

It's all in the detail

developing effective health-related job aids



Learning paper series

Since starting operations in 2003, Malaria Consortium has gained a great deal of experience and knowledge through technical and operational programmes and activities relating to the control of malaria and other infectious childhood and neglected tropical diseases. Organisationally, we are dedicated to ensuring our work remains grounded in the lessons we learn through implementation. We explore beyond current practice, to try out innovative ways – through research, implementation and policy development – to achieve effective and sustainable

disease management and control. Collaboration and cooperation with others through our work has been paramount and much of what we have learned has been achieved through our partnerships.

This series of learning papers aims to capture and collate some of the knowledge, learning and, where possible, the evidence around the focus and effectiveness of our work. By sharing this learning, we hope to provide new knowledge on public health development that will help influence and advance both policy and practice.

Community health workers using job aids during a training on use of mobile phone technology



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AUTHOR

[Maddy Marasciulo-Rice](#)

Malaria Consortium

[Sandrine Martin](#)

Malaria Consortium

CONTRIBUTORS

[Helen Counihan](#)

Malaria Consortium

EDITORS

[Sue George](#)

[Portia Reyes](#)

Malaria Consortium

DESIGN

[Transmission](#) Art direction & Design

www.thisistransmission.com

[Andrew Lyons](#) Cover illustration

[Cristina Ortiz](#) Graphic illustration

CONTACT

learningpapers@malariaconsortium.org

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Introduction

This paper describes Malaria Consortium's iterative and research-based experience developing, implementing and evaluating job aids for community health workers (CHWs)* and health facility workers** in Mozambique, Nigeria, South Sudan and Uganda.

It discusses challenges encountered and considers the lessons learned. Through this experience, Malaria Consortium has developed a recommended process and practical tips to ensure that the content of our job aids is of high quality; accurate and appropriate for the intended audience; consistent with standards of practice; communicates essential information clearly; contains culturally representative visuals and graphics; and is understood and used to perform tasks and make correct technical decisions.

The purpose of any job aid is to provide simplified information, a selection of algorithmic decisions and illustrated instructions of steps and procedures needed to perform specific tasks. Job aids are used extensively with CHWs and health facility workers to reinforce adherence to a correct sequence of standard care practices based on recommended guidelines. Job aids help to enhance memory, reduce errors and improve job performance. When used regularly, they can promote passive learning through behavioural conditioning of performing a task until the aid is no longer needed^{1,2}. In addition, when combined with training and supervision, they have been shown to enhance a health worker's ability to perform specific tasks³ correctly.

A review of the literature indicates that job aids are commonly used in developing countries to enhance the performance of CHWs and health facility workers, especially those who lack adequate supervision or clearly defined performance expectations. There is a consensus among behaviour change communication and training experts about the recommended criteria for a well-designed job aid. However, we found limited evidence in the literature regarding operational research on practical applications of these criteria or their impact on job performance⁴. We have found there to be one confounding factor in demonstrating influence of job aids on performance, which is that when CHWs were observed, they avoided using the job aid. The reason for this is because they believed the observer wanted to test their ability to perform the tasks without this support⁵.

Job aids are commonly used to enhance the performance of health workers. There is limited guidance in the literature about practical applications of recommended criteria for a well-designed job aid.

We aim to contribute to filling this gap through sharing experience-based lessons learned and tips to develop effective job aids and maximise their use and impact.

*Community health workers (CHWs) refer to individuals working in the community to provide health services. They are often volunteers and often have little education.
**health facility workers refer to doctors, clinicians, nurses, nursing assistants, laboratorians and pharmacists working in a health facility (either public or private). They are literate and earn a salary.

A Malaria Consortium community drug distributor shows a mother how to treat her one-year old daughter, South Sudan





MalariaKIT

1. If you get the test result, you will know if you have malaria.

2. Take the first two tablets from the pack.

3. Crush the tablets in a spoon like it in a bowl with water and water, orange or milk.

Day 1

Day 2

Day 3

Children aged 15 years should be given 1 yellow tablet and 1 white tablet each day at the same time for three days.

MalariaKIT

- A small child can give the test result to a parent, grandparent or other adult.
- If you are not sure, ask a health worker for help.
- Crush a tablet in a spoon or bowl with water, orange or milk.
- Children aged 15 years should be given 1 yellow tablet and 1 white tablet each day at the same time for three days.

MalariaKIT

Malaria Consortium's experience with job aids

Malaria Consortium has had extensive experience designing, developing, implementing and evaluating a variety of job aids. An integral part of our work is to strengthen capacity and improve the performance of health workers to be able to prevent, diagnose, treat and care for groups most at risk of malaria and other communicable diseases.

We do this by developing quality training curricula, training trainers, designing and developing training materials including job aids and coordinating the delivery of training. The beneficiaries of our training are CHWs and their supervisors, as well as public and private sector health facility workers. The level of education varies from CHWs with little to no education and very low literacy, to health facility workers with university education and a good reading comprehension of English, or Portuguese in the case of Mozambique.

Motivation and quality of care varies widely among these health workers. Our job aids are designed to strengthen various elements of quality of care such as interpersonal patient communication and diagnostic skills and adherence to treatment policies. In addition, we train supervisors about competency-based performance management and how to use job aids to monitor quality and standards of care during support supervision visits.

Lastly, in order to ensure good evidence supports delivery of effective services, Malaria Consortium frequently conducts formative and operational research to test the use, comprehension and impact of our job aids with users.

From theory to practise

We have found the following six criteria to be critical for a well-designed job aid. These criteria are based on recommended behavioural and communication theories and on best practice from our practical experience.

1. Communicate complex information accurately and in an easy-to-understand format.
2. Content must be current, accurate, and consistent with health policies and guidelines.
3. Provide clear options for critical decision pathways.
4. Describe processes and procedures in alignment with the training curriculum and existing healthcare practices and tasks.
5. Include culturally and literacy-appropriate language, illustrations and symbols to communicate key messages.
6. Produce cost-effective quality materials which are durable and attractive.

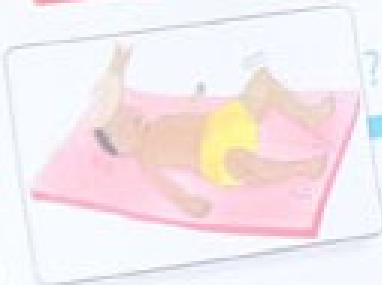
The following sections in this paper show a summary of our experiences, challenges and lessons learned while applying these principles in the development of various original or new job aids in several countries.

Community health workers using job aids during a training in Buhimba sub-county, Uganda



Malaria

Solution: Malaria/Fever



What can we do about this problem at home?

1

Communicate complex information accurately and in an easy-to-understand format

In order to reduce errors and enhance memory recall, the written and visual content of the job aid should be simple, direct and contain only key information. Any unnecessary and confusing details should be removed. Job aids should help to reduce the need to memorise complex information or a long list of processes by making it readily accessible and easy to follow. By using the job aid repeatedly over time, it reinforces the learning of job tasks through associative conditioning of desired behaviours. The messages, instructions, illustrations and symbols should serve as cues to remind the user of the knowledge and skills they acquired during training.

Selecting and presenting key information and simple cues for action

In Mozambique, the Ministry of Health revitalised the community health programme in 2010 and developed a new training curriculum for CHWs, called Elementary Multipurpose Agents (Agentes Polivalentes Elementares - APEs).

APEs are men and women village members who volunteered and were selected by their own communities to serve as APEs. Most of them have only completed the primary education cycle and have no prior medical training. They received a 16-week training alternating classroom teaching and practice stages to be qualified as APEs.

