

The ACT PRIME Study

Evaluating the impact of enhanced health facility-based care for malaria and febrile illnesses in children in Tororo, Uganda

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THE REPUBLIC OF UGANDA



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STUDY INFORMATION

Title	PRIME STUDY – Evaluating the impact of enhanced health facility-based care for malaria and febrile illnesses in children in Tororo, Uganda
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Institutional review boards	Makerere University Research and Ethics Committee Uganda National Council for Science and Technology London School of Hygiene & Tropical Medicine University of California, San Francisco Committee on Human Research

PROJECT SYNOPSIS

Title	PRIME STUDY – Evaluating the impact of enhanced health facility-based care for malaria and febrile illnesses in children in Tororo, Uganda
Objectives	<ol style="list-style-type: none"> 1. To compare the impact of enhanced health facility-based care to current standard of care on key population-based indicators, including the prevalence of anemia in children under five. 2. To compare the impact of enhanced health facility-based care to current standard of care on key longitudinal indicators, including antimalarial treatment incidence density, in a cohort of children under five. 3. To compare impact of enhanced health facility-based care to current standard of care on key indicators of case management for malaria and other illnesses, including the risk of inappropriate antimalarial treatment, in children under five treated at health facilities.
Description	Enhanced health facility care will be compared to the current standard of care provided by lower level government-run health facilities, supplemented by services provided through the private sector and community-based interventions, using a cluster-randomized design. Clusters will be defined as households located within a 2 km radius of the facilities.
Participants and Sample Size	<ol style="list-style-type: none"> 1. Objective 1. Cross-sectional surveys in children under five and aged 5-15 years randomly selected from households in each cluster; 4383 children per study arm; 8766 total. Surveys will be conducted at baseline and then annually for 2 years. New populations of children will be selected for each survey. 2. Objective 2. Cohort of children under five recruited from 25 randomly selected households in each cluster; 250 households per study arm; 500 total. 3. Objective 3. Interviews will be conducted with children under five and their caregivers visiting health facilities on days selected for the exit interviews. Three rounds of exit interviews will be conducted. In the first two surveys, 200 patients will be interviewed during each survey (10 patients per health facility). In the final survey, 1000 patients will be interviewed (50 patients per health facility). A total of 1400 patients will be enrolled into the exit interviews.
Study site	Tororo district, an area with very high malaria transmission intensity. The five sub-counties of West Budama North Health Sub-district (Nagongera, Paya, Kirewa, Kisoko, and Petta), and two sub-counties of West Budama South Health Sub-district (Mulanda and Rubongi) will be included.
Study period	The total duration of the study will be approximately 2.5 years. The health facility intervention will be scaled-up over 2 months and will run for approximately 2 years; the cross-sectional surveys will be conducted at baseline and then annually for 2 years; and each of the cohort study participants will be followed for approximately 18 months in total, 12 months following the roll-out of the intervention.
Intervention	20 lower-level government-run health facilities in the area will be randomly assigned to one of two interventions: (1) health facility intervention (HFI), or (2) standard care. The HFI will focus on improving health center management, health worker training, and ensuring adequate diagnostics and drug supplies.
Primary outcome	<ol style="list-style-type: none"> 1. Objective 1. Prevalence of anemia 2. Objective 2. Antimalarial treatment incidence density 3. Objective 3. Inappropriate treatment of malaria
Secondary outcomes	<ol style="list-style-type: none"> 1. Objective 1. Prevalence of parasitemia, prevalence of gametocytemia, all-cause mortality rate in children under five 2. Objective 2. Incidence of hospitalizations, illness, and febrile illness episodes, prompt effective treatment of fever, prompt effective treatment of malaria, incidence of serious adverse events, antibiotic treatment incidence density 3. Objective 3. Appropriate treatment of malaria, patient satisfaction, patient attendance, gaps in staffing, drug stock outs, health worker knowledge questionnaire scores

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ABBREVIATIONS AND ACRONYMS

ACT	artemisinin-based combination therapy
ADDAT	ACT drug distribution assessment tool
AL	artemether-lumefantrine
AS+AQ	artesunate + amodiaquine
CAB	community advisory board
CBI	community-based intervention
CHW	community health worker
CMD	community medicine distributor
CQ	chloroquine
CQI	continuous quality improvement
FGD	focus group discussion
GIS	geographical information systems
GPS	global positioning system
HBMF	home-based management of fever/malaria
HC	health center
HFI	health facility intervention
ICCM	integrated community case management
IMCI	integrated management of childhood illnesses
JMS	joint medical stores
JUMP	Joint Uganda Malaria Program
IRB	institutional review board
LSHTM	London School of Hygiene and Tropical Medicine
MoH	Ministry of Health
MU	Makerere University (Kampala, Uganda)
MU-UCSF	Makerere University - UCSF Malaria Research Collaboration
M&E	monitoring and evaluation
NMS	national medical stores
PCS	patient-centered services
RDT	rapid diagnostic test
SOP	standard operating procedure
SP	sulfadoxine-pyrimethamine
UCSF	University of California, San Francisco
UMSP	Uganda Malaria Surveillance Project
UNCST	Uganda National Council of Science and Technology
VHT	village health team
WHO	World Health Organization

1 BACKGROUND

1.1. INTRODUCTION

Malaria remains one of the most serious global health problems.[1] Of the estimated 400 to 900 million episodes of fever that occur each year in African children, probably about half are due to malaria, resulting in over one million deaths.[2-4] Uncomplicated malaria can progress rapidly to severe disease, and most malaria deaths in young children occur within 2-3 days of onset of illness.[5] The first few days of illness present an important window of opportunity to reduce morbidity and mortality with early treatment.

Early effective antimalarial treatment is one of the key strategies for reducing the burden of malaria.[6] In the Global Strategic Plan for 2005-2015, the Roll Back Malaria Partnership has set a target to ensure that 80% of malaria episodes are adequately treated within 24 hours of onset of symptoms.[6] Despite increasing availability of effective artemisinin-based combination therapies (ACTs) and the emphasis on early antimalarial treatment, many patients with malaria do not benefit from this therapy. A recent UNICEF report of data collected between 2000 and 2006 estimated that 35% of febrile children in sub-Saharan Africa were treated with antimalarial medicines.[7] However, only 23% of these children were treated within 24 hours of onset of illness, and 60% of febrile children received chloroquine, rather than effective first-line therapies.

1.2. MALARIA DIAGNOSIS AND TREATMENT

1.2.1. Barriers to service in the formal healthcare sector

Diagnosis and treatment of malaria is often challenged by limited health-care infrastructure, particularly in Africa.[8,9] Substantial barriers to providing good quality health care exist, including logistical, cultural, and wider system barriers. As a result, few malaria patients receive treatment in the formal healthcare sector; most are treated at home with drugs purchased from informal drug shops.[2,10] Unfortunately, such treatment is often inadequate, with ineffective or poor quality drugs given at incorrect doses.[10-12] Community-based programs, such as home management of malaria (HMM), have been promoted by the World Health Organization (WHO) and others to extend care beyond the formal sector, and have been adopted in many African countries.[13-15]

1.2.2. Universal diagnostic testing

The WHO has recently released new guidelines for malaria treatment, recommending that suspected cases be confirmed by a parasitological test when possible.[16] Specifically, the WHO guidelines state that prompt parasitological confirmation by microscopy or alternatively by rapid diagnostic tests (RDTs) is recommended in all patients suspected of malaria before treatment is started; and that treatment solely on the basis of clinical suspicion should only be considered when a parasitological diagnosis is not accessible. The shift towards universal diagnostic testing for malaria is

very welcomed, but raises serious questions about the capacity for diagnosing malaria in endemic areas.

