Impact of vector control and malaria diagnostics on ACT consumption

presented by
Dr A. Bosman, Global Malaria Programme

Artemisinin Conference 2010
12 October 2010, Antananarivo, Madagascar

World Health Organization
Malaria decrease in Africa due to effective control

Systematic review: 24 studies conducted between 1989 and 2005 in 15 different African countries including 15'331 patients

Proportion of malaria among fevers highly variable: 2% to 81%: Median parasite rate = 26%

<table>
<thead>
<tr>
<th>Year range</th>
<th>Median PfPR</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985-1999</td>
<td></td>
<td>37%</td>
</tr>
<tr>
<td>2000-2007</td>
<td></td>
<td>17%</td>
</tr>
</tbody>
</table>

Reduction of >50% in cases: 29 countries outside of Africa and ... 

(a) Americas (high incidence)
- Honduras
- Belize
- Nicaragua
- Peru
- Suriname

(b) Americas (low incidence)
- El Salvador
- Mexico
- Argentina

(c) Eastern Mediterranean
- Iran
- Oman
- Saudi Arabia
- Morocco
- Syrian AR

(d) Europe
- Turkey
- Georgia
- Azerbaijan
- Tajikistan

(e) South-East Asia
- Sri Lanka
- Bhutan
- Thailand
- Malaysia
- India

(f) Western Pacific
- Lao PDR
- Viet Nam
- Malaysia
- Singapore
- Philippines

Source: World Malaria Report 2009
Reduction of >50% in cases: ... in 9 African countries

- Eritrea
- Rwanda
- Sao Tome and Principe
- Zambia

Also: Botswana, Cape Verde, Namibia, South Africa, Swaziland

Artemisinin Conference | 12-14 October 2010
Impact of free ACT and free LLIN (to children U5 & pregnant women) on malaria burden in Zanzibar


Parasite rate reduced 2-fold in 2005 and another 10-fold in 2006
Under-5 malaria outpatients, inpatients and deaths reduced 4-fold in 2005 compared to 2003
The climate in Zanzibar remained favourable to malaria throughout the same period
## Adoption of policies for malaria diagnosis (Dx)

<table>
<thead>
<tr>
<th>Policy</th>
<th>AFRO</th>
<th>AMRO</th>
<th>EMRO</th>
<th>EURO</th>
<th>SEARO</th>
<th>WPRO</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. endemic countries</td>
<td>43</td>
<td>23</td>
<td>12</td>
<td>9</td>
<td>10</td>
<td>10</td>
<td>107</td>
</tr>
<tr>
<td><em>Pf</em> endemic countries</td>
<td>42</td>
<td>11</td>
<td>9</td>
<td>1</td>
<td>9</td>
<td>9</td>
<td>81</td>
</tr>
<tr>
<td>Free Dx in public sector</td>
<td>25</td>
<td>13</td>
<td>8</td>
<td>8</td>
<td>10</td>
<td>9</td>
<td>73</td>
</tr>
<tr>
<td>Dx test: all age groups</td>
<td>33</td>
<td>15</td>
<td>5</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>76</td>
</tr>
<tr>
<td>Dx test: only &gt; 5yrs old</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>RDT at community</td>
<td>15</td>
<td>7</td>
<td>3</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>35</td>
</tr>
</tbody>
</table>

- No. endemic countries: 107 countries in total, 81 with *Pf* endemic countries (76%).
- Free Dx in public sector: 73 countries with free diagnosis (68%).
- Dx test: all age groups: 76 countries with Dx test (71%).
- Dx test: only > 5yrs old: 11 countries with Dx test (10%).
- RDT at community: 35 countries with RDT (33%).

Adoption of policies for malaria diagnosis (Dx)
Diagnosis of malaria: % reported cases in public sector with parasitological diagnosis

Based on cases reported to WHO: African % biased upwards since countries reporting tend to undertake more case confirmation.
Rwanda: preliminary analysis (WMR 2010)

- **Malaria cases & ACT annual orders**
  - 2002: 3000000
  - 2003: 3500000
  - 2004: 3000000
  - 2005: 2500000
  - 2006: 2000000
  - 2007: 1500000
  - 2008: 1000000
  - 2009: 500000

- **Positivity rate (%)**
  - 2002: 20%
  - 2003: 30%
  - 2004: 40%
  - 2005: 50%

- **% malaria positive**
  - 2002: 50%
  - 2003: 40%
  - 2004: 30%
  - 2005: 20%

- **% malaria outpatients**
  - 2002: 40%
  - 2003: 30%
  - 2004: 20%
  - 2005: 10%

- **% malaria inpatients**
  - 2002: 10%
  - 2003: 20%
  - 2004: 30%
  - 2005: 40%
  - 2006: 50%
<table>
<thead>
<tr>
<th>Countries with projects on (integrated) Community Case Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSI/TDR</td>
</tr>
<tr>
<td>Malaria Consortium</td>
</tr>
<tr>
<td>Save the Children</td>
</tr>
<tr>
<td>IRC</td>
</tr>
<tr>
<td>Catalytic Initiative</td>
</tr>
<tr>
<td>PMI/MCH</td>
</tr>
</tbody>
</table>

 Courtesy of Dr. F. Pagnoni, TDR
Conclusions

- Malaria trends reducing due to increasing use of RDTs, ACTs and LLINs - often combined
- Major impact of malaria diagnostics on malaria surveillance (reporting suspected "fever cases" → malaria confirmed cases)
- Reduction of ACT consumption in areas with high level of use of malaria diagnostics (e.g. testing >80% of suspected cases)
- At global level limited impact on ACT consumption because:
  - low use of malaria diagnostics, esp. in countries with high burden
  - expansion of community case management with ACTs and AMFm (Phase I)
  - variable of coverage of vector control operations (malaria resilience)