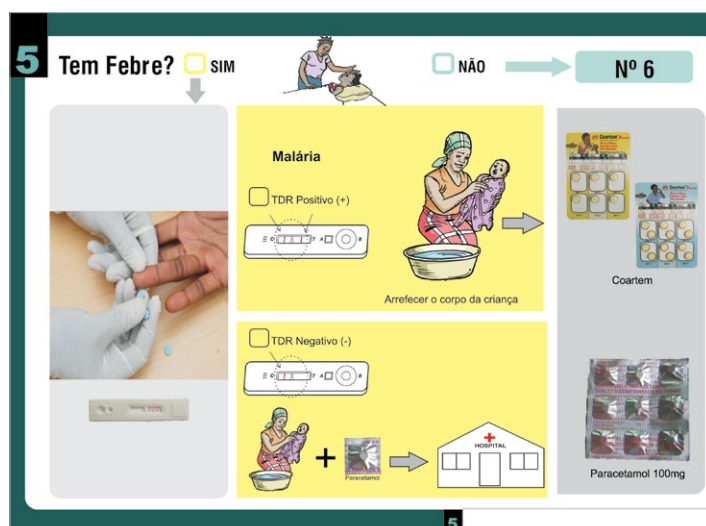
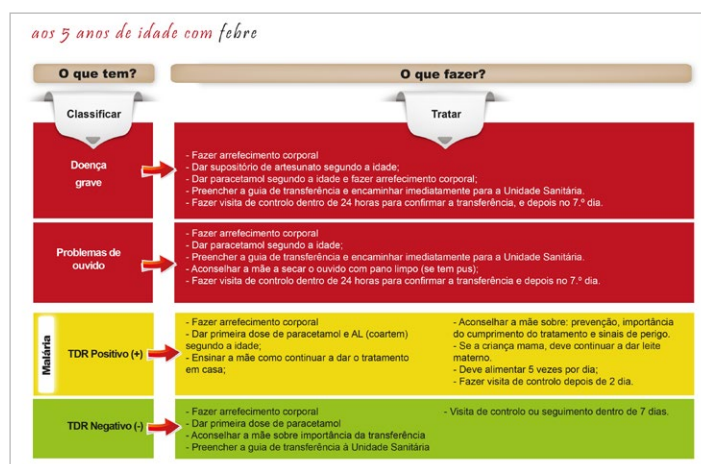
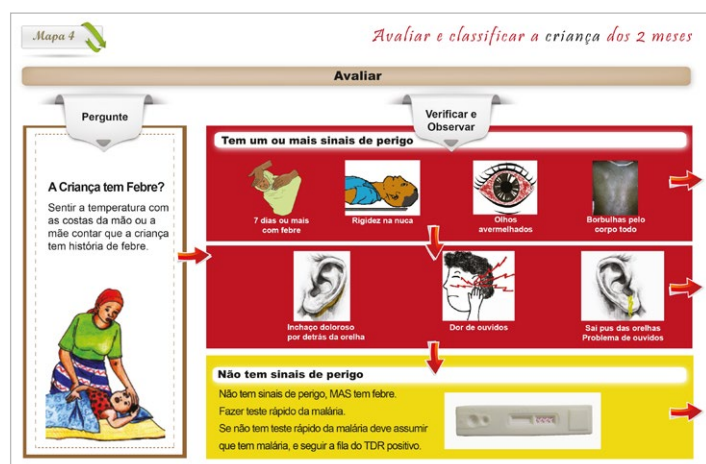
They left the training with three manuals (Module I, Module II and Module III), each one over 100 pages. The third module, which covers diagnosis and treatment of common illnesses, was designed with colourful illustrations and visuals, including colour-coded algorithms for each condition, in order to make technical content more accessible to low-literacy CHWs.

APEs were not equipped with additional job aids, as the Ministry of Health felt that the instructional design of the modules was sufficient and could be used by APEs as a reference material. In addition, producing a job aid would have increased costs for the programme.

However, an operational research study conducted in a district of Inhambane province in March 2012, revealed that APEs were facing significant challenges with diagnosis and treatment of childhood illnesses. This resulted in incomplete diagnoses and sometimes an incorrect treatment prescription.

Malaria Consortium thus designed and piloted a job aid for APEs in this province to provide a practical summary guide that APEs could take in their bag and use during sick child consultation. The main purpose of this job aid was to translate disease-specific technical contents into 'the eight steps of the child consultation'. It was designed to support APEs in following the required essential steps for the diagnosis and appropriate treatment of three diseases in children under five, and the dispensing of medicines correctly and adequately. While we re-used many images and wording from the manual to ensure consistency, we also had to make adaptations. These included bringing assessment of all danger signs into the first steps, instead of presenting danger signs by specific disease as they were in the manual.

In the example pictured here, the algorithm for fever assessment has been simplified: the danger signs are being assessed at the beginning of the consultation, so that the fever assessment section is focused on malaria testing and only two options are left for the CHW to act on. In the case of a positive rapid diagnostic test (RDT), the CHW should counsel the care-giver on how to bring fever down (wrapping the child in a damp cloth) and give Coartem (AL) medication to be continued at home. In the case of a negative RDT, the CHW should only give paracetamol as pre-referral treatment and counsel the care-giver to go to the nearest health facility for further assessment of the child's condition.



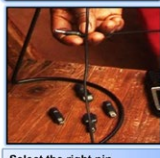
Fever assessment from the APE Manual, Mozambique (top row) to job aid (bottom)

An easy to follow job aid for community health workers to operate mobile phones and solar chargers


As part of the inSCALE Project*, the use of mobile phone technology was introduced to a group of CHWs participating in the integrated community case management (iCCM) programme in Uganda and Mozambique. The mobile phone contains customised software for submitting iCCM patient reports and for receiving motivational and automated educational messages. CHWs were also provided with a solar charger to charge the phone in areas where electricity was not available.

Our initial needs assessment in Uganda indicated that although most Ugandans in rural communities had used a mobile phone, very few knew how to operate it beyond turning it on and making or receiving a call. None of them had used a solar charger before. As a result, two detailed job aids were developed – one for the phone functions and the solar charger, and the other for using the mobile phone to submit weekly iCCM reports and read educational messages. Designing this job aid required taking the detailed manufacturer’s users’ guides and translating them into simple steps with brief directions. It also required adding photographs of the various phone screens, parts of the phone and charger to illustrate each step. Included in the training curriculum was an instructional DVD which reinforced the same steps in the job aid. Still-shot pictures from the DVD training were also included in the job aid for visual reinforcement


Charging the Phone



Select the right pin adapter for the phone.
Connect adapter to phone charging cable.




Insert other end of cable into phone charging port on solar charger.




Insert the adapter into phone.
LCD screen will blink 00:00 when the phone is charging.

Always use the correct adapter for the correct phone. Never force the adapter into the phone.

Parts of the Phone





Charging Port
SIM 2 Card Slot

Turning the Phone ON and OFF

To Turn ON:
Press and hold the **Red Power Key**
Release when you see the home screen


To Turn OFF:
Press and hold the **Red Power Key**
Release when the screen turns black

Lock and Unlock the Keypad

To Lock:
Select **Menu**, and then press *

To Unlock:
Select **Unlock**, and press *

Make—Pick Up—End a Call



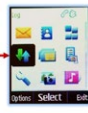
To Make a Call:
On the home screen, enter the phone number.
Press the **Green Call Key**.
Select the SIM card to use.
Select Clear to erase a mistake

To Pick Up a Call:
Press the **Green Call Key** or, select **Answer**.
The SIM card in use will show.

To End or Reject a Call:
Press the **Red End Key**.

View Missed Calls

To View a Missed Call:
Select **Menu**
Select **Log**
Select **Missed calls**




Return Calls


To Call the Last Number Dialed:
Press the **Green Call Key** 2 times

To Call a Number Dialed or Received:
Select **Menu**
Select **Log**
Select **Dialed calls** or **Dialed numbers**
Select the number
Press the **green call key**

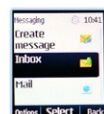
Read an SMS



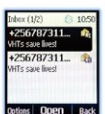
A new message alert will display on the home screen.
Select **View**



Select **Menu**
Select **Messaging**



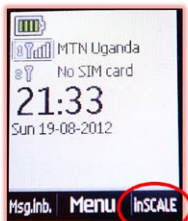
Select **Inbox**



Select **Message**
Press **Open**

*www.malariaconsortium.org/inSCALE

Access the inSCALE Weekly Report



Select
inSCALE



Select
Weekly Report



Enter your
VHT Code

2

Extensive pre-testing was conducted with CHWs in several districts to see whether they could read the instructions in English or just follow the visual cues without any instructions from a trainer or supervisor. Remarkably, the vast majority of the pre-testing participants were able to operate the phone, place the solar panel properly in the sun, charge the phone, and use the accompanying solar lamp and solar charger just by following the pictures in the job aid and with minimal assistance.

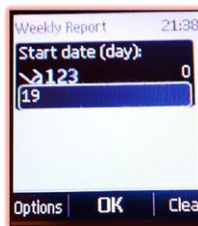
We found developing these job aids to be quite challenging in terms of the time it took to select and photograph the essential phone screens and describing the instructions for each step and illustration while using minimal non-technical words. The time and detail applied to ensuring these job aids communicated the content in an easy-to-follow format proved vital to the success of training and implementation of this project.

Enter Report Start Date

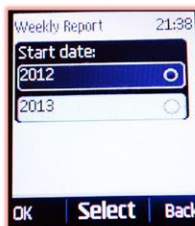


- Select the Start Date **Month**
- Use the **Up** and **Down** Navigation Keys
- Press **Select**, then Press **OK**

Enter the Start Date for the Previous Sunday:



- Enter the Start Date **Day**
- Press **OK**



- Select the Start Date **Year**
- Press **Select**, then Press **OK**

Answer the Weekly Report Questions

- **Read each question** on the mobile phone Weekly Report.
- Look at the ICCM Patient Register and **find the TOTAL number counted in each column.**
- **Enter the number** using the phone keypad.
- Press **OK.**
- **Answer every question.**

If NO children or newborns were seen, **enter zero (0)** after the question.
Press **Clear** to erase a mistake.

2

Content must be current, accurate and consistent with health policies and guidelines

Health worker job aids frequently contain new technical content and/or new guidelines and policies which need to be followed exactly as they are written. As a repository of standards of care practice, it is important that the content is accurate and consistent with national or international policies they are describing. As a guide to quality standards, the content and description of procedures can be used to measure the quality of health worker performance to determine whether they are complying with standards of care in the correct procedural order.