Currently, malaria diagnostics are generally only available in the formal healthcare sector, where a minority of antimalarial treatments are distributed. Even where diagnostic facilities are available, studies suggest that antimalarial treatment is given to at least half of patients with a negative test.[17-20] RDTs for malaria offer promise for extending diagnosis beyond hospitals and clinics, reaching the areas where many patients seek treatment. However, deployment of RDTs not straightforward, and introducing them into the periphery has several operational challenges. When RDTs have been introduced into settings where microscopy is available, studies suggest that providers often ignore negative results, misdiagnosing and overtreating malaria.[19,20]

1.2.3. Training health workers in malaria diagnosis

Limited training, supervision, and support for the shift from presumptive to diagnostic-driven treatment may be associated with poor provider adherence to test results. More recently, encouraging results have been seen in Uganda where a one-week integrated course for health workers at facilities with microscopy significantly decreased unnecessary ACT prescriptions.[21] Also in Uganda, data from a study evaluating an RDT training course targeted to health workers in lower-level public health centers, which included clear guidelines on management of positive and negative RDT results, dramatically decreased unnecessary antimalarial prescriptions while maintaining satisfactory patient outcomes [H Hopkins, unpublished data]. However, it remains to be seen whether these more intensive training programs can be taken to scale. One of the main challenges for the introduction of malaria diagnostics has been to concurrently enhance capacity to diagnose and treat alternative causes of fever.[22] The need to integrate training in case management of malaria with that of non-malaria febrile illnesses, and evidence that more supportive training packages increase effectiveness,[23-25] demonstrates the importance of integrating malaria programs with health services in general. A more comprehensive approach to health care that will attract more patients and manage multiple diseases effectively is called for to produce tangible health benefits in the population as a whole.

1.3. MALARIA IN UGANDA

1.3.1. Overview

Malaria is one of the most important health problems in Uganda and the leading cause of morbidity and mortality in children, accounting for up to 40% of outpatient visits, 20% of hospital admissions, and 14% of inpatient deaths.[26] Children in Uganda experience an estimated average of six episodes of malaria each year, resulting in between 70,000 and 110,000 deaths annually. Up to 90% of Uganda's population lives in highly endemic areas with perennial malaria transmission, while 10% live in areas at risk for epidemics.[27] The Ugandan Ministry of Health has developed a strategic plan for malaria control which focuses on intermittent presumptive treatment of pregnant women, vector control measures (including use of insecticide-treated bednets and indoor residual spraying), improved epidemic preparedness and response, and improved case management of malaria in health facilities and at home.[27] Access to care remains a major challenge in Uganda; only 49% of households live within a 5km radius of a public health facility.[28], and febrile children are frequently

treated outside of the formal sector.[29-32] Additional barriers to appropriate health care in Uganda include high costs, poor attitude of health workers, and stock-outs of drugs.[33]

1.3.2. Antimalarial drug policy

Artemether-lumefantrine (AL) was adopted as the new first-line treatment for uncomplicated malaria in 2004, with artesunate + amodiaquine (AS+AQ) as an alternative if AL was not available. Studies suggest that AL is highly effective for treating uncomplicated malaria in Uganda, with risk of recrudescence of 1% in Kampala and Tororo;[34-36] however, stock-outs of AL remain an issue.[33,37,38] A severe shortage of AL in Uganda has markedly limited the amount of drug available in the country.[39] Many public health facilities have been left without AL for months, and health care workers have been forced to resort to ineffective or inappropriate drugs for treatment of malaria.

In 2002, Uganda launched the national home-based management of fever (HBMF) program to address the challenge of poor access to antimalarial treatment, and to extend delivery of effective antimalarial drugs beyond the formal sector.[40] The aim of Uganda's HBMF program was to improve access to drugs and to treat all fevers in children under five within 24 hours of onset of symptoms by distributing antimalarials free of cost via volunteer community medicine distributors (CMDs). The program was scaled-up to country-wide coverage over approximately three years;[41] however, it was fully functional in only a few areas. Policy on community-based interventions in Uganda has recently changed expanding from malaria-only to integrated community case management (ICCM). Community health workers (CHWs), participating in village health teams (VHTs) will be trained to evaluate and provide presumptive treatment of malaria, pneumonia, and diarrhea based on clinical criteria. Community-based health care in Uganda is currently in transition; the HBMF program is being phased out and is inactive in most areas, but ICCM has not yet been rolled out. The anticipated launch date of the new ICCM policy is July 2010.

1.3.3. Affordable Medicines Facility – malaria

Another program that may increase access to antimalarials in Uganda is the Affordable Medicines Facility – malaria (AMFm), which is a new financing mechanism, intended to increase access to ACTs and reduce access to less effective antimalarial treatments, particularly artemisinin monotherapies (<http://www.theglobalfund.org/en/amfm/>). The AMFm is hosted by the Global Fund and is being piloted in 9 countries, beginning in June 2010, dependent upon agreements being signed between relevant parties. The mechanism of the AMFm is to make a co-payment towards the cost of ACTs with eligible first-line buyers in the public, private or not-for-profit sectors. This subsidy is intended to result in lower costs of ACTs being distributed through the different sectors. Alongside the subsidy, countries are required to implement 'supporting interventions' such as training providers and outreach to communities in order to improve malaria case management and to promote ACT use. Each country is responsible for the design and implementation of supporting interventions as well as for monitoring and evaluation activities over the period of the first phase of the pilot, lasting two years. Uganda's application to be a pilot AMFm country was accepted in November 2009 and the agreement for the contract with the Global Fund is in progress.

1.4. HEALTH FACILITY INTERVENTIONS

1.4.1. What is quality care and what are the problems?

The Institute of Medicine definition of quality of care incorporates six aims, that it be *safe, effective, patient-centered, timely, efficient* and *equitable*.^[42] Evidence from increasing numbers of studies suggests quality of care by these measures is poor in many settings, including delivery of primary care in low-income countries. In terms of effectiveness and safety, direct observation studies of performance have identified severe deficiencies, particularly in history taking and examinations, diagnosis, and appropriate treatment choice and dosage.^[43-48] This has been linked to low motivation of staff as well as poor resource availability in the work place. In terms of patient-centeredness and timeliness, meeting a population's expectations of how they should be treated by providers, including patient expectations for health care, is now seen as central to performance.^[49] It has been argued that poor quality services fail to earn the population's trust, leading to clients seeking alternative sources of care,^[50] or discontinuing care.^[51] In contrast, the perception of good quality services, including inter-personal relationships, has been found to encourage patients to access care,^[52] and demand for services.^[53-55] Satisfied patients may be more likely to comply with treatment and maintain a continuing relationship with the health worker,^[56] and loyalty to a clinic.^[57], thus enjoying a better medical prognosis (presuming good technical quality of care).^[58]

1.4.2. How can quality of care be improved?

Interventions to improve quality of care in low-resource settings have largely fallen into two categories: resource-based interventions and performance-based interventions. Resource-based interventions include the provision of equipment, infrastructure and drugs. Performance-based interventions have mostly been focused on clinical training and dissemination of guidelines. Far fewer studies have assessed interventions to improve aspects of quality care outside of clinical care.

