

# Implementing integrated community case management

Stakeholder experiences and lessons learned in three African countries



## 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.

Akek Akol Maehol and her daughter in South Sudan



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# Introduction

Integrated community case management (iCCM) of malaria, pneumonia and diarrhoea at the community level has been a growing focus of community healthcare delivery across sub-Saharan Africa over the last few years, as well as in Malaria Consortium's Africa regional programme.

iCCM has gained momentum in the wake of an increasing body of research<sup>1</sup>, which has highlighted the effectiveness of an integrated approach in reducing the morbidity and mortality of under-fives through using community health workers (CHWs) to identify and treat diseases which have a significant impact on child health.

Malaria Consortium's involvement in iCCM has spanned inputs to facilitate policy development, project design, implementation from start-up phase; ongoing support to the public health system in continued implementation; the trial of specific supportive interventions to boost effectiveness; monitoring and evaluation; costing analysis work; and advocacy. With support mainly from the Canadian International Development Agency (CIDA) and UNICEF, and with other diverse funding, we have worked with national ministries of health to introduce and scale up iCCM through the public health sector over the last four years in Mozambique, South Sudan, Uganda and Zambia.

A significant amount of monitoring and evaluation work has already been conducted. This work includes quantitative baseline and endline surveys to gather data on changes in health-seeking behaviour and morbidity and mortality, as well as routine data on cases diagnosed and treated. However, less has been done to document systematically the actual implementation approaches that have been used across the iCCM project sites. All key stakeholders involved in the work over the past four years, including ministry of health personnel at all levels of the health system, implementing partners, CHWs and beneficiaries, have generated experiences, lessons and best practices.

## Integrated community case management

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, and providing home-based treatment or referral for these diseases. The approach also normally includes health promotion and preventive activities such as sleeping under a mosquito net and hand washing. This care is provided by volunteers in the community who are trained by health workers on the iCCM approach.

Malaria Consortium  
community health worker  
Solomon walks through a  
village in Uganda, where  
health workers are known  
locally as village health teams.  
*Photo: Tine Frank*



A man is seen from the back, walking away from the camera. He is wearing a bright yellow t-shirt and grey trousers. The t-shirt features a logo on the left side consisting of a red circle with a white handprint inside. To the right of the logo, the letters 'VHT' are printed in a bold, blue, sans-serif font. Below 'VHT', the words 'VHT Member' are printed in a smaller, blue, sans-serif font. The background shows a rural setting with a dirt ground, a large pile of light-colored earth or sand, and several traditional buildings with walls made of mud or brick. A large green tree is visible in the upper part of the frame. In the distance, other people can be seen sitting on the ground.

 **VHT**  
VHT Member

In order to capture these processes and range of experiences, from 2012-2013 Malaria Consortium, with funding from the UK Department for International Development (DFID), led a participatory evaluation of iCCM implementation in South Sudan, Uganda and Zambia. In line with the evaluation’s participatory approach, workshops were held in-country with the Ministry of Health (MoH)<sup>2</sup> and implementing partners to discuss the scope, data collection methods and target groups to enhance the depth and range of the data collected. Through focus group discussions and key informant interviews, evaluation participants, who included central and subnational MoH informants, implementing partner organisations, Malaria Consortium staff, health facility staff, community health workers and beneficiaries were asked about 11 different key components of iCCM implementation based on their involvement in the programme.

The data from the participatory evaluation has been valuable in building on Malaria Consortium’s experience of using community platforms to deliver essential healthcare services even more effectively and at a larger scale.

### iCCM programme component

- Central level planning
- Subnational introduction
- CHW recruitment and selection
- Training and capacity building
- Supportive supervision
- Data management
- Supply chain and commodities
- Community involvement and support
- Behaviour change communication
- iCCM integration into the existing health system
- Technical and geographical scope

Country	Uganda	South Sudan	Zambia	Total
Study area	Central and Western regions	Northern Bahr el Ghazal state	Luapula province	
Local name for community health worker	Village health team (VHT)	Community drug distributor (CDD)	Community health worker (CHW)	
Number of study participants	217	188	241	646

In South Sudan, a community drug distributor checks her drug stocks with her supervisor





# Key components of iCCM implementation

The findings, associated challenges and lessons learned from the participatory evaluation are presented in this paper by each component.

## Planning iCCM implementation at central level

The success of iCCM in other sub-Saharan African countries encouraged ministries of health to adopt the approach to reduce under-five morbidity and mortality. In Uganda and Zambia, iCCM included the identification and treatment of malaria, pneumonia and diarrhoea: the diseases responsible for the majority of under-five deaths in sub-Saharan Africa<sup>3</sup>. In South Sudan, malaria was treated presumptively and the identification and management of malnutrition was included in the iCCM package there.

At the time of writing, only Uganda has official national iCCM policy and guidelines, which were drafted by the MoH in collaboration with key implementing partners prior to launching the programme in mid-2010. In Zambia and South Sudan, iCCM currently falls under the wider Child Survival programmes. However, an agreed approach was defined between the ministries of health and Malaria Consortium. It is understood that developing a formal iCCM policy remains a priority in South Sudan and Zambia.

In all countries, during the planning stage at central level there were initial concerns over drug resistance and potentially poor adherence among community members. According to key informants, dialogue meetings held with senior level MoH officials were key to assuaging fears and providing a platform to address any foreseeable challenges and sharing data to demonstrate effective use of antibiotics at community level.

### Lessons learned

#### 1.

It is important to invite all key central stakeholders to engage in an open discussion to plan how iCCM will be implemented within different contexts and how the programme will be fully integrated into the existing health system, encouraging MoH ownership.

#### 2.

Central level sensitisation can serve to address any concerns, prepare for potential challenges and facilitate the introduction of iCCM at subnational level, and in health facilities.