Job aids to help health facility workers improve their communication skills with patients and promote malaria testing before treating

In 2011, the Ministry of Health of Uganda implemented a new National Malaria Control Policy (NMCP) stating that all suspected malaria cases must be confirmed with microscopy or RDTs before treatment with artemisinin combination therapy (ACTs)⁶. In order to improve accurate diagnosis of malaria, the Ministry of Health introduced RDTs for malaria in all health facilities where microscopic examination of blood smears was not available. Despite this policy change, many children were still getting anti-malarial medicines without laboratory confirmation of malaria. The 2011 Demographic Health Survey showed that only 25 per cent of children with fever were tested for malaria, while 46 percent received an anti-malarial. As a result, formative research was conducted to understand the underlying reasons for health facility workers' non-compliance with the policy. The qualitative study revealed that health facility workers did not trust the accuracy of RDT results, were uncertain how to treat fevers after negative RDT results, and lacked the skills to communicate with patients about the need for malaria testing and the meaning of their test results.

In response to this study, Malaria Consortium, in collaboration with the Uganda National Malaria Control Programme and the Stop Malaria Project, developed and implemented a training course for health facility workers to improve interpersonal communication skills between health facility workers and care-givers of children under-five in the diagnosis and management of febrile illness.

The *Job aid for children with fever*, (developed in collaboration with Johns Hopkins Bloomberg School of Public Health Center for Communication Programs and Mango Tree, Uganda), is a flipchart booklet consisting of picture cue cards on one side, which are shown to the patient. On the back of each picture card is a script of what the health facility worker should communicate to the patient and instructional cues for what to do. The sequence of cards follow the same procedures the health facility worker should follow during a patient consultation visit.

Card 1 Taking a patient history

Card 2 Assessing for danger signs

Card 3 Taking a patient history and conducting a physical exam

Card 4 Testing for malaria

Card 5 Communicating positive malaria test results and treatment of malaria

Card 6 Communicating negative malaria test results, differential diagnosis and treatment of non-malaria fevers

Card 7 Care for febrile child

The development of this job aid proved to be challenging in two ways: first, in terms of ensuring that the interpersonal communication skills language was simple enough to communicate to patients; and second, that the clinical and procedural content was consistent with both the 2011 NMCP policy regarding testing all fevers before treating and the 2010 National Clinical Guidelines on diagnosis of childhood fever. In some cases, the National Clinical Guidelines contained contradictory information regarding the treatment of non-malaria fevers. This required extensive collaboration with the NMCP in terms of their review and approval of job aid and training materials to ensure the messages were aligned with the current diagnosis and treatment policy for malaria and case management of fever.

A large component of the training for this course consisted of practising use of the job aid in a clinical setting, including how to communicate accurate information and counsel patients and care-givers of children under five with fever. This was done through multiple role-plays and case-study discussions.

The job aid is currently being used and tested in health facilities across 18 districts in Uganda.

Sample cards from job aid for children with fever, Uganda

Card 4: Test for malaria

The illustration shows two malaria test strips. The top one is labeled 'Negative' and shows a single red line in the 'C' window. The bottom one is labeled 'Positive' and shows two red lines, one in the 'C' window and one in the 'T' window. To the right is a clock face with a shaded area from 12 to 3, representing a 15-minute wait time. Below these is an illustration of a healthcare worker in a pink uniform sitting on a bench, testing a child who is sitting on a bench with their mother.

Card 4: Test for malaria

SAY:

- The first test that we will do is for malaria. Not all fevers are malaria, so a test is necessary to decide the right treatment.
- Your child's heel or finger will be pricked to get blood for the test.
- The test will take about 15 to 20 minutes. *(If microscopy, explain the time it will take.)*
- If the test is positive, I will treat your child for malaria.
- If the test is negative, I will not treat your child for malaria.
- Other tests may be done based on your child's symptoms.

DO:

- Check the microscopy or RDT results when it is ready.
 - Positive result = One red line in "C" and one red line in "T"
 - Negative result = One red line in "C" and NO red line in "T"
- If the child is positive for malaria, **Go to Card 5**
- If the child is negative for malaria, **Go to Card 6**

Remember to ask: Do you have any questions?

Card 6: Negative malaria test results

The illustration shows a malaria test strip with a single red line in the 'C' window and no red line in the 'T' window.

Card 6: Negative malaria test results

SAY:
The test for malaria is negative. I am confident your child does NOT have malaria. There is no need for your child to take medicine for malaria.

OTHER CAUSE OF FEVER

SAY:
I think your child has _____ (e.g. pneumonia, diarrhoea, measles, meningitis, ear infection, etc.)
I am going to treat your child with _____.

DO:

- Select the appropriate treatment based on history, tests and/or exam findings and the 2012 Clinical Guidelines for Uganda, **Go to Card 4**
- Discuss fever management, **Go to Card 7**

NO OBVIOUS CAUSE OF FEVER

SAY:
I can find no obvious reason for your child's fever. Sometimes fevers are caused by a virus or other illness that cannot be treated with medicine. Normally, such fevers will go away within 2 days. If the fever persists, or your child gets worse, bring your child back immediately.

DO:

- Seek referral services immediately if the child gets worse. If no clear reason for the fever, manage the fever and advise the caregiver to return if the child does not improve in 48 hours or if the child's condition worsens.

Remember to ask: Do you have any questions?

3

Provide clear options for critical-decision pathways

Developing a job aid for CHWs and health facility workers often involves translating complex clinical processes or algorithms into simple and clear instructions. The more conditions or options to choose from within the algorithm, the more challenging it is to make it simple and easy to follow.

Job aids must be able to provide clear options or algorithmic decision pathways for which actions to take based on the information collected during the patient assessment. Algorithms must be simple, contain start and end points, and as far as possible be colour-coded so that the critical flow can be followed easily.

Communicating iCCM in eight easy steps for community health workers

When developing job aids for iCCM, the algorithms used for integrated management for childhood illnesses (IMCI) are often used as a reference. Whereas IMCI was developed for literate health facility workers, iCCM targets CHWs with low education and literacy.

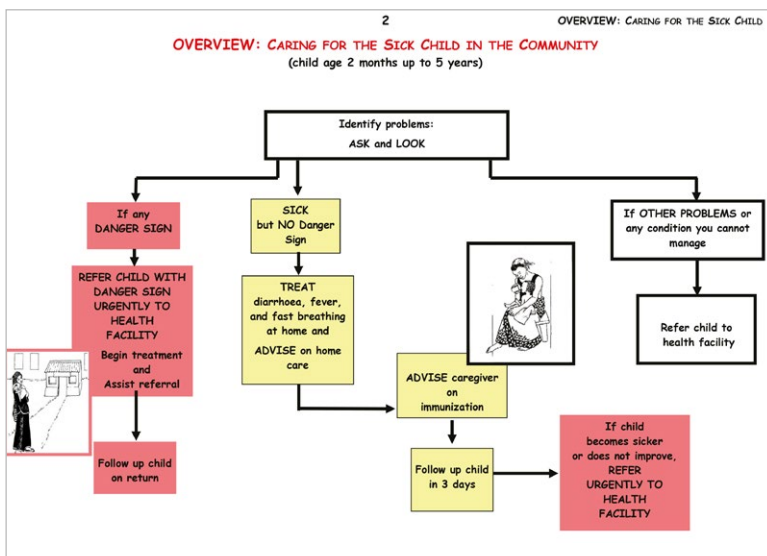
One strategy we have found to simplify algorithmic information is to translate the algorithm into a sequential linear list of numbered steps. We found that it was important to list the steps in the same chronological order which the CHWs follow during the sick child consultation.

In the example pictured here, we translated the standard iCCM algorithm developed by WHO into a series of eight critical steps. Through consultations with CHWs and pre-testing conducted in Mozambique to develop the eight steps of the child consultation job aid, we found it important to number each step in order to associate one key action word (such as 'greet', 'ask', 'check'), as well as to insert a simple imagery to each step for quick identification and easy recall.

What is iCCM?

The term integrated community case management (or iCCM) generally refers to an integrated approach for assessing and classifying signs and symptoms of pneumonia, diarrhoea, and malaria in children under five years old, and providing home-based treatment or referral for these diseases. The approach also normally includes health promotion activities. This care is provided by volunteers in the community who are trained by health workers on the iCCM approach.

The Integrated Management of Childhood Illness chart booklet (UNICEF and WHO), *Caring for newborns and children in the community* (left) to the job aid, *8 steps of the sick child consultation* (right)



8 steps of the sick child consultation

1. Establishing rapport
2. Assessing danger signs
3. Assessing cough or difficulty breathing
4. Assessing diarrhoea
5. Assessing fever
6. Checking nutritional status
7. Checking vaccination status
8. Counselling with key messages

1 Cumprimentar Perguntar a idade da criança

2 Tem Sinais de perigo? SIM NÃO → **Nº 3**

3 Tratamento da Pneumonia

4 Tem Diarreia? SIM NÃO → **Nº 5**

5 Tem Febre? SIM NÃO → **Nº 6**

6 Avaliar Desnutrição

7 Verificar Vacinação

8 Aconselhamento com mensagem chave

Acabar com os medicamentos recitados! Dar a criança o medicamento na dose certa, na hora certa, para o número certo de dias, e acabar com os medicamentos.