1.4.2.1. Resource-based interventions

Resource-based interventions have shown that improved supplies together with guideline training can lead to improvements in quality of care,^[59] and these improvements can be effective when solutions to resource needs are driven by local actors, for example using participatory research methods.^[60] When resources, such as equipment, are delivered in a top-down fashion according to perceived needs, they may not be appropriate and may not be used.^[61] In addition, resources such as RDTs for malaria need to be introduced in an appropriate manner, including generating local ownership and preparedness for change and providing troubleshooting and support in the longer term.^[62] Further research to identify principle components for introducing equipment and supplies to primary health centers is needed to inform implementation across low-resource countries.

1.4.2.2. Performance-based interventions

Systematic reviews of evaluations of training-based interventions to change clinical behavior have produced mixed results in both developed,^[63-67] and developing countries.^[68] A training intervention to improve medical assistants' malaria prescribing practices in Ghana found initial improvements in practice deteriorated after twelve months, attributing the gap between knowledge and practice to socio-cultural factors including patient pressure, self-interested motivations and a

lack of supervision.[69] An evaluation of training for CHWs in Kenya found no improvement in overall process quality during consultations with pediatric patients after increasing numbers of refresher training series attended.[70] In fact, longitudinal analysis of this intervention showed that whilst initial refresher training led to improved management for severely ill children, adherence to guidelines for non-severe cases worsened, and after second refresher training the overall adherence declined rapidly.[71]

1.4.2.3. Why does training fail?

The failure of many training based programs to improve clinical care reflects a wider acknowledgement of a gap between knowledge and practice of health workers. Interpretation of the literature suggests that training can form the basis of effective strategies but only as long as other conditions are fulfilled. For example, the introduction of the integrated management of childhood illnesses (IMCI) scheme to primary health care facilities has had better results in countries with stronger health systems, and where support for the scheme has been strong, in terms of political advocacy, trainer support, and integration into current practices.[72-77] The importance of management is echoed in findings from Mexico where interactive education was combined with managerial interventions to improve prescribing practices for rhinopharyngitis at 18 primary health centers.[78] Similarly, in Kenya, treatment of uncomplicated malaria was better at facilities where health workers had undertaken in-service malaria training and where guidelines, wall charts, and more frequent supervision were provided.[79] However, evaluation of supervision and job aids for CHWs in Kenya found that these interventions did not improve adherence to guidelines for pediatric case management.[70] The authors suggest this may have been due to the quality of these interventions: relatively little time was spent on supervising clinical practice (co-examination of children by supervisor and health worker) compared to administrative tasks; quality of feedback from the supervisors may have been poor; and guidelines provided in job aides may not have been clear. In spite of the emphasis on training, clinical quality of care remains poor in many low-resource settings. Further research into how to support clinicians to improve performance, beyond didactic training, is urgently needed.

1.4.2.4. Patient-centeredness

Performance-based interventions tend to favor traditional continuing medical education training programs and are less focused on patient-centeredness. However, there is some evidence that participatory workshop interventions conducted over an extended period can improve communication with patients in different settings.[80] Ensuring that interventional methods used are appropriate to the local setting, and that participants are able to tackle wider issues that affect their ability to communicate effectively, have been shown to be important.[81,82] In high-resource settings, interventions targeted at provider communication have shown some success in targeting three aspects of the interaction: giving time to talk,[83] providing emotional care,[84,85] and giving positive communication.[86,87] Intervention methods to tackle these specific issues in patient-centeredness are based on adult learning theory, following principles of learning through experience and reflection. Self-observation, or 'mindfulness meditation' has formed an important part of some effective programs.[88] Further research is needed to identify intervention components that successfully achieve improved levels of patient-centeredness in a sustainable way that are replicable in low-resource settings.

1.5. PHASE I RESULTS

In the first phase of this project, we aimed to characterize the population and local health services in Tororo district by conducting a census survey, a survey of health services, and a qualitative study. All households within West Budama North health sub-district in Tororo, including Nagongera, Paya, Kirewa, Kisoko, and Petta sub-counties, were enumerated and mapped to provide a sampling frame for the main trial. To characterize the population, households were surveyed on basic demographic information, markers of socioeconomic status, vital statistics, and bednet practices. We also characterized the local health services, focusing on the public health facilities and the existing HBMF program, by surveying health care workers and community medicine distributors. In addition, we conducted a series of focus group discussions with primary caregivers, heads of households, and health care workers.

The initial field work was conducted from October 2009 to February 2010. Our census team consisted of surveyors paired with local research assistants who moved with the local leaders of each village to identify all households. The health services survey and qualitative study were conducted by a team of interviewers trained in social science and qualitative research.

Additional Phase I work, including (1) a census survey of two sub-counties in West Budama South health sub-district, (2) a brief survey of lower-level government-run health facilities in that area to evaluate their catchment areas, and (3) self-observational activities for health workers to increase their awareness about barriers to communicating with patients, will be conducted in August and September 2010.

1.5.1. Census survey

We enumerated 26,793 households in five sub-counties in Tororo district, including 144,216 residents and 26,905 children under five. Our results suggest that this area of Tororo is very rural, with limited infrastructure and education. Very few households have electricity (1%), or own a television (2%). Ownership of mobile phones (31%) and radios (43%) is also low. One-quarter of households have no toilet facilities, and only 30 households have a flush toilet. Overall, heads of household are not well-educated; one-quarter have received no formal education, and only 21% have received any secondary or higher education. Mortality in children under five was estimated to be 10.99%.

Although over half (63%) of households reported that they owned a bednet, only 37% of residents reported that they had slept under a bednet the previous night. Only 15% of residents and 20% of children under five slept under an insecticide-treated bednet (ITN) during the previous night, which is far below the targets of > 80%.

1.5.2. Public health facilities

We interviewed 81 (88%) of 92 health workers stationed at the 17 functional government-run health facilities in West Budama North. Most health workers (56 [69%]) were trained in management of malaria with AL, but only 29 (26%) had received training in RDTs for malaria.

Staffing shortages and absenteeism are a problem at most health centers; 16 (94%) reported that the number of staff working at the facility was insufficient. Drug stock-outs are also a major problem, particularly at HC IIs and HC IIIs. Nearly all health centers (94%) reported that they experienced

stock-outs. Only 29% of health centers reported that the supply of antimalarial drugs was adequate for treating their patients. Infrastructure at the health facilities in this area is also limited. Most lack electricity (88%) and running water (94%).

