Disease prevention and control after tsunami attack in Thailand

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Phuket, Thailand
4–6 May 2005
### Public health responses post-tsunami

<table>
<thead>
<tr>
<th>Major response</th>
<th>Acute period</th>
<th>Post-acute period</th>
<th>Recovery period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical service</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disease control &amp; prevention</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental &amp; psychosocial care</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rescue, relief, corpse management, Others</td>
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</tbody>
</table>
Set up operation center
(27 Dec 04)

Based on existing SARS and AI operation center

Central command center at MOPH

Operation center for disease control post-tsunami

Coordination & monitoring
International Coordination

Technical support & coordination
Logistics support

Surveillance
outbreak control support
Public information
Need assessment

• **Initial assessment**
  – Lack of information, broken of communication & information system
  – Assessment made through subjective assessment of regional offices of DDC, DOH
  – Limited detail & accuracy
  – Partially guess work & speculations

• **Ongoing assessment**
  – More systematic, more accurate (eg. Use of daily situation & need assessment form by field teams & local authorities)
  – Feed back from local health and non-health authorities, special response teams (SRRT, VC, San.) & other partners
Hypothetical occurrence of infectious disease after tsunami attack

Acute injuries / drowning
Infected wounds
FWDs
VBDs/ other CDs

Medical, surgical, mental care/ support
Food/ water/ environmental sanitation, personal hygiene
Vector control, immunization, H Ed

Magnitude (arbitrary scale)

Time frame

3 Jan 04
Planned phasing of disease prevention & control support to affected provinces

First 4 weeks: Disease prevention & control support by central offices

Following 4-8 weeks: Recovery of local disease prevention & control services

Following period: Need to be in-control & self reliant
## Disease prevention and control support for affected areas

<table>
<thead>
<tr>
<th>Support team</th>
<th>Role</th>
<th>Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRRTs From DDC</td>
<td>Detection of diseases, Investigation of outbreaks, Coordination of dis. control</td>
<td>FETP staff &amp; trainees, Epidemiologists, PH workers, drivers</td>
</tr>
<tr>
<td>VBC teams From DDC</td>
<td>Insecticide spraying, Breeding source reduction, Health education</td>
<td>Entomologists, Entomo. Workers, PH workers, drivers</td>
</tr>
<tr>
<td>Sanitation support teams from DOH</td>
<td>Safe water supply &amp; water quality monitoring, Food safety surveillance, Garbage &amp; waste manage.</td>
<td>Sanitation specialists, Laboratory specialists, PH engineers, PH workers, drivers</td>
</tr>
</tbody>
</table>
SRRT team recruitment

Central DDC office
- Personel admin.
- Logistic support
- Info & tech support

Operation period:
Jan – Feb 2005

- Bureau of Epidemiology (Office staff & FETP)
- Bureau of General CD
- Regional DDC offices (Regions 11, 12 & other 5)
- Provincial offices (6)
SRRT roles

- Assess health impact / need
- Assess outbreak risk
- Set up surveillance
- Conduct case/outbreak investigations
- Initiate/ coordination disease prevention and control
- Assess response
Diseases under surveillance

1. Diarrheal diseases
   - Acute diarrhea
   - Cholera
   - Dysentery
   - Food poisoning

2. Respiratory diseases
   - Influenza
   - Pneumonia
   - Aspirated pneumonia
   - Hepatitis
   - Meningococcal meningitis
   - Typhoid fever
   - Malaria
   - DSS / DHF / DF
   - PUO
Surveillance activities

• Case detection data collection from:
  - Local hospitals and health centers
  - Privates hospitals and clinics
  - Rescue and relief centers
  - First aid units

• Outbreak investigations
• Data analysis
• Summary & reporting

Daily summary report (21-23 diseases)
Vector control teams

- Recruited from Vector Control Centers/Offices under Regional DDC 11 (Nakorn Sri Thammarat)

- Role: control of disease vectors at affected sites, corpse collection sites and around relief centers/shelters
  - insecticide spraying of flies and mosquitoes
  - Breeding source reduction
  - Risk communication
## Vector control

<table>
<thead>
<tr>
<th>Province</th>
<th>Fly control (sites)</th>
<th>Mosquito control (HH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ranong</td>
<td>230</td>
<td>1,312</td>
</tr>
<tr>
<td>Pang-nga</td>
<td>902</td>
<td>4,856</td>
</tr>
<tr>
<td>Phuket</td>
<td>527</td>
<td>1,307</td>
</tr>
<tr>
<td>Krabi</td>
<td>239</td>
<td>1,216</td>
</tr>
<tr>
<td>Trang</td>
<td>153</td>
<td>735</td>
</tr>
<tr>
<td>Satoon</td>
<td>187</td>
<td>612</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2,238</td>
<td>10,038</td>
</tr>
</tbody>
</table>
Sanitation support