Village health team workers training in Uganda

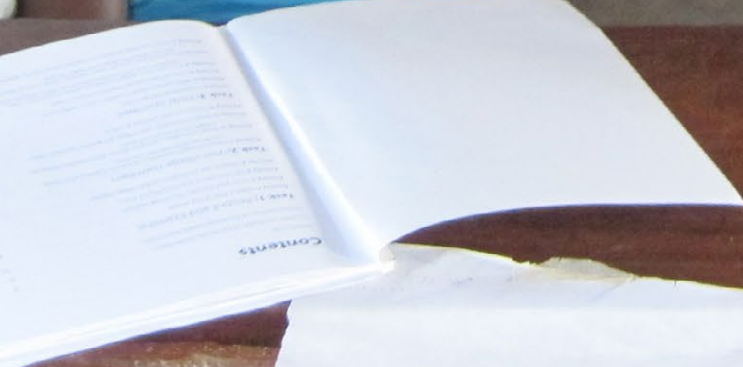




NFUUFU

LUBOWA

NANKINGA



## Introducing iCCM at subnational level

Introduction at subnational level\* by MoH was identified as key to acceptance among state, provincial and district level health officials, especially in areas where the implementing partner organisation may not have previously worked with local health system stakeholders. Respondents commented that engaging and familiarising partners and government health service providers on the iCCM concept, guidelines and processes was considered key to subnational buy-in and increased support for the programme amongst health facility staff. Continued collaboration and micro-planning at regular meetings encouraged a sense of ownership, according to subnational level stakeholders. Introducing an agreed framework for planning activities and promoting communication on a regular basis between district level MoH and implementing partners was described as beneficial to successful coordination. Moreover, implementing partners working closely with lower level health authorities during implementation built the local capacity to plan how best to integrate iCCM activities into budgets and workplans. It also gave support on effective methods of data collection, analysis, use and support supervision.

### Lessons learned

1. Central MoH level representation at subnational level can facilitate the acceptance of a new programme and implementing partners
2. Sensitisation and mobilisation are key to subnational ownership and support.
3. Close collaboration through regular participatory sessions throughout the planning and implementation stages improves coordination. It also builds the capacity of lower level health governance to incorporate iCCM activities, data and costs into budgets and workplans, ultimately supporting the integration and sustainability of the programme.

A village health team member being selected in Kiboga district, Uganda



\*Subnational level includes state, province, district and community.

# CHW recruitment and selection

Prior to recruiting CHWs for iCCM, communities were sensitised on selection criteria and the participatory approach of the community choosing their own CHWs. Sensitisation occurred through a variety of communication channels including village meetings, church gatherings, radio broadcasts and health centre community outreach. Messages emphasised community involvement as central to the CHW selection process and highlighted CHW selection criteria as a willingness to volunteer, permanent residency, literacy skills (with the exception of South Sudan), fluency in English where possible, and being reliable and trustworthy. In addition, political or community leaders and their relatives were instructed not to put themselves forward for the role of CHW.

In all three countries, communities were encouraged to play an active role in CHW selection rather than have CHWs imposed by local leaders. Generally, across the countries, respondents described a participatory process for selecting CHWs. In those areas where community members were strongly involved, respondents anecdotally reported higher use of iCCM services, more community support for CHWs, deeper trust in CHWs' capacity to treat children and a stronger sense of community ownership.

Although the aim was for communities to choose their own CHWs, a few examples of undemocratic selection of CHWs were reported across the three countries. In these instances, respondents explained that local leaders would appoint themselves, their relatives or a preferred candidate as a CHW in the interest of personal gain and influence, or due to tribal or political affiliations.

Tribal dynamics affecting CHW selection was an issue uniquely reported in Uganda, where undemocratic selection was reported more frequently than in the other countries. In communities where undemocratic selection occurred, the consequences of leaving community members out of the process included unqualified CHWs being sent for training, and reluctance among care-givers to access CHWs they felt had been imposed upon them or who belonged to a rival political party or tribe. This led to less use of CHW services and overall weaker community support for CHWs.

One approach that worked well in Zambia to address unqualified CHWs arriving for iCCM training was requiring candidates to pass a literacy test and verify their age. That way, district officials could refuse those who were unqualified and send them back to the community so that they could be replaced by CHWs who had been selected democratically.

## Lessons learned

1. Enhanced community sensitisation encourages community participation and the most qualified candidates being recruited as CHWs
2. Consultations with community leaders to emphasise the importance of following selection criteria and guidelines can reduce the chance of undemocratic selection
3. When the community is fully involved in selecting, there is reportedly increased service use and support for CHWs
4. In contrast, undemocratic selection can have negative repercussions for CHW quality assurance, community support and service uptake
5. Monitoring conducted by respected local officials can reduce the number of unqualified CHWs who receive training and encourage qualified CHWs to be selected

“We were happy because we did the selection as a community and no one imposed them on us...it is good for the people to do the selection because they select someone they trust. If you show someone that you trust him, he can do the work well. We trusted the people we selected and they worked well.”  
*Community leader, Uganda*

“The most important thing in the selection of CHWs is openness. If the people are involved and they feel part of the process, then there will be no problems no problems in the selection process.”  
*Community leader, Zambia*

## Training and capacity building

In each country a cascade training approach was followed, with a master trainer present at every session for quality assurance. Participatory and hands-on training approaches such as group discussions, role-plays, visits to health facilities to observe danger signs, and practicals with malaria rapid diagnostic tests (RDTs), respiratory timers and data collection tools, were considered conducive to CHW comprehension and instilling confidence in case management. Videos demonstrating severe symptoms such as chest in-drawing and convulsions, which cannot be portrayed as accurately verbally or pictorially, and dolls for practising the administration of rectal artesunate (used in Uganda), were highlighted as tools which facilitated CHW understanding. The sick child job aid provided to CHWs during the training was referred to as 'the bible' by CHWs in Uganda and Zambia due to its accessibility and comprehensive content.