Amamentar a sua criança mais vezes do que o normal de dia e de noite, mesmo se tiver diarreia. O leite materno é a melhor bebida para qualquer criança doente.

Dar a criança de comer e de beber muitos líquidos em pequenas quantidades, mas várias vezes por dia, para recuperar as forças.

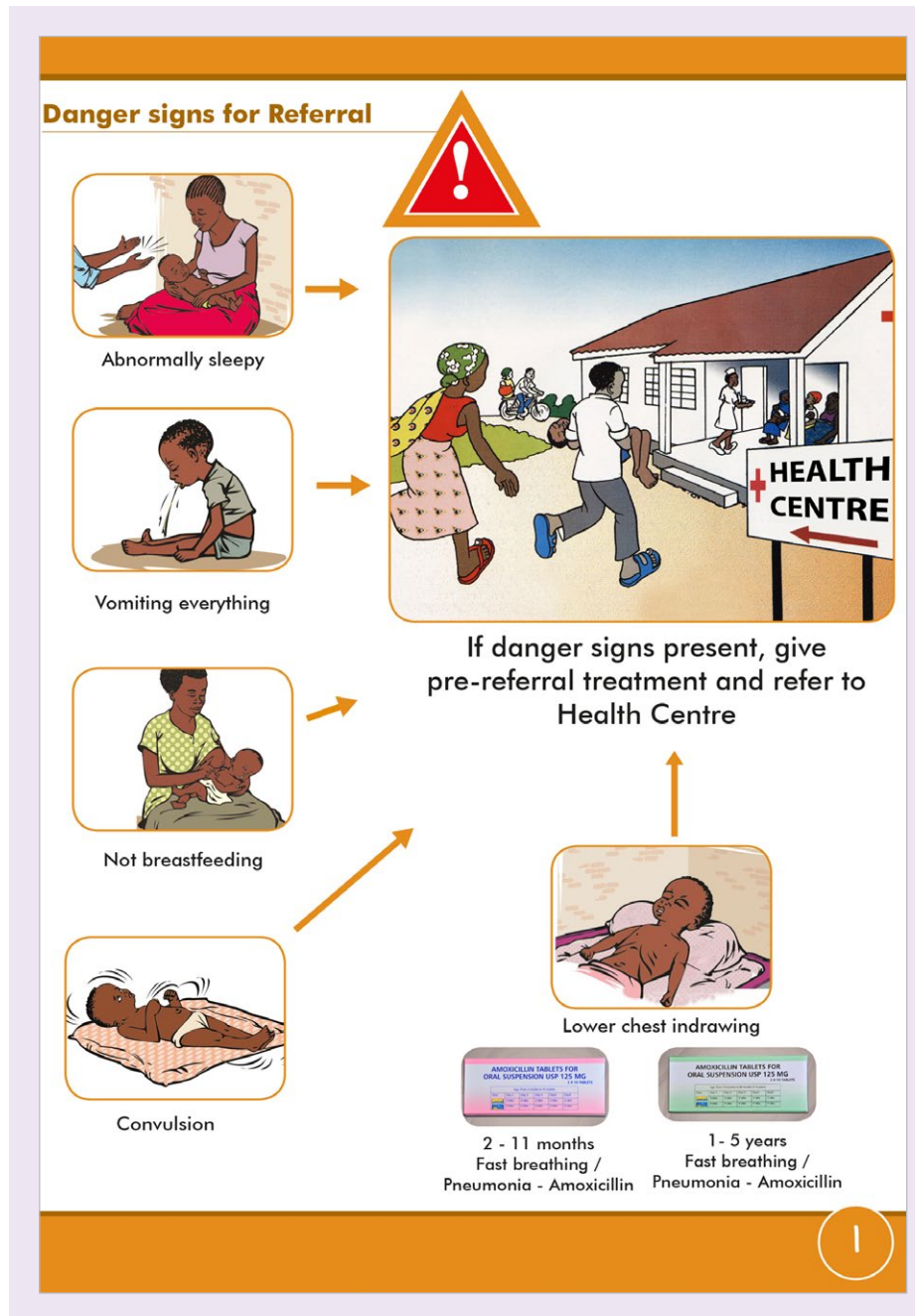
Voltar ao APE ou US no dia marcado para acompanhamento.

Aconselhar aos cuidadores sobre as boas práticas de prevenção das doenças na casa. Pode usar imagens sobre a saúde da criança que permitem ilustrar as mensagens chave.

Breaking down complex clinical algorithms and excess information onto several pages with minimal text for low literacy audiences

In cases where literacy is very low, our experience showed that it is better to allocate one page per step to avoid confusion. When the iCCM was first introduced to South Sudan, we used the iCCM job aid from Uganda as the template. The section on assessment of danger signs included pictures of all the danger signs on one page, with arrows pointing to a red referral triangle and then to the picture of a health facility. There were instructions in wordy English and descriptions of each danger sign. During the three-year period of implementing iCCM in South Sudan, a formal evaluation and two informal feedback assessments of the job aid took place. The findings showed that CHWs found it confusing and difficult to see pictures of all the danger signs on one page, and to explain them to care-givers during a patient visit. In particular, there was confusion on whether to refer a patient with one or more danger signs (which is correct) or to refer only when all the danger signs were present.

After subsequent revisions of the ICMM job aid, each danger sign was represented per page, followed by a summary page which included all the danger signs with arrows pointing to the health facility. The wordy instructions were removed and the necessary text was translated into Dinka and Luo. Recent feedback from the CHWs indicates that this change has helped them to understand the need to refer a sick child with one or more danger signs.

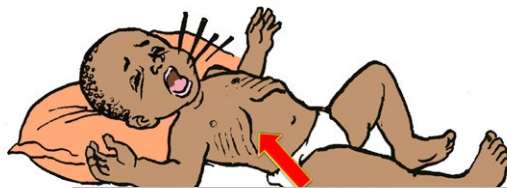


Examples for danger sign job aids for South Sudan

4 E Ken koc nok Gume rach
Assessment of Danger Signs



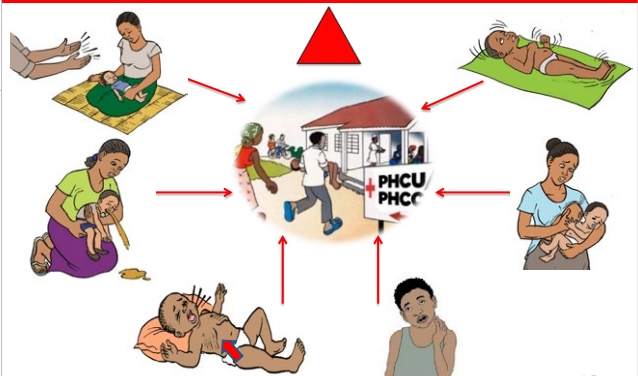
6 E Ken koc nok Gume rach
Assessment of Danger Signs



7 E Ken koc nok Gume rach
Assessment of Danger Signs



10 Atoc panakim Ahor parakim
If any danger sign refer to PHCU/PHCC



Using simple colour-coding systems to guide critical-decision pathways

Our experience also found that using a simple colour-coding system can help with understanding critical pathways and making appropriate case-management decisions. In the Mozambique iCCM job aid, we used red for all conditions that require referral, yellow for all conditions that the APE can diagnose and treat, and green for conditions that can be managed at home without medicine. Using a colour-coding system may be particularly important for decisions which can save a child's life.

