Surveillance in Post Extreme Emergencies and Disasters (SPEED)

Dr Aura C Corpuz
Try to remember September 2009
Try to remember September 2009

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Breaking News / Nation
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Leptospirosis cases hit 2,046

Philippine Daily Inquirer
First Posted 06:11 PM 10/24/2009

MANILA, Philippines — The number of leptospirosis cases caused by floods spawned by Tropical Storm “Ondoy” in Metro Manila and Southern Tagalog in the past few weeks is now more than double the number of cases monitored by the health department nationwide for the whole of 2008.

Statistics gathered by the Department of Health showed that there are now 2,046 cases of leptospirosis after Ondoy’s heavy rains on Sept. 28 caused massive flooding in the National Capital Region and its nearby provinces such as Rizal and Laguna.
Born from the experiences of past disasters, most especially from Tropical Storm Ondoy (KETSANA) and Typhoons Pepeng and Santi in 2009

**Massive flooding in NCR, Regions III, IVA**

**Massive displacement and isolation of communities = diseases**

**Delayed reporting + Delayed action = Leptospirosis outbreak post-Ondoy resulting to 3,389 cases with 249 deaths = one of the world’s largest documented outbreaks**

**Key challenge identified:**
Need for health information system during emergencies and disasters that will give timely information to allow for evidence-based decision-making, and more focused and targeted response.
What is SPEED

- Surveillance in *Post Extreme* Emergencies and *Disasters*
- Early warning surveillance system
- Monitors consultations for health conditions (both communicable and non-communicable) and injuries
- Assesses health trends
- Utilizes a web-based software
  - Receives data via SMS (text) and other modalities for submission
  - Transforms data into tables, maps, graphs to be used in reports
- Tool by health emergency managers in getting vital information for appropriate and timely response during emergencies and disasters
Objectives of SPEED

1. Detect early unusual increase of communicable and non-communicable conditions related to emergencies and disasters
2. Monitor health trends for appropriate public health action
3. Enable identification of appropriate response to handle the emergency

An aid to avert preventable morbidity and mortality
A tool for decision-making in disaster response
How does SPEED work?

SPEED SERVER (with GSM Modem)

LEVELS:
- Provincial CHD National

DATA ANALYSIS
- REPORT GENERATION
- USER ACCOUNT CREATION

MOBILE PHONE

SPEED REPORTER

REPORTING FORM

Deliver/Hand carry
Fax
Telephone Dictation
Email

DATA VALIDATION

DATA ANALYSIS

Report GENERATION

SPEED DATA MANAGER

DATA ENTRY

Note: MHO = Municipal Health Office; CHO = City Health Office; PHO = Provincial Health Office; LGU = Local Government Unit; CHD = Center for Health Development (DOH regional office); --- signifies the sending of Immediate Notification Alert when health conditions with high epidemic potential are seen in health facilities.
Weekly Consultation of Suspected Leptospirosis Cases, TS Washi, December 19, 2011 to March 11, 2012

- 1st suspected leptospirosis consultation reported
- Prophylaxis provided to IDPs in ECs and patients with wounds and injuries seen in the hosp.
  - Consultation of lepto started to rise
  - Epidemiologic investigation conducted
  - 3 deaths reported

- Peak of consult recorded
- Declared Leptospirosis Outbreak
  - Mobile lepto team conducted massive prophylaxis
  - Use of rapid diagnostics test
  - Additional 7 deaths reported

- Consultation started to decrease
- No additional deaths reported

- Declaration by CHD X that lepto outbreak is over

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**Key Events**

- **Dec 19-25**: 0 consultations reported
- **Dec 26-Jan 1**: 0 consultations reported
- **Jan 2-8**: 0 consultations reported
- **Jan 9-15**: 0 consultations reported
- **Jan 16-22**: 0 consultations reported
- **Jan 23-29**: 0 consultations reported
- **Jan 30-Feb 5**: 0 consultations reported
- **Feb 6-12**: 0 consultations reported
- **Feb 13-19**: 0 consultations reported
- **Feb 20-26**: 0 consultations reported
- **Feb 27-Mar 4**: 0 consultations reported
- **March 5-11**: 0 consultations reported

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**Legend**

- Yellow: CDO
- Red: Iligan
- Green: Total

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**Notes**

- Weekly consultation of suspected leptospirosis cases.
- TS Washi location.

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**Graph Highlights**

- Initial consultation surge.
- Prophylaxis and investigation phases.
- Significant rise in reported cases.
- Declared outbreak and prophylactic measures.
- Decline in consultations and deaths.
- Declaration of outbreak end.

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**Additional Observations**

- Prophylactic strategies employed.
- Use of rapid diagnostic tests.
- Public health response to leptospirosis outbreak.
TYPHOON YOLANDA ("Haiyan")

SPEED consultations for rash and fever by week, Region VIII

Number of consultations

<table>
<thead>
<tr>
<th>Nov 10</th>
<th>Nov 17</th>
<th>Nov 24</th>
<th>Dec 1</th>
<th>Dec 8</th>
<th>Dec 15</th>
<th>Dec 22</th>
<th>Dec 29</th>
<th>Jan 5</th>
<th>Jan 12</th>
<th>Jan 19</th>
<th>Jan 26</th>
<th>Feb 2</th>
<th>Feb 9</th>
<th>Feb 16</th>
<th>Feb 23</th>
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<tbody>
<tr>
<td>6</td>
<td>30</td>
<td>70</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td>10</td>
<td>4</td>
<td>20</td>
<td>30</td>
<td>25</td>
<td>10</td>
<td>20</td>
<td>5</td>
<td>10</td>
</tr>
</tbody>
</table>
TYphoon yolanda ("haiyan")