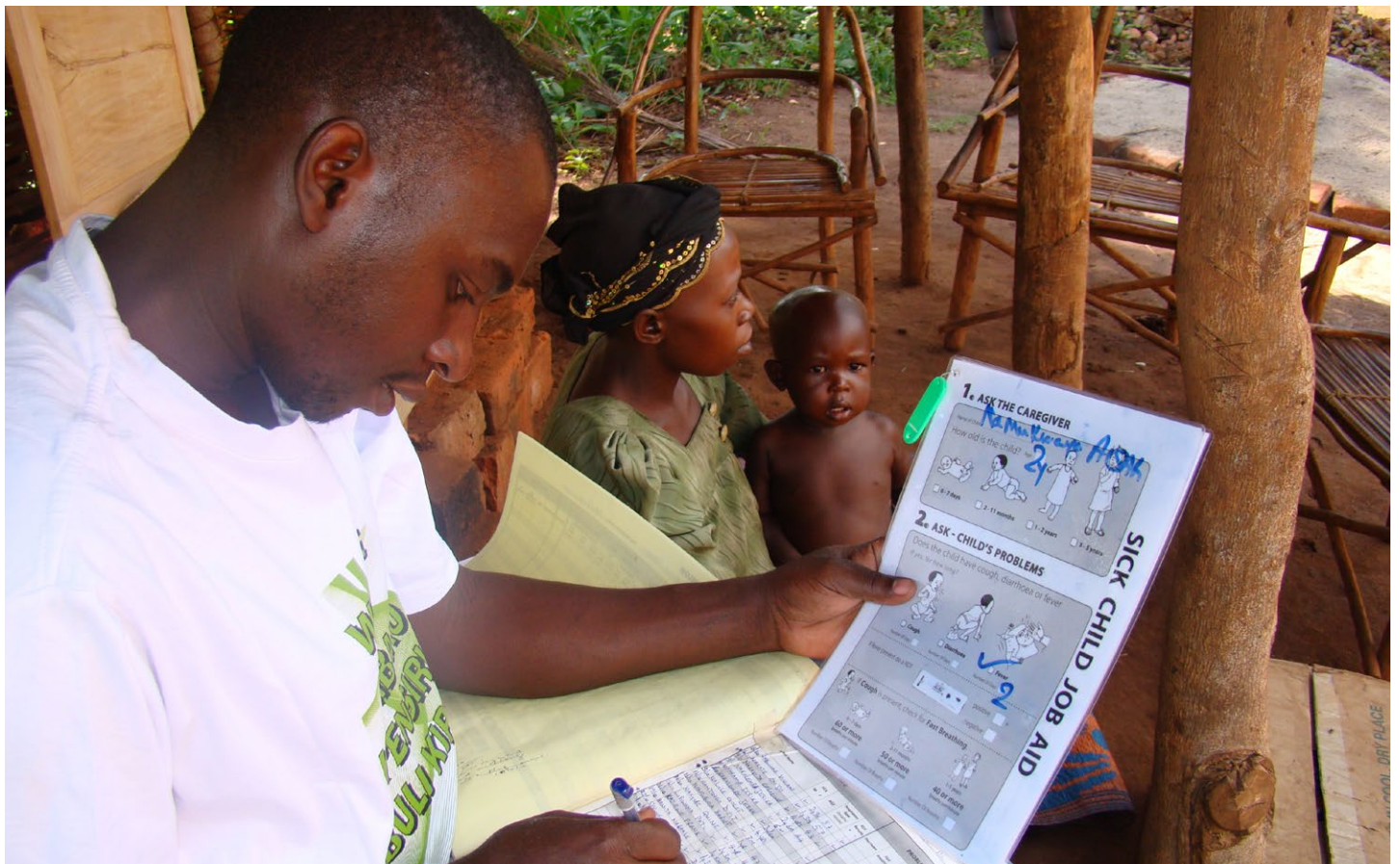
“They would see children from the time they arrived and conduct an RDT while we were watching. For pneumonia, they counted the respiratory rate. In fact, there was a chance our children had danger signs and they could really see. They could observe, internalise and respond and there were other sessions when they could practise using the audio/video.”

*Health facility staff,  
Uganda*

“It was very participatory. The participants took a leading role in the sense that they were the ones who were reading the manuals. There were also practical sessions where the participants were taken to clinics and the hospital. It was full participation and sharing of experiences.”

*District health official,  
Zambia*

A village health team worker in Uganda uses the sick child job aid



Health facility staff and CHW supervisors found that the supportive supervisory skills training, in addition to the iCCM case management they received, were beneficial to their understanding of how to support CHWs.

Counting the respiratory rate/identification of pneumonia versus cough, and data collection using the CHW registers, were common challenges cited by CHWs and trainers across the countries.

In South Sudan, low literacy was also mentioned as problematic, however pictorial training materials and CHW registers developed for this context facilitated learning and comprehension.

“In relation to training us on basic knowledge, it was not just testing but also knowing how to deal with VHTs [CHWs], how to communicate, technical know-how, treatment, documentation... because health workers were first equipped with information and how to manage the condition, it enabled us to handle VHTs when we started... [to] supervise and train them, and documentation as a result of the programme went on smoothly.”

*Health facility staff,  
Uganda*

“We have a problem in diagnosing pneumonia. Some CHWs think when a child is coughing, amoxicillin should be given to the child. But not every cough should be taken as pneumonia.”

*CHW, Zambia*

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## Lessons learned

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1. Participatory approaches are best for CHW comprehension and confidence in case management
2. Conducting the training in local languages and using colloquial terms for diseases and symptoms made it easier for CHWs and supervisors to relate to the training content in some areas, especially locations with refugee populations (Uganda)
3. Identifying pneumonia, newborn care, correct referral and using the data collection tools (CHW registers) were identified as challenges amongst some CHWs. Spending more time during the training on these topics and/or extending the length of the training would allow CHWs to explore these in more depth
4. Refresher training offers CHWs the opportunity to consolidate their skills, address any challenges and motivate CHWs

## Supportive supervision

The supervision models varied slightly between the three countries, with the emphasis on health facility staff providing technical support to CHWs through quarterly meetings at health facilities and home visits. In Uganda and Zambia, district level health teams supported health facility staff supervising CHWs. In South Sudan, due to a lack of capacity at county level and lack of qualified health staff at health facilities, CHW supervisors (comprising community members nominated for the role based on their literacy skills) were supported by Malaria Consortium field staff. In Uganda, parish coordinators are CHWs selected by their peers, who act as supplementary supervisors. They were introduced to bridge the gap between supervisors and CHWs, particularly in remote areas. Parish coordinators provide support to CHWs on a more regular basis than do supervisors and assist with the compilation and submission of data collected by CHWs.