2 Tem Sinais de perigo? SIM NÃO → **Nº 3**

Sinais gerais
 A criança não consegue beber ou comer
 Não acorda
 Tem convulsões ou ataques
 Vomita tudo o que come ou bebe

Pneumonia grave
 Tiragem
 Tosse por mais de 21 dias

Diarreia grave
 A criança bebe com avidez
 Olhos encovados
 Diarreia por mais de 14 dias com sangue
 Prega cutânea volta lentamente

Febre grave / Malária grave
 7 dias ou mais com febre
 Rigidez na nuca
 Olhos avermelhados
 Borbulhas pelo corpo todo

HOSPITAL
 AMOXICILLIN TABLETS FOR ORAL SUSPENSION USP 125 mg
 Paracetamol

Danger signs are represented in red

3 Tem tosse? SIM NÃO → **Nº 4**

Frequência respiratória

Pneumonia
 50 ou mais vezes por minuto
 2-11 meses

Pneumonia
 40 ou mais vezes por minuto
 1-5 anos

AMOXICILLIN TABLETS FOR ORAL SUSPENSION USP 125 mg
 AMOXICILLIN TABLETS FOR ORAL SUSPENSION USP 125 mg

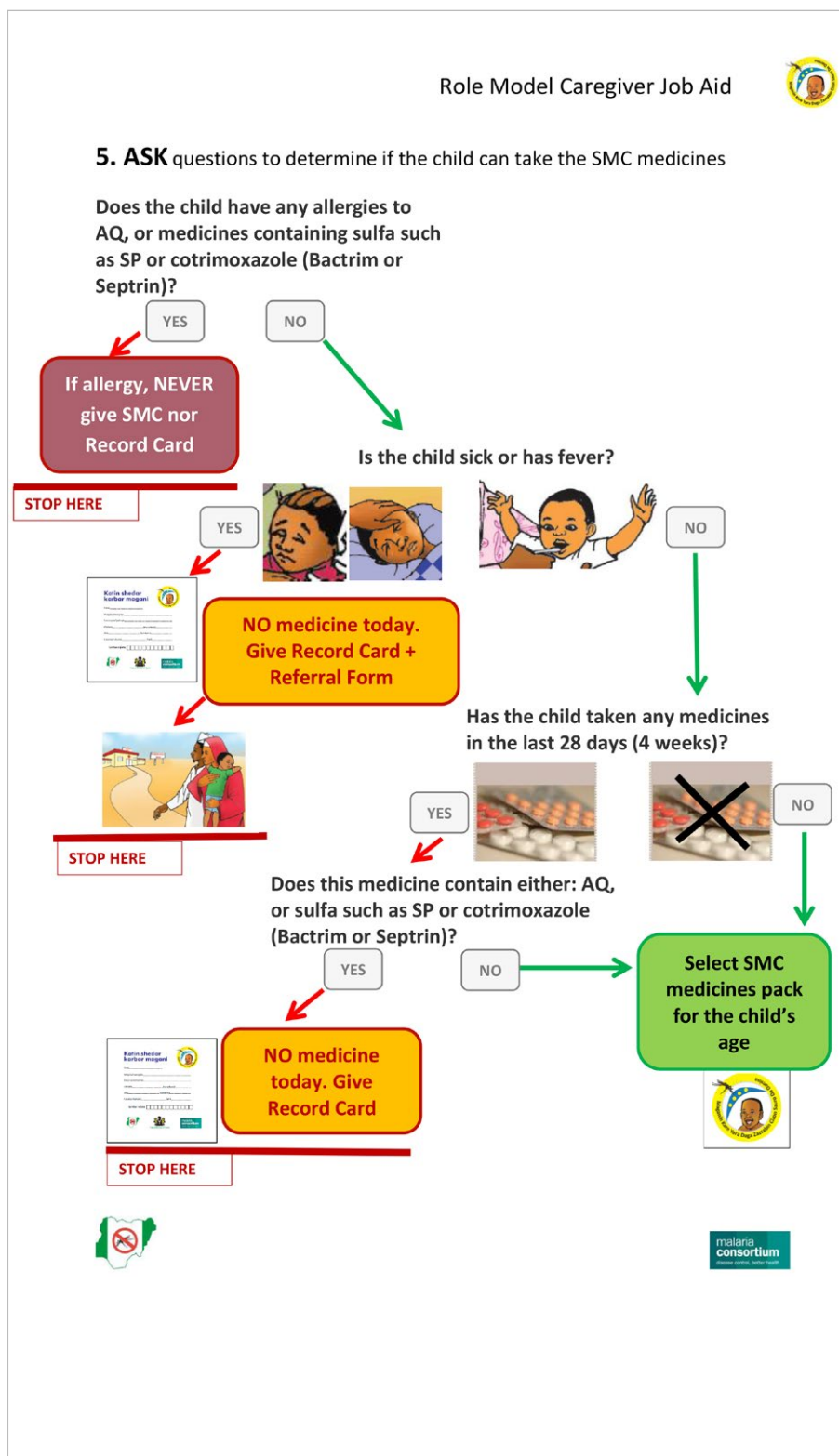
Se NÃO tem respiração rápida, não é preciso dar amoxicilina ou antibiótico

A page of the job aid for CHWs in Northern Nigeria. This is to help CHWs identify children who should or should not receive the SMC treatment based on clear criteria

Yellow: Represents a condition that is to be diagnosed and treated by the CHW
Light green: Indicates that the child condition does not require specific medicines and can be treated at home by caregivers

Creating simple visual algorithms for decision making

Another strategy we found helpful when simplifying complex algorithms was to formulate the assessment process into questions which can be answered by a 'yes' or 'no', and inserting tick boxes and arrows as cues to action. The following example is of the job aid developed for CHWs in Northern Nigeria participating in the Seasonal Malaria Chemoprevention (SMC) project. In this job aid, if the CHW selects YES for any of the questions, it will lead him/her to withholding the dose of SMC drugs; selecting NO will indicate that it is safe to administer SMC drugs to the child. It is important to ensure that the way in which the questions are written leads logically to the desired action to be taken.



A page of the job aid for CHWs in Northern Nigeria. This is to help CHWs identify children who should or should not receive the SMC treatment based on clear criteria

4

Describe processes and procedures in alignment with the training curriculum and existing healthcare practices and job tasks

In order to avoid confusion and adoption of new tasks, the flow of information and visual cues need to be aligned in the same sequential order in which the procedures and patient consultations occur in the work place. The procedures should be consistent and integrated into existing practices. Job aids that deviate from the real world, or that require the use of tools and materials which are unavailable, lead to frustration and will ultimately be ignored. Job aids should serve as a tool to enhance learning during and after training. Therefore, the content of the job aid must be consistent with the sequence of technical and procedural information outlined in the training curriculum and delivered during training. This is critical to reinforcing the transfer of newly acquired skills to the worksite⁷.

Revising the flow of a job aid and mobile phone iCCM report to align with the iCCM patient register

We also found that job aids need to be aligned with other documents and tools the CHWs and health facility workers use in daily practice, such as patient registers.

During the training-of-trainers for the inSCALE project in Uganda (mentioned in the first example) we received feedback from the trainers that the sequence of the iCCM patient report in the mobile phone did not match the sequence of the iCCM paper patient register.

The mobile phone report was designed to follow the same sequence of iCCM procedures (assessment, classification, referral and treatment). However, the patient register was designed and produced several years prior by monitoring and evaluation and data collectors, and was not designed in a format to capture the clinical process the CHWs were expected to follow. The mobile phone was more consistent with CHWs' job practice, but the trainers expressed concern that since the CHWs were accustomed to using the patient register, and needed to transfer that data to the phone, there could be a high risk of errors or confusion if the data entry sequence differed. Based on this feedback, both the mobile phone software and the job aid were revised to be consistent with the sequential order of the paper patient register. We found that although the sequence of data reporting in the mobile phone was more accurate and consistent with patient care practice, in order to avoid error, it was important to adjust the job aid and mobile phone software to be consistent with established behaviours and routines.

Revising complex manufacturer's instructions into easy-to-follow steps that were aligned with routine care

We have found that manufacturer's instructions may not always contain sufficient or accurate information to be practical and safe. However, well-designed instructions that are integrated into the training curriculum and applied during training can contribute to higher performance⁸.

One of the Malaria Action Program for States (MAPS)* objectives in Nigeria is to support the National Malaria Control Programme (NMCP) to strengthen the capacity of health facility workers in the management of severe malaria. In collaboration with FHI360, Malaria Consortium developed and implemented a training programme for doctors and nurses working in secondary and tertiary facilities in Nigeria to correctly and safely use injectable artesunate for the treatment of severe malaria. The training was designed as a result of the April 2011 WHO guidelines recommending parenteral artesunate as first-line treatment in the management of severe falciparum malaria⁹.

At the time, injectable artesunate had not yet been introduced to Nigeria. Despite its superior efficacy, artesunate is more costly and requires an elaborate preparation and administration process. Therefore, it was important that artesunate be well accepted by the health facility workers if it was to be used. To achieve this, it was essential that the job aid contained easy-to-follow instructions corresponding with existing health facility practices and recommendations to minimise wastage and expense.



Using the job aid for injectable artesunate during training in Nigeria

*www.fhi360.org/projects/malaria-action-program-states-maps

Both the manufacturer’s instructions and an existing global job aid developed by another organisation were evaluated and found to be confusing and incongruous with existing health facility practice. Malaria Consortium sought permission to revise and update the existing job aid. The process involved correspondence with the manufacturer and WHO to confirm accurate dose calculations to ensure content accuracy. In addition, we practised preparing several vials to look for ways to streamline the directions for preparation and administration and to find the fewest materials needed. A draft job aid with seven steps was initially developed for the training-of-trainers (ToT). During the ToT, the trainees – professors of medicine and directors of hospital facilities – used the job aid to practise preparing the drug in the classroom. As a result of the trainees’ feedback, several processes were identified that were inconsistent with their existing health practices, such as the size of syringes and needles available in Nigeria, and the way IV lines were cleaned and flushed. Also, the original job aid and manufacturer’s instructions stated that it took two minutes for the drug to be fully reconstituted, when during the ToT it consistently took four minutes. This was a key finding, since undissolved crystals could potentially harm the patient.