Overall, the knowledge of health workers about malaria case management was surprisingly poor. Out of a possible 178 points, the mean score achieved by health workers on a knowledge questionnaire was 51.6 (29%), ranging from 15 to 110. The in-charges of health centers scored unexpectedly low with a mean score of 60.5 (34%). When asked how to confirm the diagnosis of malaria, only eight (10%) health workers mentioned microscopy and two (2%) RDTs.

The results of knowledge questionnaire identified areas to target in training include physical examination skills, identification of danger signs for severe malaria, malaria diagnostics, differential diagnosis of non-malarial febrile illnesses, and key elements of managing uncomplicated and severe malaria (including administration of medications).

1.5.3. Community medicine distributors

We selected 100 community medicine distributors (CMDs) who had participated in the HBMF program using convenience sampling from five sub-counties in Tororo district. Major gaps in CMD training, supervision, and knowledge were identified. Interviews also revealed that CMDs are involved in implementing multiple programs led by different stakeholders, which are not integrated. Only four CMDs reported receiving support supervision in the last six months. Most CMDs (92%) said that they refer at least one patient each week, most commonly to a local HCIII. However, only 23% of CMDs said that they would refer the child after two days if no improvement was seen, suggesting that they refer sick children on initial review, but do not provide follow-up of patients.

Overall, CMDs scored poorly on the knowledge questionnaire (mean score 22%). Only 74% CMDs correctly identified fever as the most common symptom of malaria in children, and recognition of danger signs of severe malaria was poor. Although 61% of CMDs had received training on management of malaria with AL, few CMDs correctly described how AL should be administered. Recognition of non-malarial causes of fever in children was also poor.

Our results suggest that CMDs knowledge of appropriate management of malaria is limited, despite training, and they may be overstretched by stakeholders attempting to deliver community-based interventions.

1.5.4. Qualitative study

We conducted 69 in-depth interviews with health workers stationed at the 17 health facilities. In-depth interviews were conducted with 100 CMDs. A total of six FGDs, involving 65 participants, were conducted with health workers, representing all three health center levels (HC II, III, and IV) and higher and lower cadres of health workers. Five FGDs were conducted with 55 primary caregivers from the community, including two with caregivers under the age of 30 years, and three with older caregivers. Participants from four of these FGDs lived in parishes that had a public health facility. Five FGDs were conducted with 58 heads of household from the community, including two with female heads, and three with males. Participants from four of these FGDs lived in parishes that did not have a public health facility.

1.5.4.1. *Defining good quality health care*

When asked, 'what is good quality health care', community members, health workers and CMDs described similar values involving three themes: 1) *comprehensive therapeutic process* which describes the clinical treatment given to patients and the relationship between patient and health worker; 2) *management of health facilities* which describes operational components including staffing and facilities as well as availability of drugs and equipment, and 3) *expectations of responsiveness* which describes the provision of prompt and free services.

1.5.4.2. *Attendance at public health centers*

Community members report various and complex treatment seeking behaviors and outcomes. Most community members have visited their local health facility, but were dissatisfied with their experience. Barriers faced by patients in getting to health facilities were identified. In addition, we found that health facilities are not attractive to community members. Patients cannot get to health facilities because of logistical and cultural barriers, and are not attracted to health facilities because of poor management, poor interpersonal relationships with health workers, and local system failures.

1.5.4.3. *Quality of care provided at health centers*

We found that aspirations for good quality care were similar amongst health workers, CMDs, and community members. The most frequently discussed values include those involving the comprehensive therapeutic process (good clinical care and treatment, welcome and orientation, good interpersonal interactions between health workers and patients, and advice), responsiveness of health workers and the public health system (prompt and fair treatment, treatment free-of-charge), and management of health facilities (adequate staff, equipment, and infrastructure, availability of drugs, professional health workers).

At health centers, immediate barriers to quality care included drug stock-outs and lack of equipment; high patient to staff ratio; use of volunteer health workers; language barrier between health workers and patients and discriminatory treatment of patients. Underlying these barriers were poor motivation of staff; poor management of the health center; lack of patient-centered culture and poor relationship between health workers and communities.

1.5.4.4. *Treatment seeking behavior*

Treatment seeking behavior of community members is largely driven by perceptions and understanding of illnesses and practical concerns, including accessibility, available resources, and prior experiences. In this area, first-line treatment for most conditions was with a biomedical drug. Nearly all community members had visited their local health center, but dissatisfaction with care was high. Other sources of health care include CMDs (when operational), private clinics, and drug shops. Herbal medicine was frequently used and interestingly, community members also relied heavily on shrines, churches and prayers for treatment.

Choice of health care was influenced by the following factors: (1) initial perceptions and beliefs about etiology and severity of the illness that would, from experience, require a particular source of treatment. Often, experience showed health centers to be a poorer source of care than other providers for common illnesses; (2) accessibility of the preferred treatment, which relied on distance to the provider as well as opening hours, spousal support in meeting costs, opportunity costs of

leaving the home and travelling to the provider, ability to negotiate the logistical and social rules of the provider's institution, and availability of treatment at that provider; and (3) trial and error in moving between treatment sources.

2 RATIONALE

2.1. PROBLEM STATEMENT

The current approach to management of malaria and febrile illnesses in Ugandan children is inadequate. Given the barriers to accessing good quality care through the formal healthcare sector, substantial attention and resources have been focused on developing community-based interventions to deliver antimalarial treatment and comprehensive care.[13,14,89] However, whether resources should be put into community-based programs or into improving the public health system is not clear; malaria case management could be strengthened by improving the quality and delivery of care in existing government-run health facilities. Our study is designed to assess whether an intervention to build capacity and improve delivery of drugs and diagnostics at government-run health facilities improves the health of children and quality of care delivered, as compared to 'standard care' currently available at health facilities, supplemented by services provided through the private sector and community-based interventions.

2.2. STUDY OVERVIEW

We are proposing to evaluate enhanced health facility-based care for malaria and febrile illnesses in children in Tororo district using a cluster randomized design. The health facility intervention (HFI) will aim to address barriers to achieving good quality health care that were identified in our formative research. A focus of our intervention will be providing RDTs and training health workers in management of both malaria and non-malarial febrile illnesses. We aim to implement an intervention which is sustainable and reproducible by the MoH in Uganda, working within the existing government systems in conjunction with the MoH and district teams.

Clusters, defined as health facilities and their catchment areas, will be randomized to the HFI or to standard care delivered from government-run health facilities, supplemented by services provided through the private sector and community-based interventions. Outcomes will be measured in three distinct populations: (1) cross-sectional surveys of children under 15 years randomly selected from households within the clusters; (2) a cohort of children under five randomly selected from households within the clusters and followed for approximately 18 months in total, 12 months following the roll-out of the intervention; and (3) patients attending all government-run health facilities, including children under five and their caregivers participating in exit interviews on selected days in three rounds of surveys.

