Getting drugs to patients:
The challenges of access and delivery

George Jagoe, MMV Global Access

MMV Tenth Anniversary: A Decade of Discovery

Thursday, 12 November 2009
Red Cross Museum  Geneva
Is Access really the Final Frontier?

What's our greatest challenge Captain?

It's Access Mr. Spock - it's as difficult and expensive as R&D.

Quality
Affordability
Availability
Acceptability
Quality
<table>
<thead>
<tr>
<th>Research</th>
<th>Lead Gen</th>
<th>Lead Opt</th>
<th>Translational Preclinical</th>
<th>Translational Phase I</th>
<th>Translational Phase II</th>
<th>Development Pivotal Study</th>
<th>Registration</th>
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<tbody>
<tr>
<td>Novartis miniportfolio</td>
<td>Whole Cell Lead Novartis</td>
<td>MK 4815 (Merck)</td>
<td>GSK 932121 GSK</td>
<td>iv artesunate Quillin</td>
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<td>GSK miniportfolio</td>
<td>Pyridone GSK</td>
<td>KAE 609 Novartis</td>
<td>Tafenoquine GSK</td>
<td>Artemisone UHKST</td>
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<td>Broad/ Genzyme miniportfolio</td>
<td>DHODH UTSW/UW/Monash</td>
<td>P218 DHFR (BIOTEC/Monash/LSHTM)</td>
<td>OZ 439 (Monash/UNMC/STI)</td>
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<td>Pfizer</td>
<td>Aminoindole Broad/ Genzyme</td>
<td>(+) Mefloquine Treague</td>
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<td>Natural Products 5 Projects</td>
<td>DHODH Broad/Genzyme</td>
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<td>Whole Cell Hits St Jude/Rutgers</td>
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<td>Other Projects 13 Projects</td>
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**MMV portfolio 3Q’09**

**Quality – We Get It**
Quality – A universal acceptance?

Health Impact

ACCEPTANCE

EXPANSION

Measure / Evaluate / Feedback

MMV’s Strategic Columns of Access & Delivery
Affordability
Affordability?

Guarantee It....

• August 2009 -- Novartis announces third price reduction for public sector buyers of Coartem since 2006
• Coartem is now 50% lower in price than it was in 2006
• Guarantee of 100 million treatment annual mfg capacity

Coartem® Dispersible

• Coartem Dispersible - Youngest patients – $0.36 / treatment
• A Promise, a Guarantee
CSR Matters – and so does economics

Coartem Price-Volume, 2004-2009

- Treatments
- Price
Affordability?

Study It.....

Understanding the Antimalarials Market: Uganda 2007
An overview of the supply side

A study by Medicines for Malaria Venture, in collaboration with Ministry of Health Uganda, HEPS and WHO

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
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<tbody>
<tr>
<td>ACTs</td>
<td>3.00 - 9.00</td>
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<tr>
<td>Artemisinin mono</td>
<td>3.00 - 24.00</td>
</tr>
<tr>
<td>Amodiaquine</td>
<td>0.24 - 0.48</td>
</tr>
<tr>
<td>Chloroquine</td>
<td>0.12 - 0.30</td>
</tr>
<tr>
<td>SP</td>
<td>0.30 - 0.60</td>
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<tr>
<td>Quinine</td>
<td>2.50</td>
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MMV Market Survey

Product breakdown:
- Sulphadoxine pyrimethamine: 16%
- Artemisinin mono therapy: 18%
- Chloroquine: 23%
- Quinine: 20%
- Others: 6%
- Artemisinin combination therapy: 10%
Affordability?

Hypothesize an Answer

Study areas: Total population 3 million

= 6 Intervention districts**

= 2 Control districts***
Affordability?

Cost is killing patients: subsidising effective antimalarials

National and global efforts to treat malaria have focused on effective antimalarials, which is far beyond the reach of the population. Is the solution suggested by the AMFM workable and relevant? ... Is this a good use of resources? ... Where is the evidence?...

Evidence is available from two pilot studies in Tanzania and Uganda in 2007–08 and 2008–09, respectively. Both studies have informed the design of the AMFM.

Let us take the example of Uganda.
Affordability? ✓ We Hope We Get It

Don’t be afraid to try for BHAGs* (but be smart too)

- Nov 10 2009 – Global Fund Board approves funding for Phase One AMFm country proposals
- A major public health experiment
- Intensive country consultation from Nov 08 to Jul 09
- 11 Countries submitted proposals.

MMV:

- Co-developed Uganda & Senegal proposals.
- Supported CHAI and AMFm secretariat in devising information and comms outreach
- Advised GF in M&E design and final RFP reviews
- Extensive contributions to HWG

* Big Hairy Audacious Goals – JCollins and JPorras in *Built to Last*
Availability
Availability in General?

