Malaria Situation in Myanmar

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Team Leader, Kachin State VBDC Unit

17.3.09
Southeast Asia, bordering China, Laos, Thailand, Andaman sea, Bay of Bengal, Bangladesh and India

<table>
<thead>
<tr>
<th>Area</th>
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<tbody>
<tr>
<td>Total:</td>
<td>678,500 sq km</td>
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<tr>
<td>Land:</td>
<td>657,740 sq km</td>
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<tr>
<td>Water:</td>
<td>20,760 sq km</td>
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</tbody>
</table>
Over One Hundred national races
MAJOR ETHNIC GROUPS

- KACHI N
- KAYAR
- KAYI N
- CHI N
- BAMAR
- MON
- RAKHI NE
- SHAN
Total Population: 57.6 million

0-14 years: 27.6 %

15-64 years: 67.5 %

65 years and over: 4.9 %

Population growth rate 1.84 %

Population density 85 per sq km
Population living under malarious and malaria free areas in Myanmar [2007]

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>1988</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>High risk</td>
<td>38.9%</td>
<td>27.98%</td>
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<tr>
<td>Moderate risk</td>
<td>41.7%</td>
<td>23.55%</td>
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<tr>
<td>Low risk</td>
<td>13.8%</td>
<td>16.81%</td>
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<tr>
<td>No risk</td>
<td>8.6%</td>
<td>31.66%</td>
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</table>

Malaria Free 31.66%
Malarious 68.34%
Malaria Risk Areas in Myanmar

- High Risk
- Moderate Risk
- Low Risk
- Free Risk

Malarious area according to ecology

- Coastal malaria
- Plain area malaria
- Malaria in forest fringe foot hill area
- Hilly and Forest area malaria
MALARIA MORBITY & MORTALITY RATE IN MYANMAR

To reduce 50% of malaria morbidity and mortality year 2000 - 2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Morbidity /1000 Population</th>
<th>Mortality /100,000 Population</th>
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<tbody>
<tr>
<td>1988</td>
<td>25.5</td>
<td></td>
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<tr>
<td>1989</td>
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<td>1990</td>
<td>15.9</td>
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<td>1991</td>
<td>12.6</td>
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<td>2000</td>
<td>11.8</td>
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<td>2002</td>
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<tr>
<td>2006</td>
<td>8.74</td>
<td></td>
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<tr>
<td>2007</td>
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</table>
Malaria Morbidity Rate per 1000 Population in Myanmar

1988

1998

2003

2007

Legend:
- 1 - 9
- 10 - 19
- 20 - 29
- 30 - 39
- 40 - 49
- 50 - 59
- 60 - 69
- 70 above
Malaria Mortality Rate /100,000 Population in Myanmar

- 1988
- 1998
- 2003
- 2007

Legend:
- 1 - <2
- 2 - <4
- 4 - <6
- 6 - <8
- 8 - <10
- 10 - <12
- 12 - <14
- 14 above

Provinces:
- Kachin
- Sagaing
- Shan - N
- Shan - E
- Shan - S
- Magway
- Rakhine
- Bago
- Kayah
- Kayin
- Ayeyarwady
- Yangon
- Mon
- Tanintharyi
Malaria Confirmed Cases in Myanmar
(5 Years Average 2003-2007)

- *P. falciparum* 76.08%
- *P. vivax* 21.55%
- *P. ovale* 0.02%
- *P. malariae* 0.39%
- *mix* 1.97%
P. falciparum & P. vivax ratio in Myanmar
Yearly age group wise malaria positive trend
High risk groups include:

- Pregnant Women & <5 yr Children
- National Races
- Seasonal Migrant Workers/ Farmers
- Miners
- Children
- Forest-related workers

No. of Villages affected

No. of Townships affected

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<thead>
<tr>
<th>Year</th>
<th>Villages</th>
<th>Townships</th>
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<tbody>
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<tr>
<td>2006</td>
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</table>
MALARIA VECTORS IN MYANMAR

**Primary Vector**
- An.minimus
- An.dirus

**Forest fringe**
- Sagaing
- Kachin
- Mandalay
- Shan
- Kayah
- Mon
- Ayeyarwady
- Bago
- Yangon
- Mrauk
- Thinntharyi

**Deep forest**
- Chin
- Rakhine
- Magway
- Kayin
- Shan
- Chin
- Rakhine
- Magway
- Kayin
- Bago
- Ayeyarwady
- Bago
- Yangon
- Mrauk
- Thinntharyi

**Local & Secondary Vector**
- An.sundaicus
- An.annularis
- An.culicifacies
- An.maculatus
- An.aconitus

**Coastal area**
- St. Kilda

**Hilly area**
- Mon

**All State & Division**
- All State & Division
DRUG RESISTANT STATUS OF *Plasmodium falciparum*

- Therapeutic efficacy of chloroquine - 62.5 - 76%
- Treatment failure with S-P - 25 - 35%
- Resistance to Mefloquine & Quinine - low level

DRUG RESISTANT STATUS OF *P. vivax*.

