - regional



# The approach (cont.)

- Multiple scenarios
  - incidents based on real events
    - chemical, infectious etc.
  - teams formed
  - undertake rapid assessments
  - repeat as get new information
- Hypothetical countries
  - Gornali and Gorgon
  - provides context
- Assess in a STEEEP framework
  - each potential hazard
  - recommended actions



Gornali : Country map for logistics planning



# STEEEP

- Social
- Technical/scientific
- Economic
- Ethical
- Environmental
- Policy/political

*The solutions to acute public health events need more than just 'T'*



# Rapid assessments

- Realistic timeframes and deadlines used
- Identify possible hazards
- Describe for each hazard
  - likelihood
  - consequences
  - uncertainty ('confidence')
- Score on a risk matrix
- Assess response measures
  - identify measures
  - rank by priority for action
  - assess L, C, U



# Risk matrix

Likelihood	Consequences				
	Catastrophic	Major	Moderate	Minor	Insignificant
Almost certain					
Likely					
Possible					
Unlikely					
Rare					

Risk	What should I do?
<b>Extreme</b>	Immediate action required
<b>High</b>	Action plan required, senior management attention needed
<b>Moderate</b>	Specific monitoring or procedures required
<b>Low</b>	Manage through routine procedures

## Example: media report

A senior health official has confirmed that a mysterious disease that has been spreading in the border town of Tiplow. Victims have contorted mouths, glassy eyes and mild paralysis.

According Dr Mita, a doctor at one of the town health clinics, there have been where almost 50 cases in three different districts and some of the people have died. But the doctor could not point out the cause of the ailment. He reported that the local government are not taking this seriously. One of the plantation managers said that the government is not being transparent and is not sharing information with us.

Although the cause of the disease has not been identified, effective measures are needed to protect the local people including improving environmental sanitation and personal hygiene. People are worried.

# The context

- Your team is responsible for risk assessment for the national government in Gornali
- Tiplow is in the neighbouring country of Gorgan, 10km from your border
- The relationship between Gornali and Gorgan is poor as there has been a recent land dispute
- There is a lot of cross-border movement as people from Gornali work in the plantations and on the hydroelectric power station projects
  - There are 3 official border crossings between Changli province and Gorgan and 56 unofficial (often used for movement of opium and fake products)
- Many people will travel in the next week between Gornali and Gorgan for the new year festival

# The task

- The Minister wants to know
  - what are the risks for Gornali?
  - should she close the border and stop international flights from Gorgan to Magunsum?
    - what else can she do?
  - what do you do all the people moving for the new year festival?
  - what should she tell the media?

# Some challenges

- Language
  - different definitions used by different disciplines
  - distraction of detail
- Comfort zones
  - can't wait for 'more data'
  - making recommendations
  - changing recommendations
    - as get new information



## Some challenges (cont.)

- Being too 'T'!
  - narrow hazard lists
  - decision paralysis
- Scoring (on the risk matrix)
  - 'scales' for L, C, U
- Documenting recommendations
  - critical for post-event reviews
- Undertaking post-event reviews
  - as routine part of process

# Next steps

- Produce a training manual
  - guidelines, worked examples
  - more cases studies
- Train the trainers
  - roll out across other regions
- Engage other disciplines more
  - e.g. environmental, social
- Include in existing courses
  - e.g. postgraduate epidemiology programs

An emergency hospital during the influenza pandemic of 1918 (US National Museum of Health and Medicine)





**Thanks to:**

**Collaborators, including:**

Jenny Bishop  
Rick Brown  
Yogesh Choudhri  
Nursila Dewi  
Emma Field  
Gyandera Gongal  
Thomas Grein  
Graham Tallis  
Stephanie Williams  
Wenqing Yeo

**Participants in pilot workshops:**

South-East Asia (Kuala Lumpur)  
North Asia (Nagasaki)  
Australasia and Pacific (Wellington)  
South Asia (Jakarta)

**WPRO**

Takeshi Kasei

**WHO HQ reference group**