The primary outcome of the study is prevalence of anemia in children under five. We will test the primary hypothesis that the prevalence of anemia in children under five from clusters randomized to the HFI will be lower than in children randomized to the current standard of care. The study proposed here will benefit greatly from our formative research, prior longitudinal studies of antimalarial therapy conducted in Kampala, including two cohort studies evaluating health facility-based care,[34,90,91] and one cohort study evaluating HBMF, [92] and ongoing surveillance conducted by the Uganda Malaria Surveillance Project. The prior and ongoing studies are expected to inform the design and conduct of the planned research.

2.3. STUDY POPULATION AND DESIGN

In the cross-sectional surveys and cohort study, we plan to focus on children under five as young children bear the greatest burden of malaria in this endemic population. However, in our cross-sectional surveys we will also evaluate children aged 5-15 years, as this group contributes substantially to malaria transmission.

We have opted for a cluster randomized design rather than a non-randomized approach, in which the HFI would be implemented in all facilities, to minimize confounding. It is likely that other health-related interventions will be implemented in Tororo district by the MoH or other stakeholders, such as bednet distribution or safe water campaigns, which could have an impact on the health of children in the study area. If we relied on comparisons between measurements taken before and after implementation of the HFI, we could risk falsely attributing improvements to our intervention, when in fact the changes were due to factors outside of our study.

We have chosen the health facility as the unit of randomization, defining the clusters as catchment areas of these facilities, including households within a 2km radius of the health center. Only children from households within the clusters will be eligible for participation in the cross-sectional surveys and cohort study. We have opted to restrict the study population to children from villages near to facilities rather than including the full population of the study area to minimize risk of contamination between the study arms. We recognize that distance to the health facility is a major factor influencing utilization, which we will not be able to change with our intervention. Children from villages in the periphery of the health facility catchment areas may or may not be able to access services because of distance. If children who could not access the health facilities were included in the study population, we could risk underestimating the impact of the intervention, resulting in a Type II error in which we fail to identify a real difference between our HFI and standard care.

We also recognize the possibility of contamination in the other direction; primary caregivers of children in clusters randomized to standard care may seek care from facilities randomized to the HFI. Again, distance to the health center is likely to influence the likelihood of seeking care. By restricting the study population to children residing in households within a 2km radius of the health facility, we hope to focus our evaluation on children who are most likely to receive care from that facility. In addition, we plan to capture information on treatment seeking behavior during the cross-sectional surveys, and information on patient attendance and village of residence from all health facilities, to track patterns in utilization of services from various sources. We recognize that restricting the study population to households nearby the health facilities will limit our ability to generalize our results to more remote populations without access to health facilities. However, we plan to evaluate location of residence and distance to health facilities as a covariate in our analysis. In addition, when assessing outcomes for the cross-sectional survey and cohort study, analyses will be conducted primarily on an intention-to-treat basis, where data collected will be analyzed according to the assigned cluster. To address potential contamination issues due to children attending health facilities other than the one that defines their cluster, i.e. the health facility they live closest to, we shall also analyse data on a per-protocol basis. For this analysis, data collected will be analysed according to the facility at which the child accesses healthcare.

3 STUDY OBJECTIVES

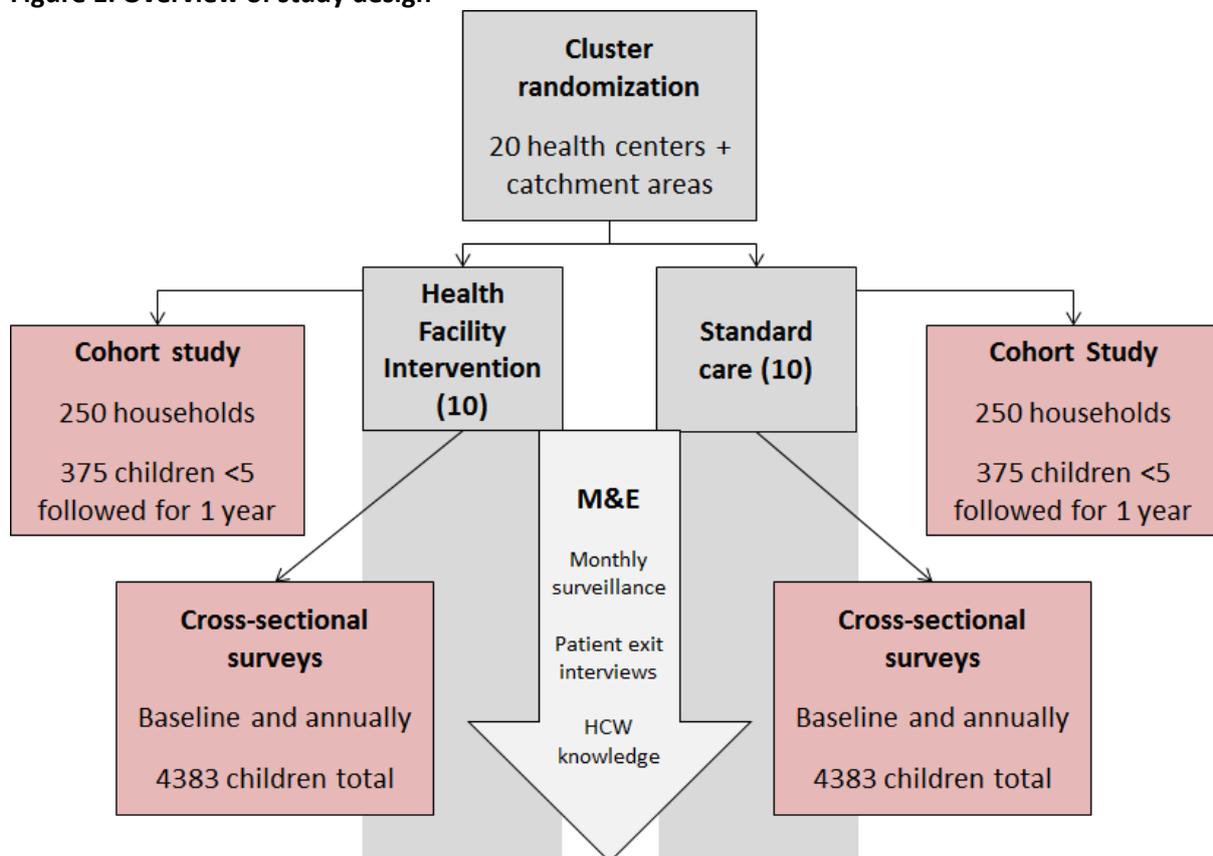
1. To compare the impact of enhanced health facility-based care to current standard of care on key population-based indicators, including the prevalence of anemia in children under five, using a cluster randomized design. We will test the primary hypothesis that the prevalence of anemia will be lower in children under five from clusters randomized to the health facility intervention (HFI) than in children randomized to standard care. Children receiving care from the health facilities participating in the HFI may be more likely to receive good quality health care and appropriate treatment for malaria and non-malaria illnesses, including anemia and helminth infections. We will also test the secondary hypothesis that the prevalence of parasitemia in children under five, and children aged 5-15 years, from clusters that are randomized to the HFI will be lower than in children randomized to standard care.
2. To compare the impact of enhanced health facility-based care to current standard of care on key longitudinal indicators, including treatment incidence density, in a prospectively followed cohort of children under five. We will test the hypothesis that delivery of antimalarial treatment via current care will result in over-treatment and a higher incidence of antimalarial treatment, than antimalarial treatment delivered from health facilities randomized to the HFI, which will be targeted to lab-confirmed cases of malaria.
3. To compare impact of enhanced health facility-based care to current standard of care on key indicators of case management for malaria and other illnesses, including the risk of inappropriate antimalarial treatment, in children under five treated at health facilities. We will test the hypothesis that the health facility intervention decreases inappropriate treatment with ACTs, as measured by the proportion of children under five with suspected malaria and a negative RDT result that are inappropriately treated with an ACT plus the proportion of children under five with suspected malaria and a positive RDT result that are not prescribed an ACT, which we expect to be lower in the facilities randomized to the intervention than in those in the standard care group.

