Barriers to prompt and effective malaria treatment: what matters

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MMV 2003-2007 Business Plan Update - modified

1. Discover & Develop → 2. Deliver & use effectively “Access”
Extending drug development to the true finish line...

The ACCESS Programme:

“Understanding and improving access to prompt and effective malaria treatment and care for all malaria episodes in children and adults”

- **Intervention-based** programme in the Kilombero & Ulanga Districts of Tanzania
- Implemented 2004-2007 by the IHRDC and STI
- Supported by the Novartis Foundation for Sustainable Development
- Co-artem only introduced January 2007
The ACCESS malaria treatment model

<table>
<thead>
<tr>
<th>Recognition of illness and potential severity</th>
<th>Treatment seeking initiated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility (perceived services)</td>
<td>Acceptability (perceived quality)</td>
</tr>
<tr>
<td>- Perceived</td>
<td>- Quality</td>
</tr>
<tr>
<td>Accessibility (real services)</td>
<td>Acceptability (real quality)</td>
</tr>
<tr>
<td>- Real</td>
<td>- Acceptability</td>
</tr>
<tr>
<td>Affordability (indirect cost)</td>
<td>Adequacy (opening)</td>
</tr>
<tr>
<td>- Indirect cost</td>
<td>- Waiting</td>
</tr>
<tr>
<td>No action (n4)</td>
<td>Alternatives, incl. tradit. healers (n3)</td>
</tr>
<tr>
<td>Quality of service (diagnosis and prescription)</td>
<td>Drug efficacy (including quality)</td>
</tr>
<tr>
<td>Drug Shops (n2)</td>
<td>Patient compliance (Adherence)</td>
</tr>
<tr>
<td>Effective treatment (within 24 hours)</td>
<td>Health facility (n1)</td>
</tr>
</tbody>
</table>

Healthy individuals

Fever episode
Mild / Severe

Treatment seeking

Formal Health services diagnosis & treatment

Social marketing

General shops
Drug shops
advice
self-medication

Training & quality control (ADDOs)

Strengthening of care (QIRI)
Treatment-seeking behaviour in 2004-2005 for fever episodes (no diagnosis)

<table>
<thead>
<tr>
<th>Treatment sources</th>
<th>Children &lt;5 years</th>
<th>Adults &gt;12 years</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>95% CI</td>
</tr>
<tr>
<td>AM* from health facility</td>
<td>43</td>
<td>53.8</td>
<td>42.2-65.0</td>
</tr>
<tr>
<td>AM from drug store</td>
<td>19</td>
<td>23.8</td>
<td>15.0-34.6</td>
</tr>
<tr>
<td>AM from general shop</td>
<td>8</td>
<td>10.0</td>
<td>4.4-18.8</td>
</tr>
<tr>
<td>Health facility visit</td>
<td>61</td>
<td>76.3</td>
<td>65.4-85.1</td>
</tr>
</tbody>
</table>

*AM = antimalarial

- Children use more health facilities than drug stores
- Adults use more drug stores than health facilities
- 89% of children and 82% of adults get an antimalarial
- Social marketing / health promotion seems to be working!

Source: Hetzel et al 2007

Availability: Drug stockouts in public health facilities

- Regular survey of 16 health facilities in 25 villages
- Antimalarial stock-outs October 2004 – May 2006:
  - In 10 health facilities (63%)
  - SP unavailable in 5 health facilities for over 5 months
  - May 2006: 7 of 10 HF without SP
  - Amodiaquine unavailable in 8 facilities for over 1 year
- Anecdotal evidence that co-artem availability (since January 2007) is also patchy, especially for first two weight categories
**Accessibility of malaria treatment**

- The 2001 policy change from chloroquine to sulphadoxine-pyrimethamine (SP) led to **reduced availability** because SP was not nearly so available any more in shops.
- As a result, the number of HH less than 5 Km from a shop selling an antimalarial decreased.
- 5 out of 25 study villages had no **health facility and no shop** as source of malaria treatment.

*Source: Hetzel et al 2007*

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**Affordability**

- Exemption of fees for children and pregnant women often do not apply.
- Subsidized antimalarials are often not available in health facilities.
- In 2004-2006, 84% children payed for consultation fee and SP - between USD 0.04 and USD 1.3 (average USD 0.40).
- Cost in drug shops: USD 0.20-0.40 child dose.
- Cost of ACT completely unaffordable (USD 8-15).
- New initiative to lower cost of Co-artem in selected drug shops (Accredited Drug Dispensing Outlets – ADDOs) with support from PMI.
- Similar initiative by the Clinton Foundation in another area.
Compliance (adherence) of patient

- Very high with SP since one-dose treatment and often taken at health facility or drug shop
- Co-artem and other ACTs: Studies so far show good compliance but few unsupervised observations under programme situation; study planned for 2008

Quality of care

- Re-training of all health care providers in IMCI treatment guidelines did not bring any improvement
- Pilot implementation of rapid diagnostic tests (RDTs) started in September 2007 in 5 health facilities
- Initiated (Quality Improvement and Recognition Initiative - QIRI) in 2007: advocacy with CHMT members and key stakeholders, training of service providers on QIRI principles and application, baseline assessment in 53 health facilities.

Drug efficacy

1) Drug efficacy
   - Around 60-80% parasitological efficacy of SP just before switch-over to Co-artem
   - Co-artem: around 95% efficacy

2) Quality of antimalarials available (study in 2005)
   - Quality problems were detected in:
     - 33% of the tablets produced in Tanzania
     - 20% .....“.......in India
     - 18% .....“.... in Europe
     - 9% of Amodiaquine tablets
     - 24% of SP tablets
     - 40% of Quinine sulphate tablets (used frequently as first line treatment)
   - More substandard drugs were found in shops than in health facilities
Community effectiveness of treatment

<table>
<thead>
<tr>
<th>Episode treated</th>
<th>Drug administered</th>
<th>Antimalarial (AM) administered</th>
<th>Recommended AM</th>
<th>Recomm. AM, correct dosage</th>
<th>Recomm. AM, correct dosage, same/next day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children (N=80)</td>
<td>100%</td>
<td>100%</td>
<td>98%</td>
<td>89%</td>
<td>88%</td>
</tr>
<tr>
<td>Adults (N=57)</td>
<td>100%</td>
<td>98%</td>
<td>82%</td>
<td>81%</td>
<td>56%</td>
</tr>
</tbody>
</table>

**SP**
- Overdosed: 1 children, 1 adults
- Underdosed: 18 children, 6 adults

Source: Hetzel et al 2007

More challenges: ACT

- Introduction of ACT in January 2007 (Co-artem)
  - More complicated dosage – effect on compliance
  - Availability in health facilities first => no provision for treatments obtained through drug shops
  - Training of health facility staff partially successful

- Global subsidy for ACT to come?
Conclusions

- High efficacy does only translate into effective treatment unless a number of access issues are addressed.
- Access issues are multiple and arise at different levels.
- In this area of Tanzania there is close to an adequate response in the case of fever episodes, but the quality of services is low.
- Drug availability is a chronic problem.