- CQ resistance in P.v has been documented but is not yet considered serious threat.
Distribution of chloroquine resistant Falciparum infections in Myanmar up to 1974

- Zaungtu area
- Pale-Kyun (Myeik Township)
- Taikkyi area
- Sedawgyi area
- Obauk area
- Sittwe area
- Kyauktaw area
- Minbya area
- Kabaw Valley
- Kale Valley
- Fourth Mile area
- Ngapali area
- Gyogon area

Areas less than 1000 metres
Areas above 1000 metres
Central/State-Division level VBDC Organization

Director General (DOH)

Deputy Director General (Medical Care)
Deputy Director General (Disease Control)
Deputy Director General (Public health)

Director (Disease Control)

Deputy Director (Malaria)

Assistant Director (Malaria)
  Field Operation & Malaria Epidemiology

Assistant Director (Malaria)
  Training & Research

Assistant Director (Malaria)
  Filaria

Assistant Director (Malaria)
  DHF & JE (Arbovirus)

Malarialogist (Sagaing/Kachin)
HQ (Sagaing)

Malarialogist (SSS/Kayah)
HQ (Taunggyi)

Malarialogist (Mon/Kayin)
HQ (Mawlamyine)

Malarialogist (Ayeyarwaddy/Rakhine)
HQ (Pathein)

Malarialogist (Mandalay/NSS)
HQ (Mandalay)

Malarialogist (ESS)
HQ (Kyaiington)

Malarialogist (Magway/Chin)
HQ (Magway)

Malarialogist (Bago/Yangon)
HQ (Bago)

Malarialogist (Tanintharyi)
HQ (Myeik)
Malariologists Set Up of State & Division VBDC Teams

- Malariologist (Sagaing/Kachin) HQ (Sagaing)
- Malariologist (Magway/Chin) HQ (Magway)
- Malariologist (Ayeyarwaddy/Rakhine) HQ (Pathein)
- Malariologist (Bago/Yangon) HQ (Bago)
- Malariologist (Mandalay/NSS) HQ (Mandalay)
- Malariologist (ESS) HQ (Kyaingon)
- Malariologist (SSS/Kayah) HQ (Taunggyi)
- Malariologist (Mon/Kayin) HQ (Mawlamying)
- Malariologist (Tanintharyi) HQ (Myeik)
Aims & Objectives of NMCP

- Reduction of malaria morbidity and mortality by 50% of the level in 2000 by 2010 and

- To achieve MDG by 2015 (To achieve MDG Goal 6 Target 8 - have halted by 2015, and began to reverse the incidence of malaria and other major diseases)
National Malaria Control Program Strategies
1. Information, Education & Communication regarding malaria up to grass root level
2. Prevention - mainly emphasizing personal protection and environmental measures
1. 3. Prevention, early detection and control of epidemics.
4. Early Diagnosis and Appropriate Treatment
5. Intersectoral collaboration.
6. Community involvement
7. Capability strengthening of health staff
8. Operational Research
Follow Through to Vector Control and Management

- 1 Malarialogist and 1 Entomologist attended
- Entomological study to be carried out in Rakhine State starting this month
Follow Through to ISD – Malaria Microscopy and QA

- 2 Lab Tech attended
- Refresher training of State/Divisional microscopists conducted in Nov.
- QA activities commenced in Jan. 2009
Capacity Development Needs

MMFO

TTT

Epidemic Management

VCM

Pharmaceutical Management and Quantification
Innovative Strategies

- **New Treatment Policy** (ACT for *P. falciparum* positive cases)
  developed and adopted in 2002,
  reviewed and updated in Feb. 2008
  being implemented in the public sector
  nationwide
Innovative Strategies
Microstratification of malaria risk areas in 80 townships
Innovative Strategies

- Township evaluation and micro-planning

Conducted in 100 townships in 2008 and 2009
Innovative Strategies

• Community-based malaria control program (Malaria Volunteers)
  - introduced in Eastern Shan State and Tanintharyi Division in 2008
  - being expanded in 3 States and I Division in 2009
Innovative Strategies

- Quality assurance of malaria microscopy/ RDT (rapid diagnostic test)


From
Health Centers
S/D Malaria Clinics

To
S/D Malaria Clinics
Central VBDC
Issues & Challenges

• Sustainability of countrywide coverage with New Treatment Policy
• Adherence of New Treatment Policy
• Scaling up ITN Program
Issues & Challenges

• Improving KAP of local community

• Multi-drug resistance of *P. falciparum*

• Fake & substandard anti-malarial drugs
Thank You