- Sanitation teams assembled from field operation teams of DOH’s Regional Centers, working with over 2000 volunteers

- Logistic support of FDA, Mahidol, and private sectors; and laboratory support of Dep. of Medical Science

- Role: providing sanitation improvement at affected sites
  - Safe water supply (water treatment, bottled water)
  - Water quality monitoring
  - Food safety surveillance & improvement
  - Garbage & waste management
### Food, water & environment surveillance

in 6 tsunami affected provinces, 1 – 27 Jan 2005

<table>
<thead>
<tr>
<th>Category of tests and specimens</th>
<th># specimens tested</th>
<th>Positive finding (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacterial contamination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processed food</td>
<td>1,179</td>
<td>4</td>
</tr>
<tr>
<td>Fresh sea food</td>
<td>101</td>
<td>5</td>
</tr>
<tr>
<td>Bottled water</td>
<td>453</td>
<td>16</td>
</tr>
<tr>
<td>Ice</td>
<td>74</td>
<td>58</td>
</tr>
<tr>
<td>Heavy metal contam.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh sea food</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Sea water</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Department of Medical Science
Field coordination

Central operation center
(MOPH)

Main field operation center
(in Phuket)
chaired by a Deputy Perm. Sec.
DDC contact: Director DDC11

Provincial Operation Center
(in each of 6 affected provinces)
Chaired by an MOPH administrator
A designated DDC administrator as SRRT & VC commander

Special resp. teams
SRRT
Vector control
San.support

Provincial health office & local health authorities

Other partners
Private sector
NGO

- Situation update
- Need assessment
- Activity coordination
- Resource mobilization & utilization
- Gap filling
## Summary of reportable diseases under ad hoc surveillance, 26 Dec 04 – 23 Jan 05

<table>
<thead>
<tr>
<th>Syndrome</th>
<th>Disease</th>
<th>Cases</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diarrhea</td>
<td>Ac.diarrhea &amp; FP</td>
<td>2344</td>
<td>1</td>
</tr>
<tr>
<td>Respiratory</td>
<td>Pneumonia</td>
<td>213</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>influenza</td>
<td>34</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Measles</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Fever</td>
<td>PUO</td>
<td>162</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Dengue</td>
<td>134</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Malaria</td>
<td>44</td>
<td>0</td>
</tr>
<tr>
<td>Jaundice</td>
<td>Hepatitis</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Others</td>
<td>Wound infections</td>
<td>379</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Conjunctivitis</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Chickenpox</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Mumps</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

No major outbreaks
Major lessons learned

Positive lessons

• Efficiency of response is based on strength of existing infrastructure, especially:
  • Local health infrastructure – medical & health service / surveillance/ disease control system
  • A battery of trained epidemiologists. FETP’s leading role and contribution in disease surveillance, investigations and control
  • Laboratory service network
  • Regional offices (DDC, DOH, DMSc) → response teams
  • Operation centers (for SARS, AI, EIDs) → central & provincial
Major lessons learned

Positive

- Field coordination and command system (although taking time to establish) worked and contributed to success of disease control and fast recovery of local systems

- WHO guidelines on disaster management were useful for preparation of national response

- Leadership of the Government and MOPH administrators – main thrust for mobilization of multi-sectoral cooperation and national resources
Major lessons learned

Negative

• We were not well prepared for major disaster, lacking:
  • preparedness plan
  • Training/ exercise
  • Stockpile of essential items
  • MOPH office/staff for disaster management (under reformed structure)
  • Pre-planned coordination & command system

• Limited capacity for international coordination and communication. (assisted by WR, TUC)
To do better

National level

• Organization
  • Re-establish MOPH standing office to coordinate preparedness and response of PH emergencies (eg. Natural disasters, outbreaks, bioterrorism)
  • Assign & train persons responsible for coordination of PH emergencies at provincial and local levels
• Planning – further develop preparedness plans for disaster management at national and local levels, exercise the plans
To do better

National level

• Capacity building
  • surveillance and disease control – training staff, strengthening surveillance network
  • Water & Sanitation – strengthen infrastructure & QC
  • laboratory – training staff, improving lab. facilities

• Stockpiling – improving systems for procurement, stockpiling, monitoring and supply of essential items for PH emergency response

• Risk communication – promoting public education and communication on prevention/reduction of PH risk
To do better

International level

- MOPH to collaborate in regional/international early warning system for PH threats/disasters – WHO, APEC, ASEAN, MB
- MOPH to advocate and cooperate in establishment of international stockpiles (eg. Vaccines, medicines, PPE), urging WHO to take lead in the development
- MOPH to improve organizational capacity for international communication and coordination
Thank you