In all three countries the main goal of supervision was to strengthen CHWs' skills in case management, drug storage, stocktaking, reporting and how to better engage their communities to use services and support CHWs.

Prompt supervision (within two weeks) of the initial training, and home visits to ensure correct practices in the community, were highlighted as beneficial across countries. Home visits were considered motivational to CHWs; community recognition from being visited by supervisors was described as a source of pride for CHWs. Moreover, home visits were associated with improving and sustaining the quality of care. The quarterly meetings were also identified as a key approach, as they provided the opportunity for CHWs to share experiences and solutions, raise concerns, build confidence and refresh their skills. In South Sudan, linking CHWs who had stronger case management skills with CHWs who were weaker was perceived to improve CHW performance.

“When you reach them, the VHTs [CHWs] appreciate it. They say, ‘We thought what we were doing was not being appreciated... we now know that you appreciate us rather than just sending us to the community to do the work.’ So they feel that you have (their interests) at heart.”  
*Health facility staff, Uganda*

## Supervision models by country

### Zambia

District health management team

Health facility staff

Community health workers

### Uganda

District management team

Health facility staff

Parish coordinators

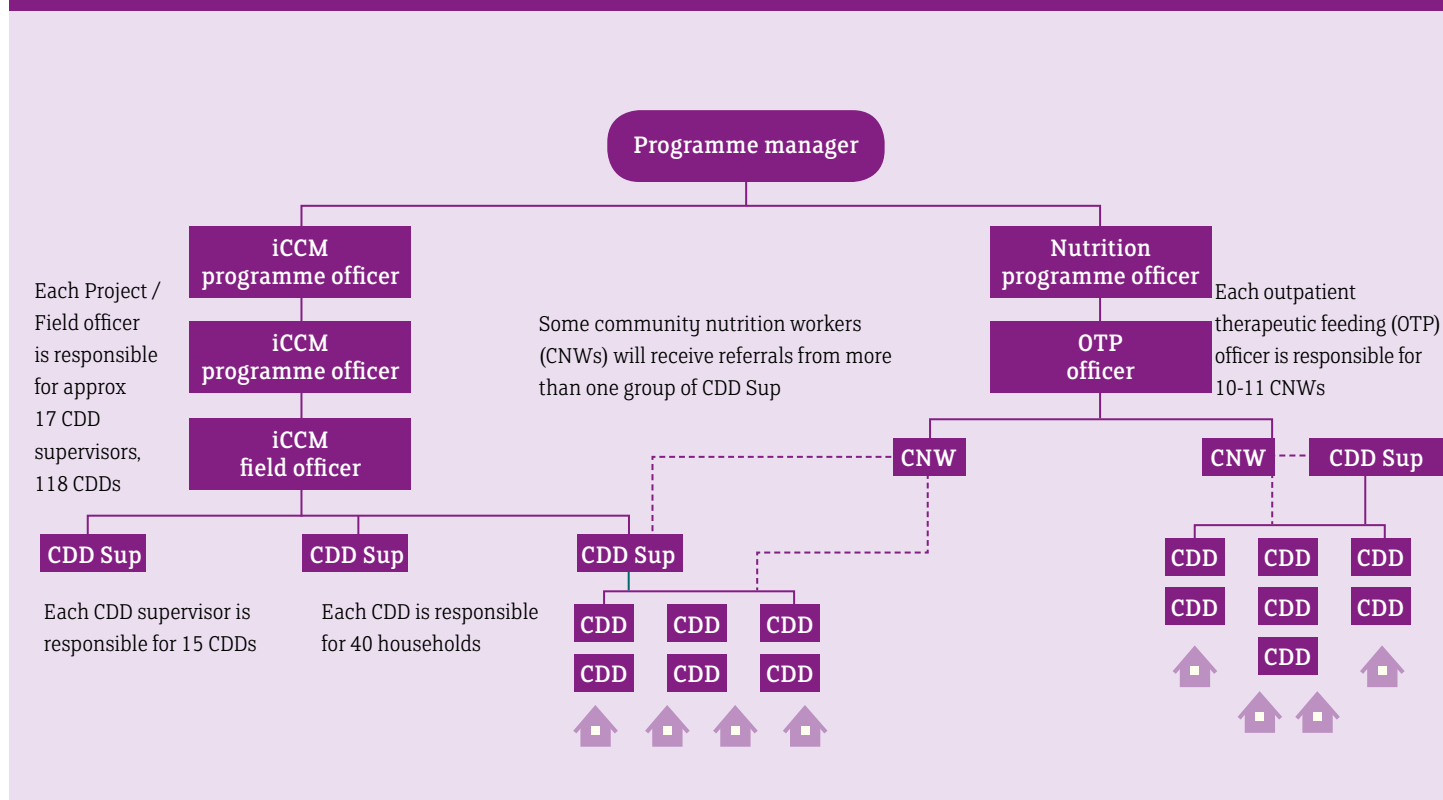
Community health workers

Weak supportive supervision such as infrequent visits from supervisors resulted in CHWs feeling discouraged and 'demoralised'. The most commonly mentioned barriers to effective supportive supervision included: unavailability of funds/insufficient transport allowances; difficulty in accessing CHWs due to poor roads or hard-to-reach locations, especially in the rainy season; the amount of time required; a heavy workload; and the availability of health facility staff. In South Sudan, insecurity and flooding were highlighted as additional challenges that affected supervisors' ability to support CHWs.