The existing job aid now contains nine steps and has been shared with the organisation which originally developed it. This experience taught us the value of not relying only on manufacturer’s instructions or other job aids, and ensuring the content is accurate and appropriate for the local context.

Sample pages from the job aids for injectable artesunate, Nigeria

SOP for the Preparation and Administration of Artesunate Injection

This SOP contains the recommended steps that must be followed to prepare and administer artesunate injection safely and correctly using the 60 mg per vial.

1. Weigh the patient.
2. Determine the number of 60 mg vials needed.
3. Calculate the dose and milliliters of artesunate needed for administration.
4. Gather materials and check expiry dates.
5. Reconstitute artesunate powder with 1 ml of 5% sodium bicarbonate and shake until clear; 2-4 minutes.
6. Dilute the reconstituted artesunate with normal saline based on route of administration; 5 ml for IV and 2 ml for IM.
7. Re-check the dose calculation and withdraw the required dose for the route of administration.
8. Administer injectable artesunate.
9. Plan the dosing schedule.

Step 1—Weigh the patient.

- 1.1 Weigh every patient.



- 1.2 Record the exact weight.

Step 2—Determine the number of 60 mg vials needed.

- 2.1 Determine the number of 60 mg vials needed based on the patient’s weight.

Patient weight	60 mg vials
5-25 kg	1
26-50 kg	2
51-75 kg	3
76-100 kg	4

Step 3—Calculate the dose and millilitres of artesunate needed for administration.

- 3.1 Determine the route of injectable artesunate: intravenous (IV) or intramuscular (IM).
- 3.2 Use the following calculation for intravenous or IV injection:

2.4 mg x body weight (kg)

10 mg / ml

Round up to the next 0.5 ml (e.g. 1.3 = 1.5 ml and 1.6 = 2 ml)

Patient weight	Total mg Weight x 2.4	10 mg/ml	ml rounded up to the next 0.5 ml
23.7 kg	56.88 mg	5.7 ml	6 ml
42.1 kg	101.04 mg	10.1 ml	10.5 ml

3.3 Use the following calculation for **intramuscular or IM injection**:

2.4 mg x body weight (kg)

20 mg / ml

Round up to the next 0.5 ml (e.g. 1.3 = 1.5 ml and 1.6 = 2 ml)

Patient weight	Total mg Weight x 2.4	20 mg/ml	ml rounded up to the next 0.5 ml
23.7 kg	56.88 mg	2.8 ml	3 ml
42.1 kg	101.04 mg	5.1 ml	5.5 ml

Step 4—Gather materials and check expiry dates.

- 4.1 Gather the required number of 60 mg artesunate vials (see 2.1).
- 4.2 Check the expiry dates of each vial of artesunate.
- 4.3 Ensure each package of artesunate is complete with the following ampoules and check their expiry dates.
 - 1 ml 5% sodium bicarbonate
 - 5 ml normal saline
- 4.4 Gather all the needed materials and lay them out on a clean tray or kidney dish:
 - a clean tray or kidney dish
 - alcohol swabs or cotton swabs with alcohol disinfectant
 - 5 ml syringes with needles for reconstitution and dilution (1 per ampoule)
 - appropriate sized syringes with needle for artesunate injection
 - normal saline and two 5 ml syringes for flushing the IV line (if giving IV)
 - a pair of gloves

Step 5—Reconstitute artesunate powder with 1 ml 5% sodium bicarbonate and shake until clear; 2-4 minutes

- 5.1 Maintain aseptic technique throughout the preparation of artesunate injection.
- 5.2 Wash hands.
- 5.3 Put on gloves.

5

Include culturally and literacy appropriate language, illustrations and symbols to communicate the desired key messages

The content of the job aid should be designed for the roles and responsibilities, language, culture and the educational and literacy level of the intended audience. The illustrations, symbols and language used to give direction should be culturally appropriate and recognisable to the user.

We found that it was critical to have few and precise words in the correct language. We also found that the selection of appropriate drawings and symbols can be vital in replacing lengthy text. However, the selection of the right illustrations with good quality can be challenging. Not only should the illustrations be culturally relevant, but they should also be designed to give a clear message or cue.

Essential to this criterion was conducting formal qualitative pre-testing and, if possible, posting evaluation of the job aid and other materials to confirm comprehension of the messages.

Using the correct words and language

We found that even though some CHWs may have low or no literacy, the trainers and members of the community may be able to read text on the job aid as long as it is in their language and the spelling and meaning is correct.

The majority of the volunteer community health workers (CDDs)* in South Sudan are low-literate women. In the areas where iCCM was first introduced by Malaria Consortium, most people speak either Dinka or Luo, but cannot read or write in these languages. General levels of education are very low. This posed a challenge to developing the iCCM job aid.

Using the Uganda iCCM job aid as a template, the first iCCM job aid we developed for South Sudan contained wordy text in English. CDDs relied exclusively on the pictures which were not always representative of the text. The iCCM job aid for South Sudan has been revised three times since and now contains minimal text and translations into Dinka and Luo for the trainers and literate community members. The translated text needed to be updated twice since there is no written dictionary and the agreed words and spelling required a consensus among several iCCM trainers and project officers. As a result of the very low literacy, there needed to be a heavier reliance on graphics and symbols. For example, suns (and eventually suns and moons) were used to represent the number of days symptoms may be present, or the number of days of a given treatment.

*Community drug distributors (CDDs) are the equivalent of community health workers in South Sudan.

11

Atuoch guop Leeth rook

Assess for fever



**Meth neng atuoc
Nyithiin reeh lieth**

Does the child have a fever?



**Leng niin kadah kek atuoc
Yiere niniin adih**

For how long?

13

Yac Thou yec

Assess for diarrhoea



Watery diarrhoea

**Yac piu
Thou-yec pii**



Bloody diarrhoea

**Yac riem
Thou-yec remo**



Skin pinch test

**Aci guop thok piu
Pii athum eguobe**



**Leng niin kdah kek yac
Yiere niniin adih**

For how long?

Selection of recognisable pictures and illustrations

When severe acute malnutrition was added to the iCCM programme in South Sudan, we revised the job aid to include illustrations of malnourished children being assessed with a MUAC tape and pictures of bi-pedal oedema. Due to the limited availability of photographs, we initially selected a picture of a child's feet with pitting oedema. During the pre-testing of the job aid, we learned that the CHWs could not visualise or understand that they were looking at feet. The job aid was eventually revised to include a drawing illustrating the child's legs and feet, and pictures of hands assessing for pitting oedema. This change has helped the CHWs to correctly recognise this as way to assess for signs of severe acute malnutrition.



Tene-kuot
Aci buot cok

14

Aci door Adoor kerayo juet

Assess for SAM



MUAC tape



Pedal Oedema

**Aci buot cook
Tiene-kuot**

Incorporating action and emotion to add realism and recognition

Designing quality illustrations which convey the right message can be challenging. It can be especially challenging when visually describing complex health conditions or symptoms for CHWs and community members using just one picture. The images must be medically realistic yet easily recognisable.

We have learned and applied a few tips for improving the job aid illustrations representing danger signs in children so that they are easily recognisable. So we compared two illustrations of a child with the danger sign, 'abnormally sleepy, unable to wake, or unconscious'. Keeping in mind that the illustrations in job aids should serve as a trigger to help the intended user remember content learned in training and to be able to describe what they see in the picture. We found that a helpful strategy was to add action or movement in the drawing.

In this first example, we see a child sleeping peacefully. The illustration does not convey the image of anything being abnormal or wrong with the child. In the second example, we added the image of hands clapping to convey that the child is not reacting to a loud noise – which is not normal. The addition of action in the second drawing adds the needed memory trigger: the child is not responding to noise because s/he may

be unconscious or extremely lethargic, and this is concerning.

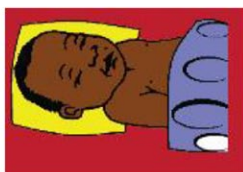
Another strategy we used in the second example was to remove all background/contextual details from the drawing to ensure that attention is focused on the specific action. Adding other details can be distracting and divert visual attention from the critical message.

Finally, we incorporated the use of facial expressions to convey emotion. In the second example, the mother's face demonstrates worry or concern communicating that the situation is abnormal, dangerous or unsafe, and that the child is very sick. The use of emotion is also important to trigger feelings of empathy and identification with the mother in the picture. It helps to reinforce the appropriate emotion of concern and the need to respond to the child's dangerous condition by getting help. Mothers are often the best placed people to identify that something is wrong or not usual with the child. The job aid can encourage and empower mothers to trust their own judgement about their child's condition.

It is important to note that using emotion or action in job aids can also be used to demonstrate health, happiness, or safety when communicating positive behaviours.

