Malaria Control in Eritrea: Progress towards and beyond the Abuja Targets

Introduction

Eritrea is a semi-arid tropical country, which is situated in the Horn of Africa, bordered by Sudan to the north and west, Djibouti to the southeast, Ethiopia to the south and the Red Sea to the east. Its land covers an area of 124,000 sq km2. It has a population of about 3.7 million. Eritrea is classified by the World Bank as a low-income developing country with a per capita income of less than US$ 200 per year.

Malaria is an endemic disease in Eritrea, and it is highly seasonal, focal and unstable. Of the 3.7 million population of Eritrea, 2.4 million (from 41 of the country’s 58 sub-zones) reside in malaria-endemic areas. Of the groups at risk, 18% are children aged less than five years and 22% are women aged between 15 and 45 years of age. These two target groups are the most vulnerable to malaria.

The most widely spread malaria parasite is *Plasmodium falciparum*, accounting for more than 84% of all malaria cases. *Plasmodium vivax* is second, accounting for 16% of the malaria-positive smears; it has shown relative increase in recent years. Recent studies show that *Anopheles arabiensis* is incriminated as the sole vector in the country. Malaria continues to be a major threat to the socioeconomic development of the country. The RBM Core Indicators Survey of 2001 indicated that the cost of treating an episode of malaria is about US$ 2 (US$ 7 for a severe episode).

These costs are very high and significant for a country with a per capita income below US$ 200.

**RBM Implementation Plan 2000-2004**

Having recognized the threat of malaria both as a killer disease and a deterrent to socioeconomic development, the Ministry of Health endorsed the Roll Back Malaria (RBM) initiative. It was subsequently unveiled at the National Conference on Roll Back Malaria in Mendefera in July 1999, after which a five-year malaria control strategic plan (2000-2004) was prepared in consultation with partners/stakeholders.

The main objective of the strategic plan was to reduce morbidity and mortality due to malaria by 80% from the 1999 level. It also aimed to reduce incidences of malaria by 90% in epidemic-prone areas.

**Targets**

The targets were to reduce malaria mortality and morbidity due to malaria by 80% by the end of 2004; reduce the incidence of malaria epidemics by 90% by the end of 2004; and develop and strengthen the health system in order to improve malaria control activities.

**Strategies**

To achieve the objectives of the five-year RBM strategic plan, the National Malaria Control Programme of the MoH in collaboration with partners identified and pursued the following strategies for tackling malaria on all fronts:

- Early diagnosis, prompt treatment, and appropriate management of malaria;
- Malaria prevention and control through IVM including personal protection and the use of ITNs, LLINs, IRS and larviciding;
- Epidemic forecasting, early warning and response (prevention and control);
- Operational research;
- Health promotion, community education and involvement;
- Programme management, including capacity building, integration of activities, building partnership, logistic and financial management;
- Supervision, monitoring and evaluation;
- Capacity building (training, workshops and study tours).

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Achievement of targets

The choice of strategies and their positioning in consistency with RBM and Abuja declarations has led to great achievements, including exceeding the 80% target for reduction in mortality and mortality and surpassing the 60% objective of households owning ITNs. In this, Eritrea has demonstrated that it is possible to control malaria even in a resource poor country. The achievements as confirmed by the assessment survey are summarized in Table 1.

Use of ITNs was higher for children under five years and pregnant women than for those above five years indicating that the population probably knows that the two vulnerable groups have higher priority in using the nets (Figure 2).

Community health agents (CHAs) are seeing more cases than health facilities, emphasizing the need for the CHAs to be well trained and up-dated on malaria information.

