Malaria burden in Burundi

Malaria is the leading public health problem in Burundi by virtue of its morbidity and mortality.

It is endemic and occurs in three epidemiological strata:
- lowlands where malaria is hyper-endemic (and where lives 23% of the total population);
- central highland plateaux (1400-1800m) which are potentially epidemic areas, especially around marshlands where more and more rice farms and fish ponds are being opened (56% of the population);
- and Congo-Nile ridge (>1800m), which is a non-endemic area where there are only imported cases.

In 1987, the overall economic loss due to malaria in Burundi was estimated at US$ 730 million, or US$ 117 per capita. It includes direct losses related to the cost of managing diseases and indirect costs related to the absenteeism of working adults.

In 2002, malaria accounted for 46% of consultations in health facilities and 47% of deaths among children under five years of age (source: National Epidemiology and Statistics Service). For more than a decade now, prevalence of malaria in Burundi has been increasing, for example from 548 201 cases in 1991 to 3 047 319 cases in 2000 (cf 2000 - 2004 incidence table in annex).

This malaria situation has been aggravated by the increasing appearance of resistance of P. falciparum to first-line (Chloroquine) and second-line (Sulfadoxine Pyrimethamine) drugs and by a particularly severe malaria epidemic at the end of 2000 and in early 2001. This led the Burundian health authorities to opt for a change of malaria treatment policy during a national consensus workshop held in July 2002. Following the results of Therapeutic Efficacy Tests conducted with two combinations drugs artesunate/amodiaquine and artemether/lumefantrine (efficacy test table), the artesunate/amodiaquine (AS/AQ) combination was chosen as first-line treatment and as treatment during malaria epidemics.

The new protocol was officially launched on 10 November 2003 at Gatumba under the effective chairmanship of His Excellency the Minister of Public Health. The ceremony was attended by top officials from the Ministry of Health, local political and administrative authorities, representatives of UN organizations and donors who supported to the change process (cf launch photo in annex).

Implementation of the new ACT-based malaria treatment protocol

WHO has been promoted and supported implementation of the new malaria treatment protocol since November 2003 through:

Partnership building

- Formation by the Ministry of Health of a technical group responsible for the implementation of the new protocol. The group comprises officials of the Ministry of Public Health, NGOs, UNICEF and WHO.
- Support for local mobilization of resources (DFID, GFATM, etc) for the implementation of the new protocol.

Supply of ACTs

The first supply comprising separated blisters (903 645 AS and 947 959 AQ) covered the first ten months of implementation of the new protocol. With the second order of 305 000 co-blisters of 12 + 12 tablets and 305 000 co-blisters of 6 + 6 tablets, the country’s requirements were covered up to February 2005 as projected. A third order of 479 280 co-blisters of 12 + 12 tablets, 166 880 co-blisters of 6 + 6 tablets and 147 180 co-blisters of 3 + 3 tablets provided a stock of drugs up to June 2005 in the entire country.

Supply of ACTs to health facilities was done

Through Provincial Health Offices from the central stock ordered and deposited at the UNICEF office. Replenishment of supplies is subject to presentation of documents on the use of the previous stock at both the Provincial Health Offices and health facilities levels (number of pa-
tients treated, quantity of drugs used, statement of income from the sale of anti-malarial drugs, etc.).

Through the normal channel of the Ministry of Public Health to approved public health facilities exclusively from the stock financed by the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM): from CAMEBU to Provincial Health Offices and from the latter to health facilities.

Payment is on a service basis: consultation, laboratory tests and drugs are billed separately. Concerning the sale of antimalarial drugs, under-five children pay a fixed sum of 100 Burundian francs (US$ 0.1) and people belonging to other age brackets pay 200 Burundian francs (US$ 0.2).

Provision of tools

- Preparation of modules for health personnel training in the management of malaria, including the integrated management of childhood illness (IMCI) approach, by WHO, UNICEF and the Médecins sans Frontières (MSF) group.
- Preparation and validation of the malaria epidemic control plan with the support of WHO experts (Regional Office and country office), national experts and health partners. Implementation of the plan activities has started with various training sessions in integrated disease surveillance and response (IDSR).
- Preparation of pharmacovigilance tools for detection of the adverse effects of drugs (AED) and establishment of six pharmacovigilance sentinel sites.
- Preparation of an operational plan for promotion of the use of impregnated mosquito nets.
- Preparation of supervision protocols.

Enhancement of health personnel skills

- A series of cascade training courses for implementation of the new protocol: 15 national trainers and 85 provincial trainers: 1845 health workers have been trained (400 with financing from the Global Fund and 1 445 with financing from WHO, UNICEF and the European Development Fund (EDF); all heads and deputy heads of approved public CDS of the country’s 17 provinces were trained.
- Training of 64 health workers in pharmacovigilance.
- Supervision activities were jointly carried out by P/LMTC, WHO and the technical committee responsible for monitoring implementation of the new protocol.

Monitoring and evaluation

WHO continued to play a supervisory role by addressing all technical issues and intervening actively in monitoring and evaluation.

- Holding of information meetings on the implementation of the new protocol through “health exchange meetings” organized by WHO and bringing together all health partners.