4 STUDY DESIGN

4.1. OVERVIEW

We propose to compare enhanced health facility care to the current standard of care using a cluster-randomized design in Tororo, Uganda. A census survey of the study area has been conducted to enumerate and map households, which will be used to create the sampling frame for the trial. The lower-level government-run health facilities (20 HC IIs and IIIs) in the area will be randomly assigned to one of two interventions: (1) health facility intervention (HFI), or (2) standard care. The HFI will focus on three components: (1) improving health center management, (2) providing health worker training, and (3) ensuring adequate malaria diagnostics and drug supplies. Standard care will include services provided by government-run facilities that are not randomized to the HFI. In addition, services provided by the private sector and through community-based interventions (CBI) implemented by the Ministry of Health and other partners will contribute to the health care provided in all areas. Currently, CBIs in Uganda are transitioning from home-based management of fever (HBMF) to village health teams (VHTs) delivering integrated community case management (ICCM). In Tororo district, CBIs are currently inactive but will likely be reactivated and scaled-up in Tororo district in a phased approach during the study period as follows: phase A: no CBI; phase B: malaria-only intervention; and phase C: VHT/ICCM.

Figure 1. Overview of study design



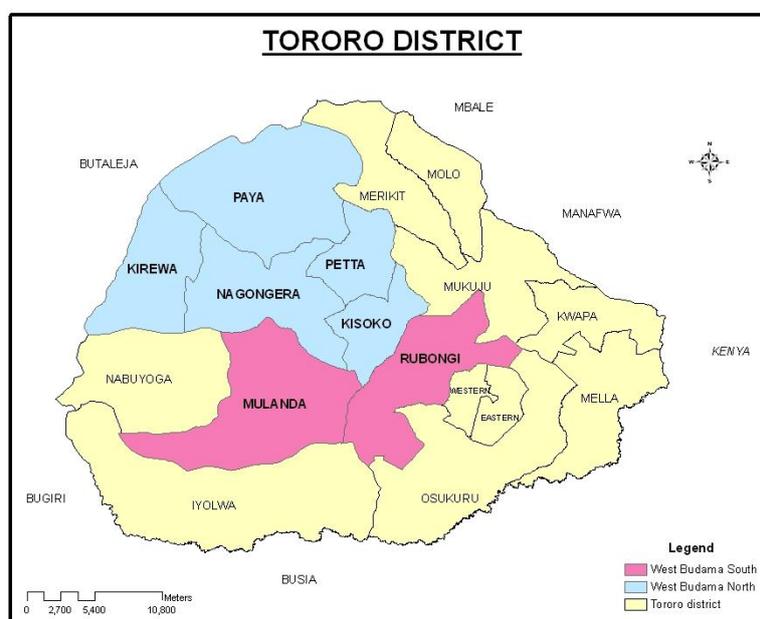
Information on changes in CBI policy and activity in the study area will be captured. In addition, AMFm may be scaled up in Uganda during the period of the study, which could include supporting interventions to train drug shop workers in the private sector and community awareness programs around ACTs. If AMFm is adopted in Uganda, these activities will be tracked as well.

Cross-sectional surveys will be conducted at baseline in randomly selected children from each cluster (8766 total per survey), and will be repeated annually. A sub-cohort of children will be recruited from 25 households randomly selected per cluster (500 total households) at the start of the intervention, and will closely followed for approximately 18 months in total, 12 months following the roll-out of the intervention. All health facilities in the area will be assessed to monitor and evaluate the impact of the intervention; three rounds of patient exit interviews will be conducted. In the first two surveys, 10 patients from each health facility (200 total per survey) will be interviewed. In the final survey, 50 patients from each facility (1000 total) will be interviewed. A total of 1400 patients will participate in the exit interviews.

4.2. STUDY SITE

The study will be conducted in Tororo district, an area with very high malaria transmission intensity. The estimated entomologic inoculation rate (EIR) in Tororo is 562 infective bites per person-year, and the prevalence of parasitemia among children aged 5-9 years is 63.5%. [93,94] The five sub-counties of West Budama North Health Sub-district (Nagongera, Paya, Kirewa, Kisoko, and Petta), and two sub-counties of West Budama South Health Sub-district (Mulanda and Rubongi) will be included in the study population (Figure 2).

Figure 2. Study area



The results of our formative research suggest that this area is very rural, with limited infrastructure and education. Very few households have electricity (1%) and one-quarter have no toilet facilities. One-quarter of the heads of household have received no formal education, and only 21% have received any secondary or higher education.

4.3. STUDY POPULATION

Within the seven sub-counties, there are 22 lower-level government run health facilities, including 17 level II health centers (HC), and 5 level III HCs; 20 will be included in the randomization scheme. Clusters will be defined as the catchment areas of the health centers, including households that are located within a 2 km radius of the facilities. Only households located within the clusters will be included in the sampling frame for the cross-sectional surveys and the cohort study. The study population for each objective is listed in Table 1.

Table 1. Study objectives and populations

Objective	Study population and sample size
1. To compare the impact of enhanced health facility-based care to current standard of care on key population-based indicators, including the prevalence of anemia in children under five.	Cross-sectional surveys in children under five and aged 5-15 years randomly selected from households in each cluster (8766 children total); surveys will be conducted at baseline and then annually for 2 years (3 surveys in total)
2. To compare the impact of enhanced health facility-based care to current standard of care on key longitudinal indicators, including antimalarial treatment incidence density, in a cohort of children under five.	Cohort of children under five recruited from 25 households randomly selected from each cluster (500 total) and followed for approximately 18 months in total, 12 months following the roll-out of the intervention; all children of appropriate age from each household will be eligible to participate
3. To compare impact of enhanced health facility-based care to current standard of care on key indicators of case management for malaria and other illnesses, including the risk of inappropriate antimalarial treatment, in children under five treated at health facilities.	Exit interviews in patients attending lower-level government-run health facilities (20 HC IIs and IIIs) in the study area (3 surveys in total). In the first two surveys, including 10 patients per health facility (200 patients per survey). In the final survey, including 50 patients per health facility (1000 patients in survey, 1400 patients overall).

