SMS for Life
Outcomes of a Pilot in Tanzania

RBM Secretariat
vanerpsj@who.int
joubertonf@who.int
+41.22.791.42.34
A public - private initiative

**Funding:** Swiss Development Cooperation and Partners

**Steering Committee:**
RBM Executive Director (Chair)
NMCP Tanzania
Swiss TPH
PSI
Novartis
IBM
Vodaphone
Background

- Clear increase of global resources
- Clear increase of resources mobilized by countries
- 160m ACTs procured in 2009, mostly in Africa
- Reports on central stockpiling and peripheral stock outs
- Requests for enhanced in-country capacity of ACT quantification
Objective

- Provide District Medical Officers with weekly updated visibility on ACT and injectable quinine stock levels in all health facilities
- Measure how this impacts on stockouts
- Agreement not to involve the Central or Zonal Medical Stores and not to intervene howsoever in the supply chain management
9 follow-up visits, one week each
3 in November 2009
3 in January 2010
3 in February 2010

Dar es Salaam: Training Sept 21st. 2009
MSD, NMCP

Kigoma Rural: Launch on Oct. 19th. 2009
DMO, Dr. Edwin Kilimba
51 Health Facilities

Ulanga: Launch on Oct. 12th. 2009
DMO, Dr. Bakari
30 Health Facilities

Lindi Rural: Launch on Sept 28th. 2009
DMO, Dr. Nkungulwe
48 Health Facilities
How does it work?

1) Each Thursday at 2pm
   a server automatically sends an SMS
   to all health facility managers

2) This SMS prompts to fill the number of ACT courses by strength and of quinine vials available in stock

   A__B__C__D__Q__

   In Tanzania pilot: B_G_R_Y_Q*

*The various strengths of the ACT (Artemether-Lumefantrin) used in Tanzania are identified by a color code:  B = blue, G = green, R = red, Y = yellow.  Q = quinine
How does it work?

3) The manager moves over to his stock and enters the numbers of ACTs (by strength/color) and quinine vials available. Example of Tanzania:

   **B4G1R2Y3Q30**

4) Then he sends back the SMS. That’s it!

5) If he replies within 24 hours, he may automatically receive a small credit on his telephone as an encouragement (if the MOH decides to do so)

6) If he has not answered by Friday morning he receives a reminder and another one on Friday evening as needed.
“SMS for Life”
Improving medicine access through innovation

A Roll Back Malaria Partnership Initiative

1. Pokea SMS unaotisha habari za Akiba ya madawa

2. Hesabu Akiba ya Madawa

3. Andika matokeo na tuma SMS kwenya nambari: 15009

4. Pokea muda wa maongezi wa hore
Average response rate of 95%
Data accuracy rate of 94% (physical count)
Data accessed on a daily basis (system log)

![Data requests and responses](chart)

Figure 2 displays the total response rate in % by week and broken down into time periods. The red line on the graph shows the error rate.
How does it work?

7) As SMSes are sent back by the managers to the server all tables, graphs and maps are automatically updated. They can at all times be accessed via internet by the National Malaria Control Programme and the District Medical Officer.
Stock levels

This report shows the level of stock available for each of the drug types, across each district.

- Red figures represent a stock out, i.e., the time stock has been zero.
- - - represents no stock report provided.
- Click on a Health Facility for detailed analysis.

Search

Choose

All stock levels

Search

Lindi Rural District

<table>
<thead>
<tr>
<th>Code</th>
<th>Facility</th>
<th>Coartem Blue</th>
<th>Coartem Green</th>
<th>Coartem Yellow</th>
<th>Coartem Red</th>
<th>Quinine</th>
</tr>
</thead>
<tbody>
<tr>
<td>D35101</td>
<td>KITOMANGA</td>
<td>21</td>
<td>3</td>
<td>9</td>
<td>12</td>
<td>116</td>
</tr>
<tr>
<td>D35102</td>
<td>NYANGAMARA</td>
<td>7</td>
<td>5</td>
<td>6</td>
<td>21</td>
<td>170</td>
</tr>
<tr>
<td>D35103</td>
<td>PANGABO</td>
<td>9</td>
<td>8</td>
<td>10</td>
<td>10</td>
<td>111</td>
</tr>
<tr>
<td>D35104</td>
<td>RUTAMBA</td>
<td>17</td>
<td>2</td>
<td>9</td>
<td>10</td>
<td>147</td>
</tr>
<tr>
<td>D35109</td>
<td>CHIKONJI</td>
<td>11</td>
<td>5</td>
<td>27</td>
<td>10</td>
<td>120</td>
</tr>
<tr>
<td>D35140</td>
<td>CHUTA</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>120</td>
</tr>
<tr>
<td>D35141</td>
<td>DIMBA</td>
<td>16</td>
<td>5</td>
<td>9</td>
<td>7</td>
<td>41</td>
</tr>
<tr>
<td>D35142</td>
<td>HINZAWI</td>
<td>20</td>
<td>14</td>
<td>11</td>
<td>4</td>
<td>150</td>
</tr>
<tr>
<td>D35143</td>
<td>KUMAENI</td>
<td>10</td>
<td>7</td>
<td>11</td>
<td>8</td>
<td>162</td>
</tr>
<tr>
<td>D35144</td>
<td>KILANGALA</td>
<td>15</td>
<td>5</td>
<td>8</td>
<td>9</td>
<td>440</td>
</tr>
</tbody>
</table>
Actionable stock level visibility

Every Monday morning the District Medical Officer and District Pharmacist meet, review the updates and, as appropriate, can act by

1) redistributing ACTs between facilities
2) supplementing from the district store
3) issuing an additional order to zonal store
Lindi Rural – % of the 48 facilities with a stock-out by ACT dosage form. (from 57% to 0% with stock-outs in 8 weeks!)