Who got the drugs there, what incentivizes them?
Short Report: Malaria Drug Shortages in Kenya: A Major Failure to Provide Access to Effective Treatment

Beth B. Kangwana,* Julius Njogu, Beatrice Wasunna, Sarah V. Kedenge, Dorothy N. Memusi, Catherine A. Goodman, Dejan Zurovac, and Robert W. Snow

<table>
<thead>
<tr>
<th>Table 1</th>
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<tr>
<td>Frequency of artemether-lumefantrine (AL) stock-outs and their durations, stratified by AL pack sizes*</td>
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<tr>
<th>Type of pack</th>
<th>Stock-out on survey day, n = 164 (%)</th>
<th>No of stock-out days,† median (IQR)</th>
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<tbody>
<tr>
<td>All AL packs</td>
<td>42 (25.6)</td>
<td>52 (16–76)</td>
</tr>
<tr>
<td>6-tablet pack (5–14 kg)</td>
<td>100 (61.0)</td>
<td>37 (7–73)</td>
</tr>
<tr>
<td>12-tablet pack (15–24 kg)</td>
<td>71 (43.3)</td>
<td>35 (12–83)</td>
</tr>
<tr>
<td>18-tablet pack (25–34 kg)</td>
<td>71 (43.3)</td>
<td>43 (6–84)</td>
</tr>
<tr>
<td>24-tablet pack (≥ 35 kg)</td>
<td>87 (53.1)</td>
<td>52 (22–99)</td>
</tr>
<tr>
<td>Any AL pack</td>
<td>123 (75.0)</td>
<td>47 (20–95)</td>
</tr>
</tbody>
</table>

*IQR = interquartile range.
†Denominators include facilities without specific AL pack on survey day for which retrospective stock-out data were available: N_{(all AL packs)} = 25; N_{(6-tablet pack)} = 68; N_{(12-tablet pack)} = 46; N_{(18-tablet pack)} = 42; N_{(24-tablet pack)} = 66; N_{(any AL pack)} = 83.
In Public Sector….Availability? And…
Correct Use / Good Case Management?

Research

**Why don't health workers prescribe ACT? A qualitative study of factors affecting the prescription of artemether-lumefantrine**
Beatrice Wasunna*1,2, Dejan Zurovac2,3,4, Catherine A Goodman2,5 and Robert W Snow2,3

Research

**Improving community health worker use of malaria rapid diagnostic tests in Zambia: package instructions, job aid and job aid-plus-training**
Steven A Harvey*1, Larissa Jennings1, Masela Chinyama2, Fred Masaninga3, Kurt Mulholland1 and David R Bell4
Evolution of HBMF Programs and Research Focus

- **CQ pilots**
  - **Goal:** Evaluate the process by which HBMF can be effectively implemented in rural settings
  - **Challenges identified:** Need for community buy-in, Importance of prepacking, CHW incentive structures and attrition rates, Need for simple training materials and re-training on ACTs

- **ACT pilots**
  - **Goal:** Determine whether ACTs can be appropriately distributed and used within existing HBMF structures
  - **Challenges identified:** Lack of compelling product, Community acceptance (esp. in absence of treatments for negative test results), Potential for many false positives in endemic areas

- **RDT pilots**
  - **Goal:** Assess RDT quality, Determine whether CHWs can effectively utilize RDTs to distinguish cases requiring ACT treatment
  - **Challenges identified:** Lack of plan for expanding CHW training and managing drug supply, Should CHWs be trusted to manage multiple resistance-prone therapies (including antibiotics)?

- **Inclusion in ICCM**
  - **Goal:** Integrate CHW-delivered community health activities, Provide range of treatments for all major childhood diseases
  - **Challenges identified:** Need for community buy-in, Importance of prepacking, CHW incentive structures and attrition rates, Need for simple training materials and re-training on ACTs

**CQ = chloroquine; ACT = artemisinin-based combination therapy; RDT = rapid diagnostic test; ICCM = integrated community case management**
As of 2009, most countries have included HBMF in their national malaria control strategic plans.

However, the status of existing and planned HBMF initiatives is highly variable across countries, with few having achieved significant scale to date.

Note: Refer to file "HBMF Countries database_Sept09.xls" for details and full citations.
Acceptability
Acceptability? Do we make it easy to understand…. For moms?
Acceptability? Do we make it easy to understand…. For health workers?

**Dose** = The number of Coartem or Coartem Dispersible tablets a patient takes each time. This varies according to the weight of the patient (see below).

**Course** = The full 6 doses of Coartem or Coartem Dispersible needed to cure malaria. All patients take one dose twice a day for 3 days.

**Example:** For a child weighing 21 kg
- The dose is 2 tablets
- The course is 12 tablets, taken over 3 days

All patients take a dose of Coartem or Coartem Dispersible twice a day for three days.

**Coartem tablets are for:**

Mary and Ali are Health Workers based in an African clinic. They see many children with malaria. As you go through this book, they will share their experience of explaining to mothers how to give Coartem Dispersible correctly to their children, so that the children’s malaria is cured.
Acceptability? Do we listen to…

• The Voice of the Policy Makers globally and nationally?
• Malarologists, Researchers and other KOLs?
• National Logisticians and Central Medical Stores?
• Funding Partners?
• Patients
Acceptability? And when they say…

- We Need Simpler Dosing?
- Longer-lasting protection?
- Specially suited for pregnant moms?
- Severe malaria?
- New tools for IPTx?
Access… the Final Frontier…?
Tell Me What You See…. 
The Mission / Vision helps clear the fog

**MMV A&D’s Vision**
A world where free or easily affordable quality medicines that MMV has helped develop are always available to treat and when appropriate prevent malaria, wherever it occurs.

**MMV A&D’s Mission**
To ensure that medicines which MMV has helped develop are available in key malaria-endemic countries to a sufficient extent that they deliver a major health impact.
And in the end… a picture is worth one thousand words. Voilà – the simple access ambition