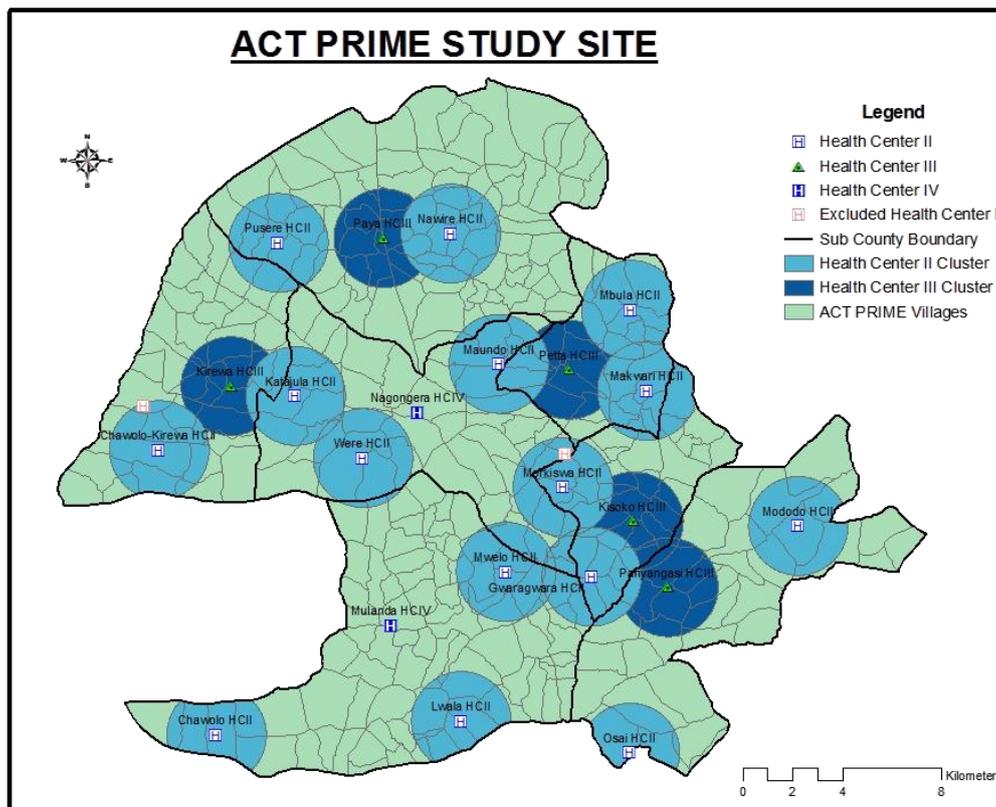
4.4. CLUSTER RANDOMISATION

The lower-level government-run health facilities in the study area will be the unit of randomization. Clusters will be defined as the catchment areas of the health centers, including households located within a 2km radius of the facilities (Figure 3). The clusters will be defined prior to randomization using the full census survey database. All households and health facilities in West Budama North have already been mapped. The census survey and mapping of the two sub-counties in West Budama South (Mulanda and Rubongi) will be conducted in August and September 2010. The distances between every household and every lower-level government-run health facility in the area

will be calculated. Households will be excluded from our sampling frame if they are $\geq 2\text{km}$ from any health facility. If a household is within 2km of a single health facility, the household will be considered to be within its catchment area and will be assigned to the cluster of that health facility. If a household is within 2km of more than one facility, the household will be assigned to the cluster of the closest health facility.

A total of 22 facilities are currently active in the area, however, 2 pairs of health centers are within close proximity (Soni HC II and Kirewa Chawolo HC II; Pokongo HC II and Morkiswa HC II) and have substantially overlapping catchment areas. Given this, one facility from each pair will be randomly excluded from the randomization scheme.

Figure 3. Map of health facilities and clusters in West Budama North and West Budama South



The randomization will be conducted by an investigator who is not directly involved in the project. Health facilities will be stratified by level (HC IIs and HC IIIs). Because of the uneven numbers of HC IIs and IIIs, one of the HC IIIs without a laboratory will be ‘demoted’ and paired with a HC II to ensure even numbers. Restricted randomization will be employed to ensure balance on geographical location. Specifically, restrictions will be applied that exclude the allocation of all clusters originating from a single sub-county, or that are otherwise in close geographical proximity from being allocated to the same arm of the trial.

4.5. OUTCOME MEASURES

The primary and secondary outcome measures for each study objective are listed below in Table 2.

Table 2. Study objectives and outcome measures

Outcomes	Indicator
Objective 1: Cross-sectional surveys	
Prevalence of anemia	Proportion of Hb measurements < 11.0 g/dL. Anemia will be classified according to severity: mild (Hb 8.0 – 10.9), moderate (Hb 5.0 – 7.9), severe (Hb < 5.0).
Prevalence of parasitemia	Proportion of thick blood smears that are positive for asexual parasites
Prevalence of gametocytemia	Proportion of thick blood smears that are positive for gametocytes
All-cause mortality	Probability of dying between birth and five years of age, expressed per 1,000 live births
Objective 2: Cohort study	
<u>Antimalarial treatment incidence density</u>	Number of antimalarial treatments given for fever/malaria over the period of follow-up
Incidence of hospitalizations	Overnight admission to a hospital or clinic
Incidence of illness episodes	Episode of illness as reported by primary caregiver
Incidence of febrile episodes	Episode of illness associated with fever as reported by primary caregiver
Prompt effective treatment of fever	Proportion of children with fever treated within 24 hours of onset of symptoms with an ACT
Prompt effective treatment of malaria	Proportion of children with malaria (confirmed by a parasitological test) treated within 24 hours of onset of symptoms with an ACT
Incidence of serious adverse events	Any experience that results in death, life-threatening experience, hospitalization, persistent or significant disability or incapacity, or specific medical or surgical intervention to prevent one of the other serious outcomes
Antibiotic treatment incidence density	Number of antibiotic treatments given for fever/bacterial illnesses over the period of follow-up
Objective 3: Health facilities	
Patient exit interviews	
<u>Inappropriate treatment of malaria</u>	Proportion of children under five with suspected malaria and a negative RDT result who are inappropriately given an ACT + Proportion of children under five with suspected malaria and a positive RDT result who are not prescribed an ACT
Appropriate treatment of malaria	Proportion of children under five with suspected malaria and a positive RDT result who are appropriately given an ACT + Proportion of children under five with suspected malaria and a negative RDT result who are not prescribed an ACT
Inappropriate treatment of malaria	Proportion of children under five with suspected malaria and a positive RDT result who are inappropriately given a non-ACT regimen
Patient satisfaction with health care	Proportion of patients indicating they were satisfied with care provided at the health center in exit interviews
Health facility surveillance	
Patient attendance	Total number of patients attending health facilities and their characteristics, including age, sex, village of residence, and diagnosis
Gaps in staffing requirements	Required positions, as indicated by the MoH staffing norms policy, which are unfilled for greater than one month
Stock-outs of ACTs	Days per month that AL supplied by NMS via the district is not available
Health worker knowledge questionnaire	
Knowledge questionnaire scores	Proportion of questions answered correctly following training in fever case management

5 HEALTH FACILITY INTERVENTION

5.1. OVERVIEW

The health facility intervention (HFI) will be comprised of three components: 1) health center management training, 2) health worker training, and 3) supply of consumables, including malaria diagnostics and antimalarial drugs. The goal of these components is to address the barriers to providing good quality care identified in our formative research (Appendix A). By addressing these barriers, we aim to provide good quality care as defined by health workers and community members in Tororo district, attracting them to health facilities and improving the case management of malaria and non-malarial febrile illnesses received when they attend facilities. The intervention package will be rolled out to all health centers randomized to the HFI over approximately 8-10 weeks (Table 3). Some activities will continue to be supported by the project for the duration of the study. We aim to implement an intervention which is sustainable and reproducible by the MoH in Uganda, working within the existing government systems in conjunction with the MoH and district teams.