Historical Zero Stock Levels

(% of health facilities with zero stock)

Figure 7 displays the percentage of health facilities with a stock-out of any of the four ACT dosages on a weekly basis. The last row in the chart displays calculated percentages changes in the stock-out level of each dosage form from the first to the last week.
Ulanga – % of the 30 facilities with a stock-out by ACT dosage form
(from 87% to 30% with stock-outs in 4 months)

Figure 13 shows the percentage of health facilities with a stock-out of any of the four dosage form of ACT (RYBG), on a weekly basis. The last row in the chart displays calculated percentage changes in the stock-out of each dosage form from the first to the last week.
Kigoma Rural – % of the 51 facilities with a stock-out by ACT dosage form (from 93% to 47% with stock-outs in 4 months)

Figure 19 shows the percentage of health facilities with a stock-out of any of the four dosage form of ACT (RYBG), on a weekly basis. The last row in the chart displays calculated percentage changes in the stock-out of each dosage form from the first to the last week.
Kigoma Rural – % of the 51 Facilities with a stock-out of Quinine Injectable (from 35% to 4% with a stock-out in 4 months)

<table>
<thead>
<tr>
<th>Date</th>
<th>Quinine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thu, 22nd October 09</td>
<td>35.71 %</td>
</tr>
<tr>
<td>Thu, 18th February 10</td>
<td>4.08 %</td>
</tr>
<tr>
<td></td>
<td>- 31.63 %</td>
</tr>
</tbody>
</table>

Figure 24 shows the percentage of all health facilities (44 public and 7 faith based) with a stock-out of Quinine Injectable on a weekly basis. The last row in the chart displays calculated percentage changes in the stock-out of Quinine Injectable from the first to last week.
Results – all 5 Medicines

Between the start and the end of the Pilot:
Out of 129 facilities

- had all 5 medicines in stock:
  from 29 up to 96 facilities (from 22% to 74%)
- had a stock-out of at least 1 drug:
  from 99 down to 34 (from 77% to 26%)
- A threefold improvement.
Results - ACTs

- At the start of the Pilot 26% of facilities had no ACT of any dosage form in stock.
- At the end only 1% had no ACT of any dosage in stock.
- Meaning that 99% of facilities had at least one dose form of ACT in stock.
Preparation and roll-out costs first year

Building on this pilot Tanzania decided the deployment in 128 (and revival in 3 pilots districts) costed at $500,000 for 5000 Health Facilities*.

= $100 per facility for the first year

This covers the training and operational costs

- Training costs: 1400 man/days for 131 training session for health workers plus district staff plus travel time, Per Diem allowances, food, transport, training materials, posters, training room rental etc.
- Operational and incentive costs increasing throughout the first year as districts are launched one after the other

* As an average health facilities in Sub-Sahara Africa cover a population of 10 000 people each
Operational costs in following years

- $100 / facility / year without mobile credit incentives
- $130 / facility / year with mobile credit incentives

Operational Costs include:
- Rental of a single free number unique cross-networks
- Consolidation costs
- SMS costs
- All backend technology and helpdesk support costs.
- All depreciation and equipment/software replacement costs.
- Smart Phone costs for District Teams ($750/district)
SMS for Life costs compared to ACT costs

Swiss TPH* updated its District ACT Forecasting tool and estimates that in settings with an endemicity similar to the average one in Tanzania the landed cost of need/demand for ACTs is about

- $3,917 / 10,000 inhabitants** with RDT use
- $6,288 / 10,000 inhabitants** without RDT use

and therefore estimates that an additional cost of $100 – 130 for having the forecasting based on real consumption data and stock outs almost eliminated is largely justified.

* ref: Prof Don de Savigny d.desavigny@unibas.ch **i.e. per health facility
Cost of SMS4L over cost of ACT need/demand per year and per health facility (10,000 inhab) - with RDT use

<table>
<thead>
<tr>
<th>Operational Costs without phone incentives</th>
<th>Cost/HF Year 1</th>
<th>Cost/HF Following years</th>
<th>Cost of ACT need/demand Per year and per HF</th>
<th>Cost in % Year 1</th>
<th>Cost in % Following years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$100</td>
<td>$100</td>
<td>$3,917</td>
<td>2.55%</td>
<td>2.55%</td>
</tr>
<tr>
<td>Operational Costs with phone incentives</td>
<td></td>
<td>$130</td>
<td></td>
<td></td>
<td>3.32%</td>
</tr>
</tbody>
</table>
Cost of SMS4L over cost of ACT need/demand per year and per health facility (10,000 inhab) - without RDT use

<table>
<thead>
<tr>
<th></th>
<th>SMS4L Cost/HF Year 1</th>
<th>SMS4L Cost/HF Following years</th>
<th>ACT need/demand Cost/HF/year</th>
<th>Cost in % Year 1</th>
<th>Cost in % Following years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational Costs without phone incentives</td>
<td>$100,00</td>
<td>$100,00</td>
<td>$6,288</td>
<td>1.59%</td>
<td>1.59%</td>
</tr>
<tr>
<td>Operational Costs with phone incentives</td>
<td>$130,00</td>
<td></td>
<td>$6,288</td>
<td>1.59%</td>
<td>2.07%</td>
</tr>
</tbody>
</table>
Recommendations

• Implement the **SMS for Life** solution in all districts of Tanzania.

• Encourage the use the **SMS for Life** solution to track other core medicines.

• Apply the **SMS for Life** solution to disease surveillance.

• Implement **SMS for Life** in other African or non-African countries that have a need to enhance forecasting and eliminate stock-outs at health facility level.
Thank You