Global dengue situation and strategy for prevention and control 2012-2020
Global Dengue Risk 2012.

Average number of Dengue cases reported to WHO per year

Number of cases recorded from four WHO regions

- EMR
- AMR
- WPR
- SEAR
Number of Dengue deaths reported to WHO per year


Number of deaths reported:
- 2000: 995
- 2001: 1747
- 2002: 1654
- 2003: 1820
- 2004: 1786
- 2005: 2453
- 2006: 1828
- 2007: 3267
- 2008: 2292
- 2009: 3484
- 2010: 4248
- 2011: 2798
Rationale for New global strategy

Significant changes in the last 17 years:-

1. Improved diagnosis and case management
   1. Increase in severe dengue (mainly in Americas)
2. Case classification
3. Integrated Vector Management
   1. New tools - vector control;
4. Vaccine candidate
5. Decentralisation
   1. Program management (reactive to sustained)
6. Global spread vector & pathogens
   1. climate?
   2. demographics
# Commitment

Chronological list of World Health Assembly resolutions and Regional Committee resolutions adopted since 2000

## World Health Assembly

2002 - WHA 55: Dengue fever and dengue haemorrhagic fever prevention and Control. WHA 55.17

2005 - WHA 58: Revision of the International Health Regulations. WHA 58.3

## Regional Committee Resolutions (RCM):

<table>
<thead>
<tr>
<th>Year</th>
<th>Region</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>PAHO</td>
<td>Dengue and Dengue Haemorrhagic fever. CD43.R4</td>
</tr>
<tr>
<td>2008</td>
<td>SEAR</td>
<td>Dengue prevention and control. SEA/RC61/R5</td>
</tr>
<tr>
<td>2008</td>
<td>WPR</td>
<td>Dengue fever and dengue haemorrhagic fever prevention and Control. WPR/RC59.R6</td>
</tr>
<tr>
<td>2011</td>
<td>EMR</td>
<td>Dengue: call for urgent interventions for a rapidly expanding emerging Disease. EM/RC/58.R4</td>
</tr>
<tr>
<td>2012</td>
<td>PAHO</td>
<td>Technical update</td>
</tr>
<tr>
<td>2013</td>
<td>EURO</td>
<td>Framework on Invasive species surveillance and control</td>
</tr>
</tbody>
</table>
Global Strategy

Goal

TO REDUCE THE BURDEN OF DENGUE
Specific objectives

1. To reduce dengue deaths by at least 50% by 2020*.

2. To reduce dengue morbidity by at least 25% by 2020*.

3. To better ascertain the true burden of the disease by 2015.

*2010 as baseline
The global strategy for dengue prevention and control (2012- 2020)

Goal: To reduce the burden of dengue

Objectives:
• To reduce dengue mortality by at least 50% by 2020*
• To reduce dengue morbidity by at least 25% by 2020*
• To estimate the true burden of the disease by 2015

Technical element 1: Diagnosis and case management
Technical element 2: Integrated surveillance and outbreak preparedness
Technical element 3: Sustainable vector control
Technical element 4: Future vaccine implementation
Technical element 5: Basic operational and implementation research

Enabling factors for effective implementation of the global strategy:
- Advocacy and resource mobilization;
- Partnership, coordination and collaboration;
- Communication to achieve behavioral outcomes;
- Capacity building; and
- Monitoring and evaluation
## Diagnosis & Case Management

<table>
<thead>
<tr>
<th>Activities</th>
<th>Progress so far</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop guidelines for clinical outbreak management</td>
<td>Handbook published</td>
</tr>
<tr>
<td>Standardize core case management curricula ▪ web-based &amp; alternative CME</td>
<td></td>
</tr>
<tr>
<td>Support global/regional networks of laboratories &amp; clinical consultants</td>
<td>In progress</td>
</tr>
<tr>
<td>QA for Dengue Diagnostics</td>
<td></td>
</tr>
</tbody>
</table>
## Integrated Surveillance & Outbreak Preparedness

<table>
<thead>
<tr>
<th>Activities</th>
<th>Progress so far</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determine key indicators for routine surveillance</td>
<td>In progress (June 2014)</td>
</tr>
<tr>
<td>Establish M&amp;E performance indicators</td>
<td>In progress (June 2014)</td>
</tr>
<tr>
<td>Link entomological and clinical surveillance, lab, case management &amp; rapid response</td>
<td>Partners ?</td>
</tr>
<tr>
<td>Outbreak preparedness</td>
<td></td>
</tr>
</tbody>
</table>
# Sustainable Vector Control

<table>
<thead>
<tr>
<th>Activities</th>
<th>Progress so far</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepare guidelines for outbreak control and prevention</td>
<td>In progress</td>
</tr>
<tr>
<td>- Review</td>
<td></td>
</tr>
<tr>
<td>- IVM</td>
<td></td>
</tr>
<tr>
<td>- Rapid response</td>
<td></td>
</tr>
<tr>
<td>Vector control and vaccine implementation</td>
<td>To be addressed</td>
</tr>
<tr>
<td>- Guidelines</td>
<td></td>
</tr>
<tr>
<td>- establish role of co-dependence</td>
<td></td>
</tr>
<tr>
<td>Management of insecticide resistance</td>
<td></td>
</tr>
<tr>
<td>- Database</td>
<td></td>
</tr>
<tr>
<td>- In country tests</td>
<td></td>
</tr>
<tr>
<td>- Integrated coordination</td>
<td></td>
</tr>
</tbody>
</table>
## Future vaccine implementation