## Lessons learned

1. Swift follow-up by supervisors through home visits after the initial iCCM training is key to ensuring correct case management from an early stage
2. Home visits are motivational to CHWs and an opportunity to discuss challenges face-to-face. However, community visits require transport funds and time from supervisors who may already have a heavy workload
3. Quarterly meetings provide a platform for CHWs to gather and share challenges and solutions with the technical support of on-site health facility staff
4. A supplementary level of supervision, such as that provided by parish coordinators in Uganda, can offer extra support and motivation to CHWs and promote the prompt submission of data to health facility staff, especially in hard-to-reach areas
5. 'Buddying up' weak and strong supervisors can improve the quality of support provided to CHWs
6. Introducing technically strong 'peer CHWs' to weaker CHWs can positively affect CHW performance (as observed in South Sudan)

## Programme HR structure for South Sudan



## Data management

CHWs in all countries were trained to complete monthly registers detailing patient age, sex, respiratory rate, RDT result (Uganda and Zambia), treatment given, referral and outcome. The registers are submitted to supervisors, collated at health facility level and reported upwards. In Uganda, iCCM data is partially integrated into the health information management system while in Zambia and South Sudan, developing a health information management system tool to include community level data remains a priority.

According to the majority of the respondents who participated in the evaluation, the data quality ranged from '50 per cent accurate' to 'excellent' and was generally considered to be of an acceptable standard. Supportive supervision was associated with the improvement of the quality of the data over time. Inaccuracies in the CHW registers in Uganda and Zambia were attributed to weak numeracy skills, lack of sufficient training on the tool, CHWs forgetting how to correctly enter data, human error due to fatigue and 'busyness' with other activities. Moreover, commodity stock-outs also reportedly affected CHWs' motivation to complete the registers. Low literacy was the main factor affecting data quality in South Sudan. However,

the CHW registers were later re-designed to be pictorial, to reduce errors.

Barriers to submitting data cited by respondents frequently referred to insufficient funds/transport availability and distance to health facilities, which - for remotely located CHWs - was exacerbated during the rainy season. Where supervisors were unavailable, CHWs discussed some reluctance to submit their data. In South Sudan, insecurity affecting Unity state (where iCCM had been previously implemented) led to extreme measures to collect data which were not sustainable from a security perspective.

The ways in which data from CHW registers were reportedly used varied within and between countries. More similarities were identified between Uganda and Zambia, where the data was commonly used to calculate the community case load against predicted numbers, to plan outreach activities and monitor CHW performance by comparing cases with diagnosis and treatment. This demonstrated the value placed on CHW data by health facilities and district health teams. In South Sudan, responses indicated that health facilities lacked the capacity to utilise the data.

Some community health workers use mobile phones to report iCCM data weekly, allowing information to be more effectively gathered at the central level





## mHealth

The aim of mHealth, a mobile phone-based CHW reporting system implemented in the western region of Uganda, is to provide information and communication technology solutions to improve community level reporting. CHWs were given low cost mobile phones and trained on how to submit iCCM data weekly through a web browser that is accessible on their phones and which is uploaded to a central server. A mixed-methods evaluation of the mHealth pilot highlighted how phone ownership was motivational. Furthermore, that data quality and the speed of its submission improved when CHWs used their phones to submit data.<sup>4</sup> mHealth also tracks stock movement and was described as motivational for CHWs who receive feedback from supervisors and tips on case management via text message. This encouraged their continued reporting.

Discussions on how to sustain the mHealth initiative frequently referred to addressing challenges such as poor network coverage and charging the phones. A lack, or cost, of power to charge phones caused delays in data submission and supervisors wasting time trying to locate CHWs to collect their data if their phones were switched off.

## Lessons learned

1. Close support supervision encourages more accurate reporting by CHWs
2. Parish coordinators can promote prompt data submission if provided with sufficient transport refunds
3. mHealth offers an innovative approach to more accurate and consistent reporting with the additional benefit of providing support and motivation to CHWs from a distance
4. Data from CHW registers is valued and used at health facility and subnational level (with the exception of South Sudan); strengthening the data analysis skills of health professionals would further improve data usage for planning purposes

“We use it for analysing disease incidence among villagers or zones. So we see where we have the heaviest disease burden, or areas that need urgent relief. That helps us to plan malaria activities very much so that we can try to mitigate [its effects]. Whenever reports indicate an outbreak, we also intensify our activities so that people are aware of malaria messages and prevention.”  
*Health facility staff,  
Zambia*

## Supply chain and commodities

Ideally iCCM commodities should be fully integrated into the public sector supply chain, yet in practice during the early stages of implementation, the comprehensive package comprising of RDTs (Uganda and Zambia), amoxicillin, Coartem, oral rehydration solution and ready-to-use therapeutic food (South Sudan) was delivered by the project to the lower levels of the health system. In the case of South Sudan, in the absence of an effective national supply chain, they were distributed directly to CHWs.

Periods of stock-outs were reported across countries and were more acute during the rainy season. This had a negative impact on community perceptions of iCCM and even CHWs. CHWs associated stock-outs with reduced motivation and, in some instances, this led to their dropping out. When stock-outs occurred, health facility staff observed an increased workload, which they attributed to care-givers not being able to obtain treatment within their communities. In Zambia, health facility staff described how they interchanged MoH and iCCM supplies when CHWs or health facilities experienced stock-outs.

Over time, drug acceptability appeared to be universally high, with beneficiaries commenting on the quality and effectiveness of the medication.

“When the child gets sick, and if found with malaria, they give the child a dose [of drugs]. If you follow their instructions, the illness will be treated. That’s why we like this medication.”  
*Beneficiary, Uganda*

“I can tell you iCCM drugs were really accepted and appreciated. All iCCM drugs were quality drugs.”  
*CHW, South Sudan*

Women gather with their children at a community outpatient therapeutic feeding programme in Aweil West, South Sudan



Initially, community acceptance of RDTs\* was cautious, although this increased over time. In Uganda and Zambia, community respondents explained that their hesitation was due to concerns over using the blood to test for HIV or for 'satanic' purposes. CHWs and health facility staff appreciated the introduction of RDTs in identifying malaria cases prior to providing treatment and reducing the amount of Coartem administered presumptively.

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## Lessons learned

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1.

Sufficient time needs to be allocated for the initial procurement of iCCM commodities, particularly Coartem, which is in high demand on the international market

2.

Integrating iCCM commodities into the national supply chain from the beginning of implementation can support programme sustainability. However in practice, iCCM drugs may be used at lower levels of the health system if needed or they are likely to expire before reaching CHWs due to the limited resources (transport, fuel) available at district level for distribution

3.