Child abnormally sleepy or unconscious

- Looks like a child sleeping peacefully
- Does not look abnormal or in danger
- Facial expression on characters is important: mother looks worried
- Hand clapping = action



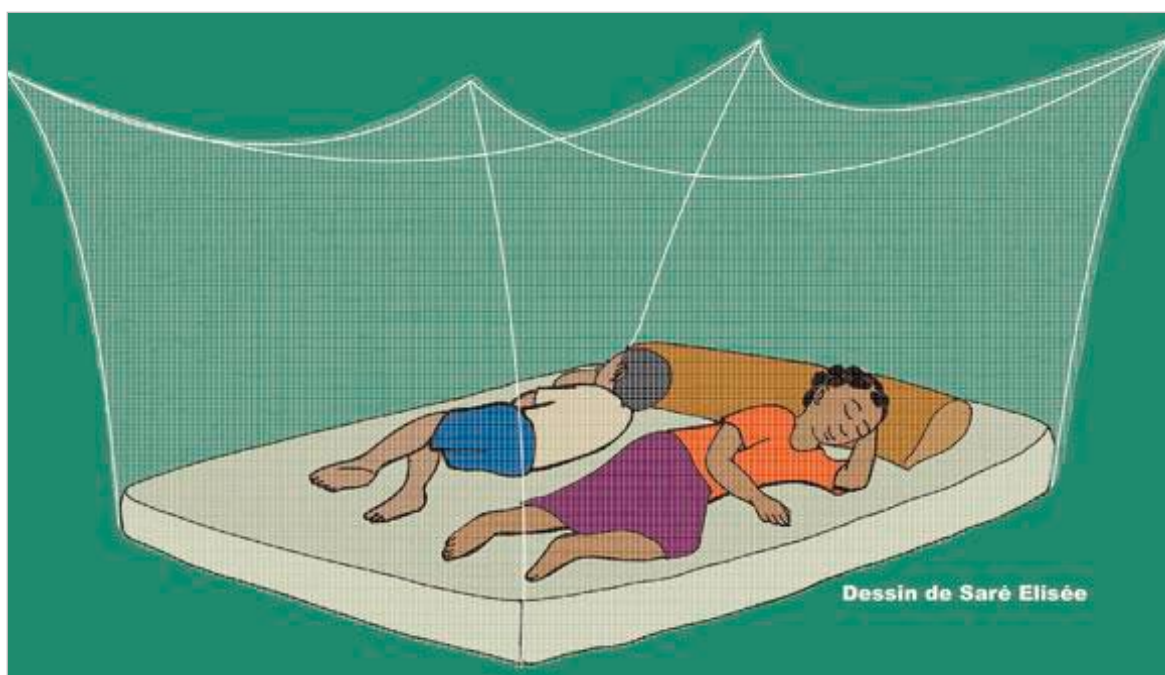
Improving job aid illustrations representing danger signs in children, Mozambique

Selection of culturally correct pictures and illustrations

We found that drawings that are widely used and accepted in several countries and seem relatively benign but may not always be culturally appropriate. The iCCM job aid for South Sudan includes the malaria prevention message to 'sleep under bed net'. The original drawing we selected for this message was of a family comprising of a mother, father and child sleeping together in the same bed under a mosquito net. The intended message is that the entire family should protect themselves from malaria-causing mosquitoes.

During a mid-term monitoring and evaluation programme evaluation, we learned that the CHWs and community members found the picture of a family sleeping in one bed amusing, since South Sudanese men do not sleep in the same bed as their children. Every time the picture was shown to a care-giver, she giggled. Eventually the CHWs stopped showing it, and the message failed to be communicated.

In order to remedy this, the current iCCM job aid was revised to include a drawing of only a mother and child sleeping under the mosquito net. Even though the message of the entire family needing to prevent malaria is not fully communicated, we felt it was best that the message for mothers and children not be excluded from the CHWs dialogue, since pregnant women and young children are particularly vulnerable to malaria.



Original illustration of whole family sleeping under a bed net (top) and revised illustration with mother and child sleeping under a bed net (bottom).

6

Produce cost-effective quality materials which are durable and attractive

Job aids are meant to be used consistently in context by the health workers and/or CHWs for whom they are designed. Job aids should not be seen as an inexpensive replacement to cut the costs of training or supervision of health workers. A well-designed job aid can maximise the cost and impact of training by enhancing memory and retention, improving daily job performance, and facilitating supervision of standard procedures and assuring the delivery of quality care.

Making job aids the right size, colourful and long-lasting for regular use

A key element to making job aids effective is the attractiveness and the format in which they are produced. We have observed that job aids are more likely to be used consistently by the intended worker or volunteer if they are produced from good quality materials that can endure dusty and/or wet environments, and if they are colourful and attractive to look at. The more job aids are used, the more likely it is that they will have an impact on the desired health behaviour.

Size and format

The job aid should be the right size for the intended use. Our experience shows that CHWs who go house-to-house for home visits need job aids which can fit in a backpack or a simple bag such as the one they use to carry diagnostic tools and medicines. Because their job aid will be used on a daily basis, it should be made with durable and waterproof materials such as thick plastic laminated material or Tyvek®.

Colour and attractiveness

While producing in full-colour is certainly more expensive than simple black and white printing, the cost-benefit has to be thoroughly analysed. Testimonies from CHWs in Uganda and Mozambique indicate that job aids are used as reminders, but also as a tool for interpersonal communication and counselling. The more attractive the job aid is, the more likely it is that the CHW will use it as a visual aid to show to the care-giver what s/he is doing during a child assessment or treatment intervention. Colourful images also help to distinguish specific detail of pictures, such as colour-branded dosing of drugs, and when used during interactive dialogues and counselling on treatment regimens and home-based care.

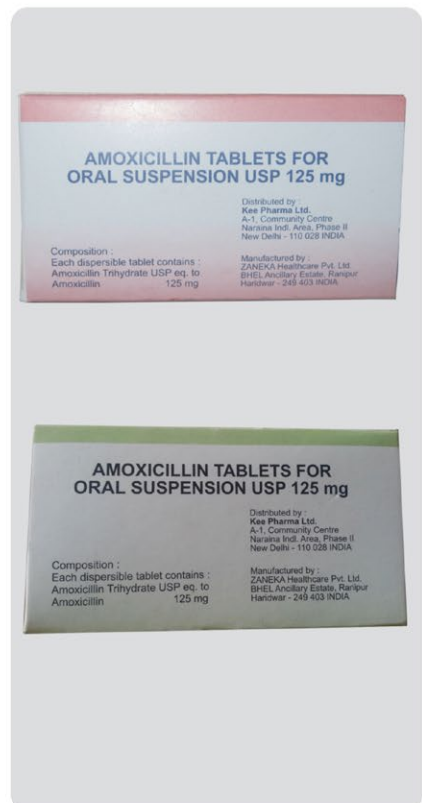
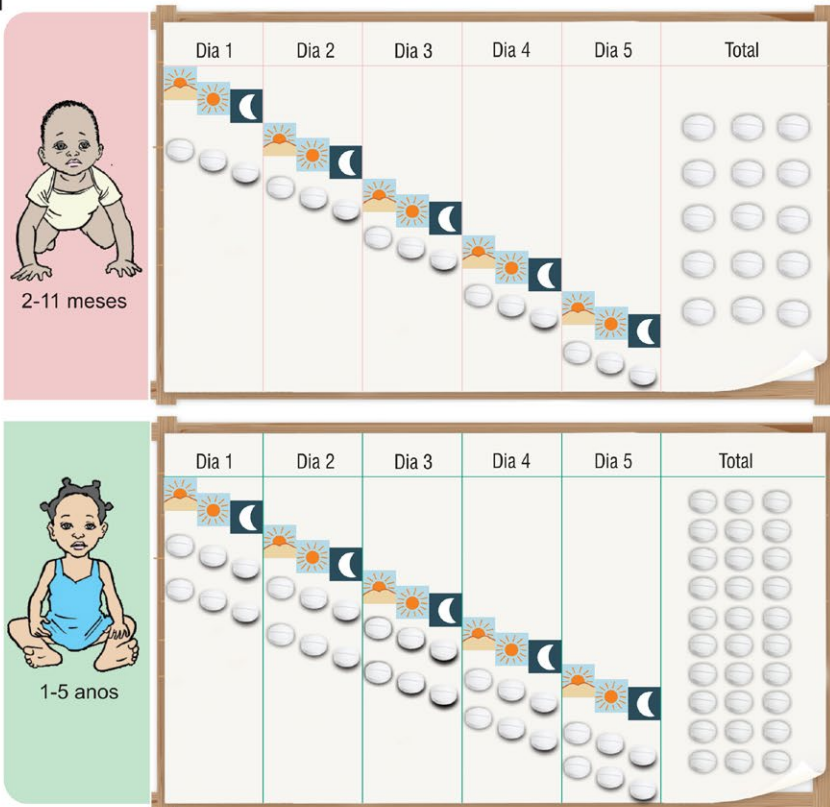
Example of illustration and lay out of the job aid, 8 passos da consulta da criança, piloted in Mozambique. This aims to reduce errors in drug dosage by age by CHWs and serves as a visual aid for CHWs to counsel care-givers on how to give medicines at home

In a participatory evaluation of the 'the eight steps of the sick child consultation', the job aid developed for APEs in Mozambique, respondents stated that since they were introduced to this job aid, they use it on a daily basis and it has become their 'bag's companion'. A key feature of the job aid that they particularly appreciate is the easy-to-recognise, colourful imagery. The attractive job aids help the CHWs to feel more confident about what they are doing, and to gain credibility and trust from the care-givers. Some respondents indicated that when conducting home visits in the community, they usually refuse to undertake a consultation of a sick child without their job aid in hand.

