

# Malaria kills a child every minute

**New medicines can save their lives**

**MMV and partners develop:**

- better medicines for uncomplicated malaria
- medicines for children and pregnant women
- new medicines to help eradicate malaria

We are grateful to our donors and partners whose support and expertise make this vital work possible.



**Defeating Malaria Together**

# Supporting adherence to new malaria treatment with user-friendly materials

Medicines for Malaria Venture's Maud Majeres Lugand explains the importance of designing training materials and packaging to support the correct administration of medicines

The potential impact of any new antimalarial can only be fully realised if it is used correctly. To support this, medicines must be accompanied by appropriate materials to help facilitate correct administration and adherence to the dosing schedule. Clear and user-friendly communication materials are thus critical to improve treatment outcomes.

There are a number of reasons why patients may not adhere to treatment or complete the full course of medication. A study that examined adherence to an artemisinin-based combination therapy found that many patients stopped their medication once they felt better, or failed to complete the course because there were too many tablets.<sup>1</sup> Others wanted to save some of the tablets for future episodes of malaria,<sup>1</sup> as in many regions, patients have to travel a long way to their first point of care.

“By listening to the voices of patients and health workers who use medicines in the field, we improved our understanding of the ‘human factors’ that can increase the impact of correctly used drugs - and we adapt our materials accordingly.”

*George Jagoe, Executive Vice President - Access & Product Management, MMV*

In addition, adherence to the dosing schedule may be negatively impacted when patients or caregivers struggle to understand dosing instructions.<sup>2</sup> This can be particularly problematic in populations with low levels of literacy. Providing simple patient information and pictograms has been shown to improve adherence.<sup>3,4</sup>

In collaboration with in-country partners, Medicines for Malaria Venture (MMV) has invested significant resources in designing and testing packaging and visual aids to help ensure that the drug administration process is clearly understood by both patients and health workers.

## Listen and learn: interacting with users to develop the right materials

By field testing communication materials, comprehension can be evaluated in a ‘real-life context’. The primary challenge in field testing is to incorporate end-user comments in real time, and adapt materials until they

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are readily understood by a majority of users.

Dosing instructions are often given verbally, with the patient or caregiver having only the information provided on the packaging as a reminder. Pictorial guides on packaging have been shown to increase understanding about the timing of doses and the importance of completing a course of therapy.<sup>5</sup> The purpose of these visual aids is to provide clear, simple, step-by-step instructions on what actions to take. To be successful, these resources need to meet a number of criteria.

They must:

- Be clearly understood by end users
- Present a message that is relevant to the user
- Convey a message that convinces the user to undertake the desired behaviour
- Be socially and culturally acceptable.

To develop packaging and visual aids that meet these criteria, MMV field tests the early versions of the materials with end users in endemic countries. A key feature of this approach is the iterative process. The ‘repeat factor’ is important, as gaining feedback from different groups of respondents expands the range of perspectives and helps to achieve a balanced view. At each stage, the designer and researchers redesign the materials in response to the comments received. Because the designer is actually present in the field, talking with the end-users, they are able to redraw materials ‘on the spot’, and gain immediate feedback on these modifications. This innovative approach results in the materials evolving during the field work until they effectively communicate to the majority of likely end-users.

Arriving at this point in the cycle is rewarding, as the materials have not just been designed for end users, but with them.

## Case study: field testing the Pyramax® dosing chart – less is best

Most antimalarials come in tablets of different strengths or in age/weight band specific packs with different numbers of tablets. This approach complicates stock management, forecasting, ordering and shipping. For example, a health centre may find itself with too many adult packets and too few child packets.

To avoid these problems, Pyramax®, the fixed-dose combination of pyronaridine and artesunate co-developed by MMV and Shin Poong Pharmaceutical, is dispensed in blister strips of three tablets of the same strength. Rising with body weight, the daily dose is 1, 2, 3, or 4 tablets, to be taken for 3 days.

To facilitate correct dispensing particularly at the



community level, user-friendly packaging with visual instructions was particularly important.

The field testing took place in Cambodia, India, Kenya and Senegal and involved 468 interviews with doctors, nurses, community health workers, caregivers and patients.