Stock-outs can be avoided and the supply chain strengthened by basing quantities on consumption data and increasing buffer stock, especially in the rainy season

4.

Political will at central level is key to promoting the sustained procurement and prompt distribution of iCCM commodities through the national supply chain

“The results are instant, so children can start treatment immediately. This has helped us as the children do not become too sick as was the case in the past.”

*Beneficiary, Zambia*

“The introduction of iCCM helped us to treat what we are sure of. The use of the RDTs has helped to identify fever and using the RDTs has boosted our morale and self-esteem plus confidence before the care-givers. iCCM introduction has also helped to reduce on stock-outs. Here Coartem is not wasted, it's only given to the proved RDT positive cases. This has saved on the would-be wastage. It equipped us with good knowledge on new malaria policy guidelines.”

*Health facility staff, Uganda*

\*RDTs were only included as part of iCCM in Zambia and the western region of Uganda. Malaria Consortium in South Sudan will conduct an RDT pilot

## Community involvement and support

It was widely reported that beneficiaries embraced and welcomed iCCM, which brought 'relief', especially in remote and hard-to-reach locations. This appreciation was most commonly attributed to the reduction in long distances for seeking care, followed by the availability of free treatment accessible at any time of day. Other appreciated aspects included prompt treatment, and not having to face long waiting times or stock-outs at clinics.

The majority of respondents stated that most beneficiaries followed CHWs' referral to a health facility. Most commonly mentioned reasons included the health risks if the child is not treated and the prioritisation of CHW-referred patients in health facilities.

When discussing why a caregiver might not follow a referral, numerous barriers were listed by community level respondents across the three countries. Distance to the health facility and cost (transport, clinic fees, medication) were the most frequently mentioned factors, particularly among community members in remote and hard to reach locations. Other factors, such as long waiting times and stock outs at health facilities, were discouraging to caregivers, who explained that such barriers caused them to access private pharmacies or traditional medicine. Tribal differences and language barriers, particularly for migrant populations, were alternate reasons why caregivers may ignore CHW referrals.

Despite what some beneficiaries considered a short training period, trust in CHWs generally increased over time as beneficiaries observed the CHWs' effective case management and quality of care.

In all countries, respondents reported that the use of CHW services was high and had increased as awareness of iCCM amongst care-givers grew. In South Sudan, respondents observed a shift from traditional medicine to accessing iCCM services from CHWs, thanks to the sensitisation efforts and successful treatment of diseases witnessed by community members. In Uganda and Zambia, health facility staff remarked that the number of malaria, pneumonia and diarrhoea cases presenting at health centres reduced significantly after iCCM was introduced in their catchment areas. Community leaders, CHWs and care-givers gave anecdotal accounts of a decrease in child deaths.

CHWs' descriptions of their workload varied between 'manageable' and 'heavy' with some CHWs commenting that they found it challenging to balance their CHW duties with personal work. Support from community leaders for CHWs influenced overall community support for them, which was most often manifested as using the services, verbal thanks, recognition, small tokens of appreciation and, in Zambia, assistance with cultivating plots of land. In Uganda, a common misconception amongst beneficiaries was the belief that CHWs received a salary, which CHWs explained discouraged care-givers from providing support. CHW attrition was reportedly due to an absence of financial incentives (often referred to in the data as 'motivation') and weak community support.

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### Lessons learned

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1. Sensitisation on CHWs and iCCM services is key to encouraging communities to use those services
2. Despite perceptions that the training period for iCCM CHWs was short, once communities observed CHWs managing cases effectively, they began to trust in the CHWs' ability to treat children
3. Strong support from community leaders can positively influence community members to appreciate and assist CHWs
4. Community support and trust affects CHW motivation; enhancing sensitisation on how communities can support CHWs can result in new methods of support, such as assisting with farming work

# Behaviour change communication

Across the countries, the role of community leaders was considered to be key in delivering behaviour change communication (BCC) messages. Other frequently mentioned BCC channels were:

- Radio
- Health facility staff
- CHWs
- Community meetings
- Church sessions
- Social gatherings, burials
- Print media (posters, T-shirts)
- Drama groups (Uganda)
- School visits (Uganda)
- Other community members

Where implemented, community dialogues, which involved providing a platform for beneficiaries to discuss openly aspects of iCCM with CHWs and health facility staff, were viewed as successful and appreciated. Community level respondents reported that BCC activities had been instrumental in promoting the use of CHWs, encouraging trust in western medicine and boosting CHW motivation. Respondents also highlighted the importance of translating messages and information, education and communication materials into local languages to reach a wider audience.

In Zambia, and particularly in South Sudan, respondents across target groups observed that BCC had been integral to shifting attitudes towards western medicine and ultimately health-seeking behaviour amongst care-givers. BCC effectiveness was also associated with increased service use and in encouraging trust between care-givers and CHWs, who were viewed as successful in implementing change within their communities through spreading BCC messages and effective case management.

“I can say it has been very effective. At the beginning, many people had reservations about the use of CHWs to treat their children. Many felt they would be making mistakes as they were not trained doctors or nurses. Others believed they were stealing blood and offering it for satanic rituals. The fact that today everyone in the community has come to accept these services is testimony enough that the BCC strategies worked well.”

*Community leader,  
Zambia*

“All behaviours of our communities have changed over the past three years in the iCCM programme implementation. Few people in the villages are now using traditional herbs for treating children’s sickness.”

*Community leader,  
South Sudan*

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## Lessons learned

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1. BCC activities are most effective when they are conducted from the outset of implementation
2. Community and religious leaders are the best channels for disseminating BCC messages and engaging communities
3. BCC activities and messages have an impact on health-seeking behaviour, service use, community support for CHWs and CHW motivation
4. Information, education and communication materials should be translated into local languages wherever possible

## Integrating iCCM into the existing health system

The consensus amongst respondents in all countries was that iCCM had been well integrated into the health system through implementation within existing health structures and in line with the MoH's objectives to reduce under-fives' morbidity and mortality. The collaboration between Malaria Consortium and local health teams promoted the transference of skills and implementation processes to the districts, building local capacity and, according to several respondents in Uganda, creating a sense of ownership.