These results are congruent with findings from an operational research conducted with CHWs in the western region of Uganda. This showed that the job aid was their 'bible' It was used both by the CHW to ensure they did not miss a step in the consultation, but also as an educational tool for care-givers to explain the procedures they follow, and the treatment regimen for the sick child.

Investing in good quality, durable and colourful job aids can improve the user's experience, but may also potentially have an impact on the quality of care provided by health workers and community health workers.

3 Tratamento da Pneumonia



Recommended process for developing, implementing and evaluating job aids

Building on our iterative and experiential learning process as well as the information obtained from our formative research, Malaria Consortium is proposing the following process for development, implementation and evaluation of job aids. Fundamental to this process is the collaborative approach between clinical/technical subject matter experts (SMEs), behaviour change communication (BCC) specialists, training curriculum designers and key stakeholders such as our implementing partners, ministries of health and the intended users.

1.

Subject matter experts and key stakeholders should begin by identifying the target audience (intended users) and outlining the key technical content which needs to be communicated during training and within the job aid. The technical content should be researched to ensure it is current with national policies and guidelines.

2.

Communication, training and subject matter experts should work collaboratively to assess the target audience's learning needs, literacy level, education level, and performance gaps in relation to the content to be delivered.

3.

Once the key technical messages and content have been agreed to and developed, BCC experts should design a draft job aid by translating the complex training content into simple key messages for the intended audience. They should review similar job aids, if available, to determine best practices. They should also select culturally appropriate drawings, photographs, and symbols that illustrate the key messages.

4.

The training and subject matter experts, along with key stakeholders, need to review the draft job aid to ensure the technical content is correct, follows the procedural steps in a logical manner, communicates the desired content, and is consistent with the training curriculum framework and job processes.

5.

The final draft should then be pre-tested by BCC specialists with an appropriate sample of intended users to ensure the messages are understood and they are able to follow the steps correctly. In addition, the language, illustrations, symbols and colours should be pre-tested to ensure they are culturally representative and recognised. The qualitative approach of pre-testing materials can include individual interviews, focus group discussions, observation,

case scenarios. The pre-testing feedback should be shared with the SMEs and stakeholders in a written report and subsequent revisions may need to be made before the final approval from key stakeholders and policy makers.

6.

We recommend producing only enough job aids for the training-of-trainers, and a second production after training, to avoid waste. This is because additional feedback about the content and flow of the job aid may arise during training. Occasionally the feedback is critical enough to make additional revisions before mass production for the intended users. When possible, we recommend printing locally to save costs.

7.

We strongly recommend using job aids as a training tool and technical guide throughout the training to reinforce key content, messages, and processes. Role-plays and simulated patient scenarios can be used to practice how to use job aids with patients in the community or clinical setting. If trainee competencies are assessed during training, they should include how well the trainee uses and follows the job aid.

8.

Once a job aid has been in circulation for about six months, we recommend a formal evaluation of the job aid to determine its use and impact on job performance. This can be done through a formal monitoring and evaluation process or by reviewing supervisor reports. Some questions to consider when evaluating the job aid are whether the job aid is present in the work place, if it is currently being used and referred to, whether the tasks outlined in the job aid are being performed correctly (with or without the job aid). It is also important to explore what the users are saying and thinking about the job aid as well as their suggestions for improvements. The outcome of these evaluations should be documented in a report and referred to when developing other job aids.

Job aid process

1. Determine what content to communicate and ensure it is consistent with standards and policy

2. Assess learning needs, literacy and performance gaps of intended audiences

3. Design and develop job aid, select illustrations and key messages

4. Review to ensure accuracy and consistency with training curriculum

5. Pre-test for comprehension and meaning of illustrations, flow and decision making; obtain Ministry of Health/stakeholder approval

6. Produce only enough copies to obtain feedback during ToT; make additional edits, then mass produce

7. Use as a training and performance management tool during and after training

8. Evaluate use and impact on job performance



Antigen P.f
One Step Rapid Immunochromatographic Test for the qualitative detection of Histidine-rich protein II (HRP-II) antigen of *Plasmodium falciparum* in human whole blood.

SD

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A Malaria Consortium child survival officer demonstrates how to use the danger signs yellow warning card



Malaria Consortium

Malaria Consortium is one of the world's leading non-profit organisations specialising in the comprehensive control of malaria and other communicable diseases – particularly those affecting children under five.

Malaria Consortium works in Africa and Asia with communities, government and non-government agencies, academic institutions, and local and international organisations, to ensure good evidence supports delivery of effective services.

Areas of expertise include disease prevention, diagnosis and treatment; disease control and elimination; health systems strengthening, research, monitoring and evaluation, behaviour change communication, and national and international advocacy.

An area of particular focus for the organisation is community level healthcare delivery, particularly through integrated case management. This is a community based child survival strategy which aims to deliver life-saving interventions for common childhood diseases where access to health facilities and services are limited or non-existent. It involves building capacity and support for community level health workers to be able to recognise, diagnose, treat and refer children under five suffering from the three most common childhood killers: pneumonia, diarrhoea and malaria. In South Sudan, this also involves programmes to manage malnutrition.

Malaria Consortium also supports efforts to combat neglected tropical diseases and is seeking to integrate NTD management with initiatives for malaria and other infectious diseases.

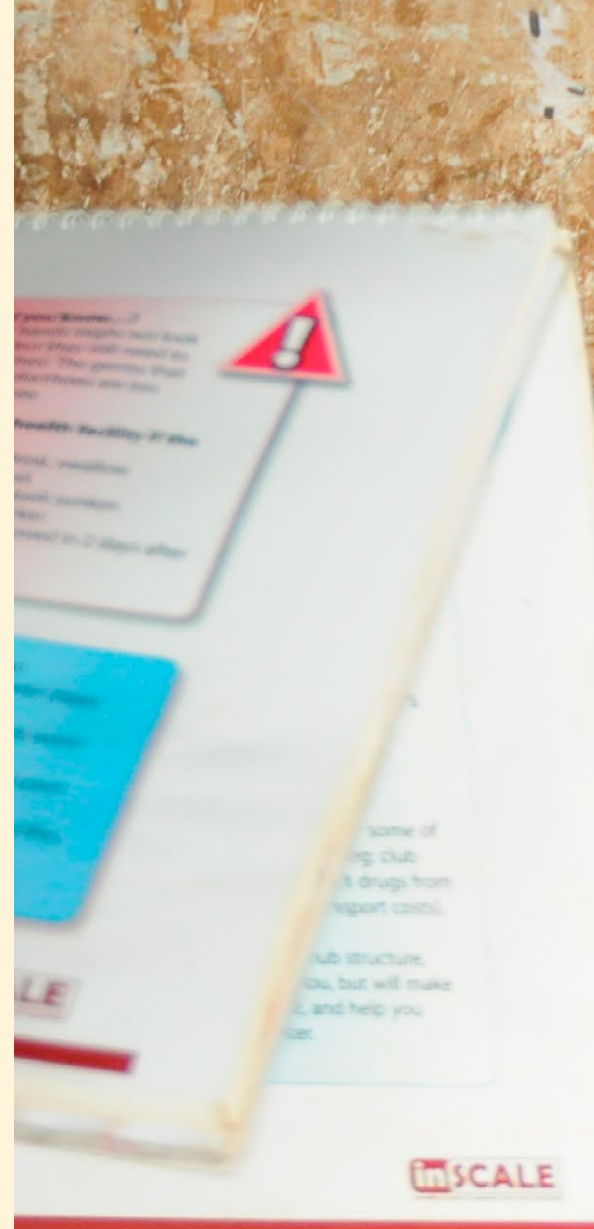
With 95 percent of Malaria Consortium staff working in malaria endemic areas, the organisation's local insight and practical tools gives it the agility to respond to critical challenges quickly and effectively. Supporters include international donors, national governments and foundations. In terms of its work, Malaria Consortium focuses on areas with a high incidence of malaria and communicable diseases for high impact among those people most vulnerable to these diseases.

www.malariaconsortium.org



Malaria Consortium is committed to a practical approach that integrates engagement between the community and health services, and national and global policy makers. It is an approach that is underpinned by a strong evidence base and driven by shared learning within and between countries

A flipbook is used during community health worker training in Kitaleesa Village Health Club, Uganda.
Photo: Tine Frank





Malaria Consortium
Development House
56-64 Leonard Street
London EC2A 4LT
United Kingdom

Tel: +44 (0)20 7549 0210
Email: info@malariaconsortium.org
www.malariaconsortium.org



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