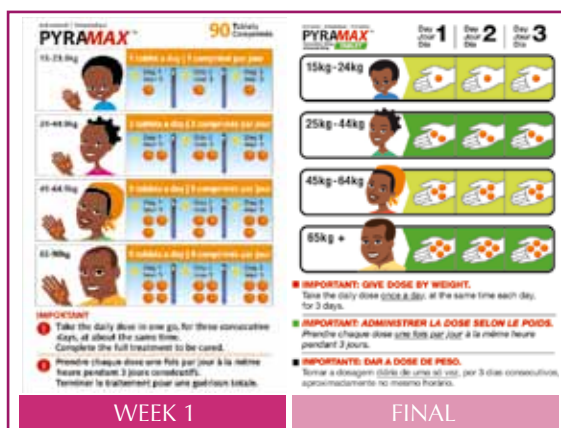


Figure 1. Evolution of the Pyramax® dosing chart

Two key pieces of information that the *Pyramax* dosing chart (Figure 1) needed to convey were:

1. The age-group for each weight-band dosing category (as *Pyramax* does not come in age-specific packs).
2. The dose is given once a day (not twice a day, as is well known for artemether-lumefantrine).

Results of the field testing showed that the patient illustrations helped the drug dispenser administer the correct dose. The cartoons were considered ‘friendly’ by inter-

viewees, who thought they were an appropriate way to distinguish between the different age groups. The ‘once a day’ message needed more refinement. The sun and moon symbols were removed as too many people interpreted this as one dose in the morning and one in the evening. To emphasise taking the tablets in one go, the dose was shown in the palm of the hand (see Figure 1). This helped to clarify the message for end users. Simple text with a clean uncluttered design was most understandable.

### Making the best use of primary packaging: the example of SPAQ-CO™ and Eurartesim®

Very often patient/caregivers receive only the blister pack accompanied by oral instructions for the administration of the treatment. The primary packaging thus provides a prime opportunity to reinforce key messages regarding the administration and dosage of medicines with the end user.

Given the limited space on an antimalarial drug package, the messages have to be very clear and concise. By testing different packaging designs with end users, MMV has helped to generate innovative packaging that facilitates correct dosing and adherence to treatment whilst also meeting the World Health Organization (WHO) requirements on packaging antimalarial medicines.<sup>5</sup>

In developing user-friendly packaging, we are working to accommodate competing requirements: communicating a large amount of information on a restricted space, and keeping packaging costs as low as possible. Simple, clear design is crucial to convey this information as can be seen below (Figures 2 and 3) with the blisters for SPAQ-CO™ (a co-blistered combination of sulfadoxine-pyrimethamine and amodiaquine recommended by