SPEED Consultations for acute watery diarrhea by week, Yolanda affected areas

WATSAN activities ongoing

Number of consultations
Main Output: EWARN Bulletin

Proportionate morbidity of select epidemic-prone conditions by week

<table>
<thead>
<tr>
<th></th>
<th>Jan 12</th>
<th>Jan 19</th>
<th>Jan 26</th>
<th>Feb 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARI</td>
<td>28%</td>
<td>31%</td>
<td>30%</td>
<td>33%</td>
</tr>
<tr>
<td>Fever and Rash</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>AWD</td>
<td>3%</td>
<td>2%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>AHF</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

SPEED Reporting facilities by type and week

<table>
<thead>
<tr>
<th>Type</th>
<th>Jan 12</th>
<th>Jan 19</th>
<th>Jan 26</th>
<th>Feb 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMT</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Mobile Clinic</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Evacuation Centre</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FMT Hospital</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Hospital</td>
<td>26</td>
<td>26</td>
<td>25</td>
<td>24</td>
</tr>
<tr>
<td>RHU</td>
<td>50</td>
<td>48</td>
<td>48</td>
<td>50</td>
</tr>
<tr>
<td>BHS</td>
<td>5</td>
<td>9</td>
<td>7</td>
<td>4</td>
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</tbody>
</table>

SPEED total consultations by age and week

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Jan 12</th>
<th>Jan 19</th>
<th>Jan 26</th>
<th>Feb 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 years and above</td>
<td>10,993</td>
<td>11,345</td>
<td>10,398</td>
<td>10,523</td>
</tr>
<tr>
<td>Less than 5 years</td>
<td>4,395</td>
<td>5,406</td>
<td>4,931</td>
<td>5,960</td>
</tr>
</tbody>
</table>
Key limitations and challenges

- Funding
- User retention
- Manpower
- Technology / Infrastructure dependent
  - A challenge in every natural disaster, especially in the initial phase of response
  - Addressed via manual completion & delivery of SPEED forms (SPEED runners)
How DOST-ICTO & LGUs Scale up SPEED

• Ensuring an effective & sustainable & strategic ICT infrastructures in a disaster setting, especially in a level 3 disaster

• Activating Community eCenters during disasters to ensure that data are transmitted real-time
Thank You
<table>
<thead>
<tr>
<th>SPEED Conditions</th>
<th>3-letter Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
<td>FEV</td>
</tr>
<tr>
<td>Cough, colds, sore throat w/ or w/o fever</td>
<td>ARI</td>
</tr>
<tr>
<td>Fever w/ rash</td>
<td>MEA</td>
</tr>
<tr>
<td>Fever w/ spontaneous bleeding</td>
<td>AHF</td>
</tr>
<tr>
<td>Sudden onset of fever w/ severe headache &amp; stiff neck (12 months &amp; &gt;): fever w/ bulging fontanel, or refusal to suckle (&lt; 12 months)</td>
<td>MEN</td>
</tr>
<tr>
<td>Fever w/ headache, muscle pains &amp; any of the following: eye irritation, jaundice, skin rash, scanty urination</td>
<td>LEP</td>
</tr>
<tr>
<td>Yellow eyes/skin w/ or w/o fever</td>
<td>AJS</td>
</tr>
<tr>
<td>Fever w/ other symptoms not listed above</td>
<td>FOS</td>
</tr>
<tr>
<td>Loose stools, 3 or more in the past 24 hours w/ or w/o dehydration</td>
<td>AWD</td>
</tr>
<tr>
<td>Loose stools w/ visible blood</td>
<td>ABD</td>
</tr>
<tr>
<td>Open wounds &amp; bruises</td>
<td>WBS</td>
</tr>
<tr>
<td>Fractures</td>
<td>FRS</td>
</tr>
<tr>
<td>Skin disease</td>
<td>SDS</td>
</tr>
<tr>
<td>Animal Bite</td>
<td>ANB</td>
</tr>
<tr>
<td>Eye itchiness, redness w/ or w/o discharge</td>
<td>CON</td>
</tr>
<tr>
<td>Spasms of neck and jaw (lock jaw)</td>
<td>TET</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>HBP</td>
</tr>
<tr>
<td>Known diabetes</td>
<td>KDM</td>
</tr>
<tr>
<td>Difficulty in breathing and wheezing</td>
<td>AAA</td>
</tr>
<tr>
<td>Floppy paralysis of limbs w/c occurred recently in a child &lt;15 years who is previously normal</td>
<td>AFP</td>
</tr>
<tr>
<td>Visible wasting w/ or w/o bipedal edema</td>
<td>AMN</td>
</tr>
</tbody>
</table>
HF X MM/DD/YY
POP 0 0
DISEASECODE
0 0 0 0 TOT 0 0 0

HF  Mandatory SPEED keyword
X  Health Facility Code
MM/DD/YY  Date being reported
POP 0 0
POPULATION below 5yro, 5yro and up
DISEASECODE
3-letter disease code
0 0 0 0
Number of cases and deaths below 5yo /
Number of cases and deaths 5yo and up
TOT
Total consultations