Support from health facility staff at all levels was reported to be generally high. In South Sudan, one recommendation was to strengthen the capacity of health workers and promote the procurement and distribution of second-line treatment for severe cases of malaria, pneumonia, diarrhoea and malnutrition. Discussions around sustainability highlighted challenges such as commodity procurement, supporting the supply chain and motivating CHWs. Respondents at each level recognised that, in order for iCCM to become sustainable, communities would need to support CHWs while the MoH at local, district, provincial and national levels would need to advocate for continued support of the programme, allocating funding and providing logistical support.

“Integration of the iCCM programme into the overall healthcare system has helped a lot and it has also improved health system strengthening in our community.”  
*Health facility staff,  
South Sudan*

“iCCM is a novel approach because previously, we just used the integrated management of childhood illness (IMCI). But iCCM encompasses the IMCI and other principles to be able to manage the children. Further, this involves the use of the iCCM community members or volunteers and goes a step further by empowering them with medication and skills to be able to treat or manage children at the community level. So, it's within the focus of the Ministry, and what they are doing fits neatly in the general health system in the country.”  
*Ministry of Health,  
Zambia*

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### Lessons learned

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1.

It is possible to integrate the different aspects of iCCM successfully into the existing health systems

2.

Communities and each level of the health systems need to be committed to supporting iCCM for the programme to be sustainable

## Technical and geographical scope

Respondents agreed unanimously that the technical scope of iCCM was appropriate as the programme targets the three most common diseases affecting children under five in implementation areas. It was also generally agreed that iCCM services were appropriate for the level of education that CHWs possess. Rectal artesunate (Uganda) was identified as an area in which CHWs had initially lacked confidence. However, this treatment was considered effective in severe cases and, with practice, CHWs in Uganda felt more at ease with this method of treatment. In areas where RDTs were not included as part of the iCCM package, CHWs asked that these be added. Consolidating current components (i.e. knowledge, skills of CHWs) and ensuring that health facilities are equipped to effectively manage referred cases before introducing any additional services, was recommended by respondents across countries to promote quality of care and not overburden CHWs. Recommendations on what could be added to iCCM included deworming treatment, family planning services and in South Sudan, water and sanitation health promotion. There were frequent requests to expand treatment to older children and adults.

In all three countries, respondents agreed that iCCM should prioritise rural and hard-to-reach communities located far from health facilities. This was due to challenges such as distance and cost of transportation, which were identified as barriers to accessing treatment.

Community level respondents generally felt that more CHWs were needed, especially in more populous and widely dispersed villages. One recommendation from communities was to adjust the number of CHWs depending upon the size and distribution of dwellings, taking into consideration density and population of the village. Future research could explore how many CHWs are appropriate in different implementation settings, for instance training CHWs in areas which are more than 25 kilometres from a health facility.

“In rural areas, health centres are far away, the death rate is also high because of untimely treatment, whereas in urban settings most people have the money to access the available services.”

*Health facility staff,  
Uganda*

### Lessons learned

1. The technical scope is appropriate, based on the communicable diseases responsible for the majority of deaths of children under five in implementation areas
2. Remote and hard-to-reach locations should be prioritised. However, further research could better inform the most effective placement of CHWs



A community health worker in Zambia uses a timer to measure a child's respiratory rate

# Conclusions

1.

Qualitative studies can offer a valuable contribution to understanding the 'hows' of implementation, and implications for improved feasibility and acceptability of iCCM in practice

2.

Participatory methodologies enable the scope of research enquiry to be context-specific

3.

Community support to iCCM and CHWs is necessary for sustained health benefits

4.

Ministries of health must be committed to supporting the programme at all levels to promote sustainability

5.

A sharp focus must be maintained on capacity building and 'enabling' of the public health system

iCCM projects seek to improve access to healthcare and promote positive and preventive behaviours







# Recommendations

Experiences of iCCM implementation sourced from the 646 individuals included in the multi-country participatory evaluation provide insight into how iCCM can be strengthened from community to national level. Key programmatic recommendations to enhance the effectiveness, quality and sustainability of future iCCM implementation and scale up for the Ministry of Health and implementing partners are presented in Table 1.

TABLE 1. SPECIFIC RECOMMENDATIONS FOR FUTURE ICCM IMPLEMENTATION

Component	Recommendations
<b>Central level preparation</b>	<ul style="list-style-type: none"> <li>● Clear timeframe for the development/revision of guidelines with multiple stakeholders</li> <li>● Effective collaboration with the MoH at district level in the detailed planning for implementation start up</li> </ul>
<b>Subnational level introduction</b>	<ul style="list-style-type: none"> <li>● Close collaboration with subnational and central level implementers from the outset in terms of planning, costing and implementation</li> <li>● Sensitise all health facility staff on iCCM (where possible)</li> </ul>
<b>CHW selection</b>	<ul style="list-style-type: none"> <li>● Prompt and enhanced sensitisation prior to CHW selection to promote familiarity with the guidelines, transparency on the voluntary nature of the role and community participation</li> <li>● Involve local officials and health facility staff in monitoring selection process</li> </ul>
<b>Training and capacity building</b>	<ul style="list-style-type: none"> <li>● Maintain a participatory and interactive approach to training, use videos and visit health facilities where possible. Translate key terms into local languages</li> <li>● Adapt training materials to the context and participants' level of comprehension</li> <li>● Allocate more time during the training to focus on challenging areas, specifically pneumonia diagnosis and the use of respiratory timers, data management and stock management and, for trainers, enhancing supervisory skills</li> <li>● More focus on the newborn care component where this is part of the national policy</li> <li>● Extend the CHW training from six days to enable to better digest content and practice in application, particularly relating to challenging parts of the course</li> <li>● Conduct a standardised test at the end of the training and provide a certificate for those who have passed</li> <li>● Provide refresher training for CHWs which focuses on problem areas identified through supervision</li> </ul>
<b>Supportive supervision</b>	<ul style="list-style-type: none"> <li>● Supervisors to visit CHWs (home visits) within one month of initial training to review application of new skills/knowledge in practice and to motivate CHWs</li> <li>● Regular supportive supervision at frequent intervals (quarterly)</li> <li>● Prioritise supportive supervision within the MoH so that logistical support is provided and sustained</li> <li>● Promote district ownership and logistical support for supervision activities as far as possible, including integrating with other activities such as data collection/management</li> <li>● Link supportive supervision to CHW register data to identify gaps in knowledge, stock and assess CHW performance</li> <li>● Move towards competency-based supervision and tools</li> <li>● Introduce supervisors for CHW supervisors – i.e. another level of supervision</li> </ul>
<b>Data management</b>	<ul style="list-style-type: none"> <li>● Sensitise CHWs, health facility staff and DHTs on the importance and uses of iCCM data, for instance in quantifying stock, identifying missing data in CHW registers, assessing CHW performance, planning disease control/community health activities</li> <li>● Build the data analysis and management capacity of health facility staff and DHTs</li> <li>● Clarify and communicate roles and responsibilities among health facility staff to support better prioritisation of data management activities</li> <li>● Advocate and support the process of the integration of community level iCCM data into the HMIS tool</li> <li>● Provide equipment to CHWs to facilitate data submission (e.g. bicycles, gumboots, rain coats)</li> <li>● Document data submission systems that have worked and share with implementers</li> <li>● Encourage health facilities using data as feedback for mapping trends and quantifying stock, to share their experiences with facilities that do not do this</li> <li>● Create mechanisms and templates for districts to feedback relevant iCCM data summaries to health facilities and CHWs</li> </ul>