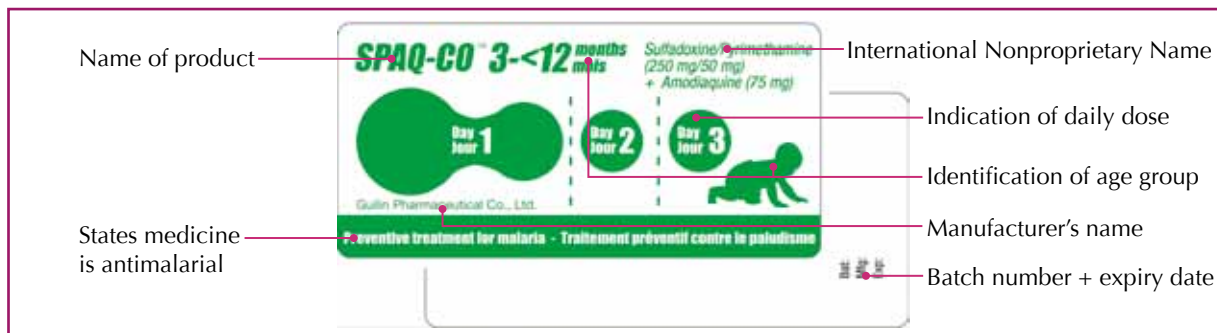


Figure 2. SPAQ-CO™ blister pack



Figure 3. Eurartesim® Cambodia packs and dosing chart

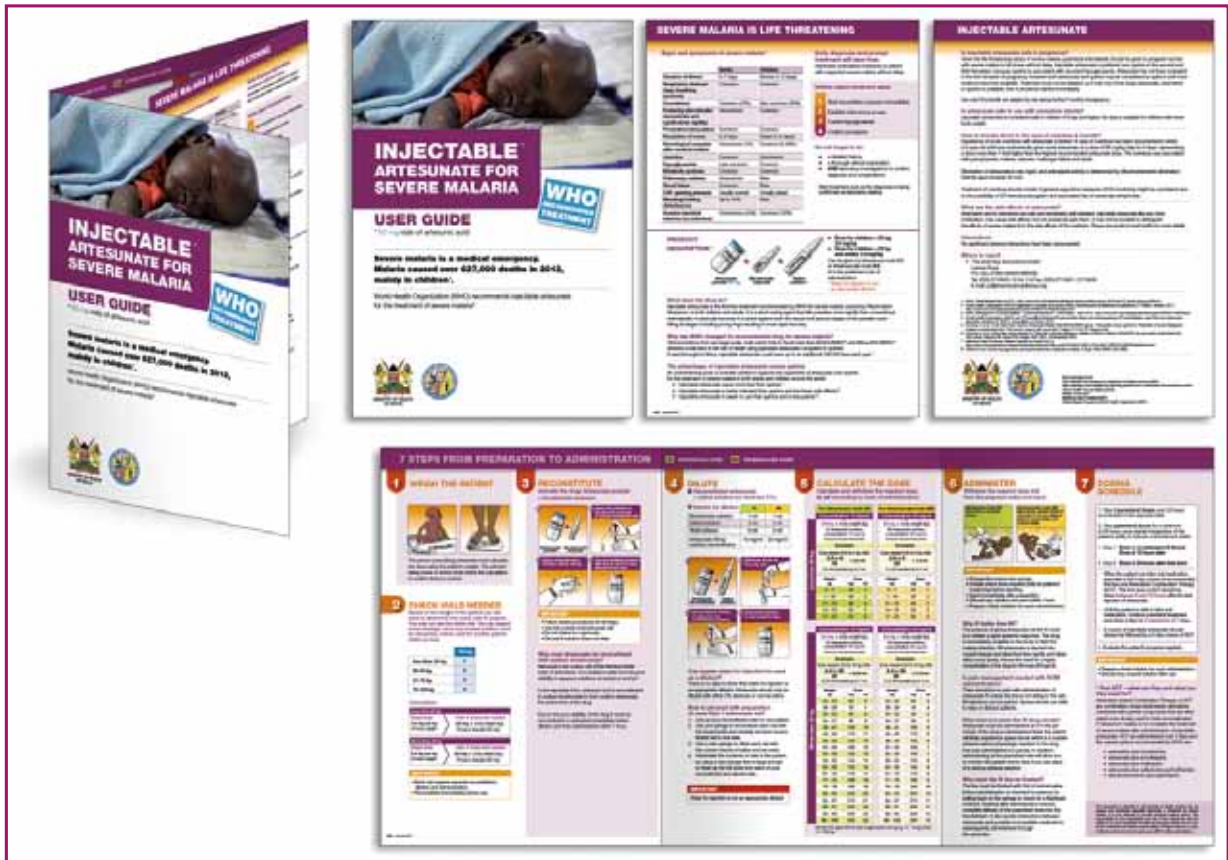


Figure 4. Injectable artesunate user guide from the toolkit

WHO for seasonal malaria chemoprevention, SMC) and Eurartesim® (a fixed-dose combination of dihydroartemisinin-piperaquine, developed by Sigma-Tau and MMV for uncomplicated malaria).

**Working in partnership to share best practice**

In addition to our work developing user-friendly packaging, MMV has worked closely with a variety of partners to create toolkits to support countries implementing SMC, and to help health workers correctly prepare and administer injectable artesunate for the treatment of severe malaria (see Figure 4). All these materials are available on the MMV website ([www.mmv.org/access/tool-kits](http://www.mmv.org/access/tool-kits)).

MMV's job aid for injectable artesunate has been

“The Injectable Artesunate visual aids are a very good initiative. They are very important as reference materials for healthcare workers. They really assist by providing information on administration including reconstitution and dosing of Inj. AS. Trainings on administration of Inj. AS would have been very difficult and time consuming without them.”

*Dr. Chalwe, Maina Soko Military Hospital, Lusaka - National Trainer (NMCC) - Administration of Inj. AS.*

widely adopted by 11 countries, including Cameroon, Kenya, Malawi, Nigeria, Uganda, South Africa and Zambia. Similarly, the launch of the SMC toolkit across the Sahel sub-region of West Africa has been supported by RBM's West Africa Regional Network (WARN) and is listed on the WHO malaria website as a useful resource.<sup>6</sup>

The knowledge we have gained extends beyond malaria. For example, we recently helped PATH develop packaging for a new dispersible tablet form of amoxicillin.

Working on these projects has given MMV considerable experience in designing and evaluating training materials for use in developing countries, and we are keen to share this experience. Through partnership and collaboration, the MMV Access and Product Management team will continue to work towards maximizing treatment outcomes by producing user-friendly materials to support new medicines.

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