Table 1: Achievements of country and Abuja targets in 2000-2004 five-Year plan

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Abuja Targets</th>
<th>Target for 2004</th>
<th>Achievement (survey)</th>
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<tbody>
<tr>
<td><strong>Mortality</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To reduce malaria mortality and morbidity compared to 1999</td>
<td>60%</td>
<td>80%</td>
<td>85%</td>
</tr>
<tr>
<td>To reduce malaria case fatality rate compared to 1999</td>
<td>60%</td>
<td>80%</td>
<td>85%</td>
</tr>
<tr>
<td>Proportion of target groups with severe malaria correctly managed by health personnel</td>
<td>80%</td>
<td>85%</td>
<td></td>
</tr>
<tr>
<td>Proportion of target groups reporting early to health facilities when sick from malaria</td>
<td>80%</td>
<td>85%</td>
<td></td>
</tr>
<tr>
<td><strong>Morbidity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To reduce malaria morbidity compared to 1999</td>
<td>60%</td>
<td>90%</td>
<td>30%</td>
</tr>
<tr>
<td>Proportion of nurses &amp; health/assistants trained in malaria case management</td>
<td>80%</td>
<td>86.5%</td>
<td></td>
</tr>
<tr>
<td>Proportion of CHAs trained in malaria case management</td>
<td>90%</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td><strong>Vector Control</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Proportion of the population residing in malarious areas having ITNs</td>
<td>60%</td>
<td>50%</td>
<td>79%</td>
</tr>
<tr>
<td>Proportion of the already selected malarious villages covered by (IRS)</td>
<td>10%</td>
<td>95%</td>
<td></td>
</tr>
<tr>
<td>Number of sentinel sites established</td>
<td>30 sites in six zones</td>
<td>16 by end 2004 (for malaria incidence &amp; vector density)</td>
<td></td>
</tr>
</tbody>
</table>
Available evidence shows that there has been a significant reduction in the malaria disease burden as illustrated by the continuous decline in the incidence of malaria since 1998, and in the 84% fall in levels of malaria mortality and morbidity since 1998 both in young children and the general population (Figure 3). Specifically, the impacts of malaria control in Eritrea include a reduction by 84% in overall malaria morbidity in outpatients. From the 1999 level (Figure 3), a reduction in overall malaria deaths by 84% from the 1999 level; and an increase in bed net impregnation from 17.2% in 1999 to 83.5% in 2004.

Cross-checking of slides has helped in identifying laboratory technicians who need refresher training and to provide them with such training. It has also helped to improve diagnosis of malaria parasites by the laboratory technicians following training and supervision. Free distribution of ITNs and mass re-impregnation campaigns have empowered people to use personal protection.

Factors contributing to overall reduction in malaria

Available evidence shows that there has been a significant reduction in the malaria disease burden in the country. Although there has been reduction in rainfall in the last few years, an analysis of the fall in malaria cases which took into account the declining rainfall concluded that the disease reduction was not
due to rainfall alone. Some of the programmatic factors which contributed to these improvements include:

- High ITN coverage, re-impregnation and utilization of nets;
- Introduction of combination therapy of CQ+SP as first-line drugs since 2002;
- Early diagnosis and timely case management;
- High levels of community awareness and participation for environmental vector control;
- Effective and functional partnerships with external RBM partners;
- Commitment and dedication of the Government, MOH, malaria control staff and general health workers;
- Technical and financial support received through RBM initiative;
- Effective planning and implementation of programme activities at central and zonal levels;
- Continuous supervision, regular monitoring and evaluation of programme activities at central and zonal levels;
- Unusually low rainfall and shorter rainy seasons.

Threats and challenges

Threats and challenges remain. Among these are sustainability of community participation, ownership and support for CHAs (provision of incentives); sustainability of community-based interventions (bednet issues, source reduction, case management); lack of continuous monitoring and impact evaluation; concerns about future cross-border malaria; the significant reduction of malaria morbidity creating other challenging issues such as low immunity of the population and the tendency to develop severe malaria and proneness to malaria epidemics; sustaining the achievements and successes already obtained and the fear that the population, MoH, partners and others might become complacent.

Conclusion

Eritrea has met the Abuja Declaration targets on schedule because the government had set even higher targets for itself. There has been a high level of sustained community awareness and the implementation of extensive community and personal prevention measures which started as donations of ITNs, initially targeted at pregnant women and children. Both morbidity and mortality have declined to a point where malaria ceases to be a major infectious disease in this small poor African country. As verified by independent sources and funding partners, this is remarkable as few countries in the Region can make a similar claim.

It is recommended that impact assessment studies be conducted early to determine the contribution of the different existing control strategies to malaria prevention and control as this provides insight for other countries. Meanwhile, the implementation of strategies that seem to be working should continue for sustained achievement.

References


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