<table>
<thead>
<tr>
<th>Activities</th>
<th>Progress so far</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements for maximising the effectiveness</td>
<td>In progress</td>
</tr>
<tr>
<td>• Target groups</td>
<td></td>
</tr>
<tr>
<td>• Coverage</td>
<td></td>
</tr>
<tr>
<td>• Delivery</td>
<td></td>
</tr>
<tr>
<td>• Cost</td>
<td></td>
</tr>
<tr>
<td>Post vaccine monitoring</td>
<td>In progress</td>
</tr>
<tr>
<td>• Effectiveness over time</td>
<td></td>
</tr>
<tr>
<td>• Side effects</td>
<td></td>
</tr>
<tr>
<td>Modelling impact</td>
<td>In progress</td>
</tr>
</tbody>
</table>
### Basic Operations & Implementation

#### Research

<table>
<thead>
<tr>
<th>Activities</th>
<th>Progress so far</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of new tools for vector control VCAG</td>
<td>In progress</td>
</tr>
<tr>
<td>Better Burden estimation of dengue</td>
<td>In progress</td>
</tr>
<tr>
<td>More effective use of existing vector control tools</td>
<td>In progress</td>
</tr>
<tr>
<td>Assess significance of ‘serotype’-specific immune succession</td>
<td></td>
</tr>
</tbody>
</table>
STRATEGY IMPLEMENTATION NEEDS

Technical elements

- Communication for Behavioral outcomes
- Advocacy and Resource mobilization
- Partnership, Coordination and collaboration
- Monitoring and Evaluation
- Capacity building
Advocacy and Resource mobilization

- Very limited resources for control and outbreak response
- Greater commitment and endorsement among ministries to one common goal
- A top priority needing global effort
  - ASEAN Dengue Day (June 15th)
  - UNITEDengue (2012)
Partnership, coordination and collaboration

- Intersectoral committee
- Coordination between members (Intrasectoral)
- Resource allocation
- Linkage with community
- Feedback and routine contacts
- Mechanism to address problems
- Cross border exchange of information
  - UNITEDengue
Communication for behavioral outcomes

- COMBI – examples to be well documented
  - Formative/Inquiry research - identifying existing behaviours that promote or impede outcomes;
  - Functional internal communication and behaviours (better coordination of each technical element’s/ interventions, programme interaction with population);
  - For effective external communication and behaviours related to population outcomes (e.g., reduced disease, reduced deaths, crafting messages, and their dissemination through mass media and other channels).
Capacity building

- The biggest challenge at all levels
  - A neglected area
- Local management
  - Decision making
- Adaptation and development of training materials
- Participatory approaches
- Negotiating skills
  - To deal with political leaders
  - Media
Monitoring and Evaluation

- The weakest link
- Core indicators
  - Number of suspected dengue fever cases
  - Number of severe dengue cases
  - Number of deaths from suspected and confirmed severe dengue;
  - Number of cases confirmed by the laboratory
  - Serotype in circulation
Challenges for dengue control

- Diagnosis
- Capacity building (case management)
- Integrated Surveillance
- Better burden estimates
- Sustained Control Measures
- Vector control
- Vaccine introduction
- Community level approaches for urban areas
- Universal Health Coverage
A disease for the future?

- Uncertain distribution and burden
- As malaria declines, dengue rises
- Impact of environmental changes
- Silent expansion of the vector
<table>
<thead>
<tr>
<th></th>
<th>Malaria</th>
<th>Dengue</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WHO</td>
<td>RECENT 2</td>
</tr>
<tr>
<td>Population at risk</td>
<td>3.2 billion</td>
<td>2.5 billion</td>
</tr>
<tr>
<td>Endemic countries</td>
<td>97</td>
<td>&gt;100</td>
</tr>
<tr>
<td>Infections /year</td>
<td>219 million</td>
<td>50 million</td>
</tr>
<tr>
<td>Severe Cases</td>
<td>3 million</td>
<td></td>
</tr>
<tr>
<td>Deaths/ year</td>
<td>627,000</td>
<td>20,000</td>
</tr>
</tbody>
</table>

1) Global Malaria Report 2013
Known or Suspected Dengue Endemic Countries: Africa

Known endemic

Suspected endemic

Amarasinghe et alia, Emerging Infectious Diseases (2011) 17:1349-1354
Current distribution maps of invasive mosquitoes in Europe

- **Aedes albopictus**
  Southern Europe, since 1979

- **Aedes japonicus**

- **Aedes atropalpus**
  IT 1996 (†), FR 2003 (†), NL 2009 (localized)

- **Aedes aegypti**
  RU 2001, PT (Madeira) 2004, GE 2007, NL 2010 (localized)

- **Aedes koreicus**
Key areas of work

WHO needs to further coordinate activities, including quality assurance of dengue diagnostics; strengthen capacity for case management and vector control; develop an evidence base for integration of preventive strategies; enhance surveillance; and work closely with health and other relevant ministries.

Dengue in the African Region is of serious concern and efforts must be made to include the disease in surveillance systems and policy development.