Monitoring and evaluation results

Monitoring

It is early to measure the impact of the new protocol as implementation started only in November 2003. Also many other factors which may influence morbidity and mortality must be taken into account.

However, a review of morbidity data for 2000 to 2004 in the country’s health centres and hospitals was conducted. Malaria incidence among patients dropped from 46% in 2000 to 23% in 2004.

- A rapid analysis of data in the provinces hosting the sentinel sites (Kayanza, Gitega, Cankuzo, Bubanza, Karusi and Bujumbura Mairie) shows that monthly incidence rates dropped during 2004 compared with the previous years. This is attributable to several factors including the introduction of the new malaria treatment protocol.

The case of Karuzi deserves special mention. In this province,
the monthly malaria incidence curve during the first quarter of 2004 is lower than all the other years and is almost horizontal, which can be explained by the fact that:

- Most CDS in this province are supported by the Belgian MSF; these centres conduct a clinical diagnosis using the “paracheck” quick screening test before the patient undergoes treatment. The patients treated were therefore more likely to be suffering more from malaria.

- There is a parallel multiple environmental interventions programme in this province, including indoor residual spraying and treatment of waste water pipes, which could have a positive impact on malaria morbidity as well.

In one “health exchange” meeting, partners reported about an ACTs stock shortage since June 2005 in some provinces: the order placed by GFATM which was expected since June 2005 was received at CAMEBU in August 2005.

**Evaluation**

A WHO Regional Office for Africa and ICP/MAL team supported the Ministry of Public Health in the conduct of the evaluation of malaria management in health centres from 24 January to 23 February 2005. The following were the conclusions of the evaluation:

- AS+AQ was available in 77.5%, 91.3%, 40% of public health services, licensed health centres and private sector respectively.
- 45% of workers involved in the management of malaria cases were trained but the training did not take into consideration the “Integrated Management of Childhood Illness (IMCI)” approach;
- 89% of health workers were trained and supervised at least once during the last six months preceding the survey;
- the clinical examination inadequately screened for signs of danger in under-five children with fever;
- frequency of prescription of Artesunate + Amodiaquine combination in the case of uncomplicated malaria was not different in children under five years of age and those over five years, that is 71% as against 69% (X2= 2.9 ; p=0.08) and quinine was still prescribed in most cases of uncomplicated malaria, that is between 50% and 80% of cases;
- the proportion of people accompanying sick children or of the patient themselves who understood the advice given by health workers during outpatients’ consultations was 86%;
- on the day of the survey, 80% (n = 80) of health facilities reported having the Artesunate + Amodiaquine combination in stock whereas direct observation of the stock revealed that the combination was physically available in 75% (n=75) of health facilities;
- 50% of private health facilities did not have any first-line antimalarial drug on the day of the survey;
- Availability of the Artesunate + Amodiaquine combination was: 50% (n-8) in hospitals and 81% (n-64) in health centres.

**Challenges and prospects**

In view of the fact that the success of implementation of the new malaria treatment protocol depends largely on the availability of drugs used at all levels of the health system, the challenges to be faced are:

- sustained availability of ACTs;
- engaging private sector involvement (pharmacies and health centres) in putting ACTs at the disposal of patients;
- provision and management of ACTs at community level in the home management of cases of uncomplicated malaria;
- uncertainty in the outcome of proposal submitted to the fifth round of the Global Fund to Fight AIDS, Tuberculosis and Malaria regarding the “malaria” and “strengthening of health systems” components.

The strengthening of the health system will help remedy constraints in performance observed during the first evaluation and contribute to effective Roll Back Malaria in Burundi.
ANNEXES

Trends in malaria incidence in Burundi from 2000 to 2004

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Malaria cases</th>
<th>Indicence</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>6 685 713</td>
<td>304 7319</td>
<td>0.46</td>
</tr>
<tr>
<td>2001</td>
<td>6 866 226</td>
<td>2 891 229</td>
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<tr>
<td>2002</td>
<td>6 747 420</td>
<td>2 326 339</td>
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<td>6 799 326</td>
<td>2 023 121</td>
<td>0.30</td>
</tr>
<tr>
<td>2004</td>
<td>7 003 304</td>
<td>1 591 655</td>
<td>0.23</td>
</tr>
</tbody>
</table>

Source: EPISTAT/MSP

Artemisinin-based combination therapy efficacy test results (AQ+ASU and COARTEM)

<table>
<thead>
<tr>
<th>Product</th>
<th>Included</th>
<th>RCPA</th>
<th>ETT</th>
<th>ETP</th>
<th>ETP+ETT</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQ+ASU</td>
<td>149</td>
<td>95.3%</td>
<td>3.4%</td>
<td>0.7%</td>
<td>4.1%</td>
</tr>
<tr>
<td>COARTEM</td>
<td>141</td>
<td>99.3%</td>
<td>0.7%</td>
<td>0.0%</td>
<td>0.7%</td>
</tr>
</tbody>
</table>


Official launch of the new malaria treatment protocol at Gatumba on 10 November 2003: the Minister of Public Health holding an AS + AQ blister in the company of partners (WHO, UNICEF, etc.)