Component	Recommendations
<b>mHealth</b>	<ul style="list-style-type: none"> <li>● Scale up mHealth with a focus on areas that have gaps in CHW reporting</li> <li>● Explore different ways in which mHealth can serve to strengthen reporting, supervision and motivation of CHWs</li> <li>● Integrate iCCM commodities into national public supply chain from outset</li> <li>● Support for improved commodity flow through the district, with an emphasis on integration with the district supply chain, where this can be properly supported</li> <li>● Adjust quantity of RDTs, artemisinin-based combination therapies (ACTs) and amoxicillin based on actual consumption data and continue to revise in line with data generated to avoid stock-outs</li> <li>● Supply health facilities with buffer stock, especially during the rainy season (e.g. RDTs, ACTs)</li> <li>● Share distribution records with the district as needed to facilitate ownership of the process</li> </ul>
<b>Supply chain and commodities</b>  <b>Community involvement and support</b>	<ul style="list-style-type: none"> <li>● Emphasise sensitisation and regular community consultation through community leaders and community health committees or similar; specifically on the role of CHWs, the scope of iCCM services and the role of the community in supporting CHWs</li> <li>● Encourage a more sustainable mechanism through which communities can support CHWs, for instance cultivating land, assisting with chores, or material contributions—positive examples could be shared with other communities</li> <li>● Roll out BCC activities such as community dialogues prior to iCCM implementation in communities to raise awareness about CHWs, iCCM services to promote demand</li> <li>● Contextualise BCC activities as much as possible based on existing information and initiatives. Special consideration should be given to hard-to-reach areas so that the most effective methods for those locations are utilised (i.e. community gatherings versus radio if coverage is poor)</li> </ul>
<b>Behaviour change communication</b>	<ul style="list-style-type: none"> <li>● Use interactive approaches such as community dialogues, storytelling and posters</li> <li>● Emphasise specific key messages during BCC activities: <ul style="list-style-type: none"> <li>– Promote prompt and effective use of iCCM services</li> <li>– The importance of community participation in the CHW selection process</li> <li>– The voluntary nature of the CHW role</li> <li>– The role of the community in supporting CHWs</li> <li>– Clarification on the purpose of RDTs, specifically what the blood is being tested for, to avoid misconceptions</li> </ul> </li> </ul>
<b>Management and coordination</b>	<ul style="list-style-type: none"> <li>● Enhance information sharing of results and surveys between implementing partners and DHTs</li> <li>● Document roles and responsibilities, for instance through memoranda of understanding to serve as a record of agreed processes</li> <li>● Improve collaboration and more frequent communication between implementing partners, districts and the different levels of the health system to enable effective implementation and address challenges</li> </ul>
<b>Integration</b>	<ul style="list-style-type: none"> <li>● Advocate for the MoH and donors to prioritise iCCM in terms of funding and logistical support</li> <li>● Facilitate visits from central MoH and donors, both at start-up and during implementation, to share experiences and promote the value of the programme</li> <li>● Prioritise addressing the gaps in supportive supervision and data management</li> <li>● Strengthen the supply chain to facilitate the prompt and frequent delivery of iCCM commodities</li> <li>● More collaboration with districts during planning stage on how best to integrate iCCM activities into district level plans and budget</li> </ul>
<b>Technical and geographical scope</b>	<ul style="list-style-type: none"> <li>● Strengthen current iCCM activities before widening the scope in terms of age or coverage</li> <li>● Continue to prioritise hard-to-reach locations</li> <li>● Gather and share more evidence to inform appropriate CHW/ population ratios</li> </ul>

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Community dialogue facilitator, Agnes, leading an interactive session with flashcards, Zambia



# 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](http://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



Children in Uganda.  
Photo: Tine Frank



**MATHEMATICAL TABLES**

1. Addition (+)	2. Subtraction (-)	3. Multiplication (x)	4. Division (÷)
5. Percentage (%)	6. Fractions (1/2, 3/4)	7. Decimals (0.5, 0.25)	8. Integers (1, -1, 10, -10)
9. Squares (1 <sup>2</sup> , 2 <sup>2</sup> )	10. Square roots (√)	11. Powers (2 <sup>3</sup> , 3 <sup>2</sup> )	12. Logarithms (log)
13. Trigonometry (sin, cos)	14. Geometry (Area, Volume)	15. Algebra (x, y, z)	16. Calculus (d/dx, ∫)
17. Statistics (Mean, Median)	18. Probability (P(A), P(B))	19. Set Theory (A ∪ B, A ∩ B)	20. Number Theory (Prime, Composite)

**MULTIPLICATION TABLE**

	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

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