Table 3. Health care intervention implementation plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
1) Health center management										
Financial management										
Drug supply management										
Information management										
2) Health worker training										
Fever case management and RDTs										
Patient-centered services:										
Introduction to PCS and HCM										
Communication & building rapport										
Asking questions & giving advice										
Interactions with colleagues										
Improving the patient visit										
3) Supply of consumables										
National Medical Stores drug supply										
Support for AL stock-outs										
RDTs for malaria										

Prior to the start of the study, investigators and key study personnel will meet with members of the MoH, the National Malaria Control Program, district and sub-county officials, and community representatives to inform them about the study objectives, plans for the intervention, and follow-up assessments. An information sheet will be used to describe the plans for the intervention to the in-charges of health facilities randomized to the HFI (Appendix B).

5.2. HEALTH CENTER MANAGEMENT

5.2.1. Overview

All in-charges of health centers randomized to the HFI will be trained in health center management. The purpose of this training is to equip in-charges with the skills and tools required to effectively and efficiently manage their health center. The training modules will be developed by reviewing of the literature, holding discussions with the MoH and other stakeholders, reviewing policy guidelines, and piloting of materials with subsequent revisions. The training will include three components: (1) financial management, (2) supply management, and (3) information management (Table 4).

Table 4. Proposed content of Health Center Management training

Financial management	Supply management	Information management
— Financial reporting	— Ordering and distributing	— Collecting information
— Budgeting and accounting	— Inventory management and stock control	— accurately & timely
	— Managing stock-outs	— Managing information
		— Using information

Our study staff will conduct a series of half-day group training workshops with the in-charges every 1-2 weeks. The sessions will be conducted using both formal classroom lecture sessions and informal practical methods with discussions, demonstrations, and role plays. The Health Center Management Training module will last approximately 4-5 weeks. Workshops will be held in convenient locations for the participants and all costs will be covered by the project.

5.2.2. Financial management

This component will focus on financial management and accounting including documentation of financial transactions and audit trails and management of funds. In addition, the training will cover budgeting and accounting for the primary health care (PHC) funds. In our formative research, we found that management of the health centers was challenged by insufficient PHC funds. These funds are meant to cover the costs of a variety of activities at the health centers, including support staff, cleaning materials, transportation of drugs, and photocopying documents. Health centers are allocated an amount set by the district, and expenditure appears to vary depending on the individual needs of the facilities. As part of the HFI, we propose to train the in-charges to account for the PHC funds using a tool (Appendix C) designed to assist with the budgeting and accounting of the PHC funds. The sample tool provided in Appendix C will be piloted and during the Health Center Management Training, and revised as appropriate.

5.2.3. Supply management

Effective management of supplies is a crucial aspect of providing high quality health care services. This component will focus on enhancing the understanding and operation of the drug distribution cycle including barriers in ordering, receiving, and issuing of drugs; forecasting of supply needs; maintaining a regular inventory to prevent stock-outs; and completing and maintaining stock cards. In-charges will be trained to use the one-page ACT Drug Distribution Assessment Tool (ADDAT),

which aims to identify and resolve issues in drug distribution from districts to local health facilities (Appendix D). The ADDAT is based on a literature review, in-depth interviews and focus group discussions (FGDs) with health workers and key informants, and the MoH 'Medicines Management Manual: Medicines Logistics and Store Management procedures for Districts and Health Facilities'. The ADDAT will be used monthly by in-charges or persons responsible for drug procurement and distribution at the health center. The sample tool provided in Appendix D will be piloted prior to the Health Center Management Training, and revised as appropriate.

5.2.4. Health information management

This component will focus on the importance of monitoring and evaluation and managing health information, building on our experience with UMSP surveillance. In-charges and health workers should have access to information about the health needs and priorities of the communities they serve; the quality and coverage of the services they offer; and available resources. All health workers will be trained about the importance of data collected information about patients accessing their health facility, using the patient, drug, and laboratory registers, and the health unit outpatient monthly report, and how the data can be utilized to better manage patients and health facilities.

5.3. HEALTH WORKER TRAINING

5.3.1. Training in fever case management and use of RDTs

All clinical staff will receive training in fever case management. Training will be based on the Integrated Malaria Management training package developed by the Joint Uganda Malaria Training Program (JUMP) team,[21] and the RDT training guidelines which have been adopted and implemented by Uganda's MoH 'User's manual: Use of Rapid Diagnostic Tests (RDTs) for malaria in fever case management in Uganda' (Appendix E). The training package will include the following sessions:

- Session 1: How to evaluate febrile patients and select patients for RDT testing
- Session 2: Performing and reading an RDT
- Session 3: Management of a patient with fever and a positive RDT
- Session 4: Management of a patient with fever and a negative RDT
- Session 5: Recognition and referral of patients with severe illness
- Session 6: Patient education
- Session 7: RDT storage and monitoring
- Session 8: Infection prevention

The training program will be conducted by the JUMP training team over two weeks; the first two days will focus on theory, and will be followed by support supervision at the health facilities the next week. The training will be conducted in Tororo at a local health facility, and health workers will be trained in two small groups to ensure that work at the health facilities continues alongside the training. The impact of training on knowledge will be assessed using a pre-and post-training evaluation administered by the JUMP team. Additional support supervision will be conducted at 6 weeks and 6 months after the initial training and refresher training will be provided as needed.

5.3.2. Training in patient-centered services

The purpose of the Patient-Centered Services (PCS) training module is to identify and improve interpersonal interactions between health workers and patients. The module builds on the results of our formative research which identified several barriers to providing good quality health care at health facilities, including poor interpersonal interactions between health workers and community members resulting from poor communication skills, discriminatory behaviors of health workers, poor health worker motivation, and lack of patient-centered thinking. Through the PCS module, health workers will learn to recognize these challenges and develop skills for communicating and interacting with patients.

The PCS module training will be implemented in a tiered approach to (1) all clinical staff, and (2) all health center support staff. All clinical staff, including in-charges, will receive the full PCS training package which includes self-observation tasks and specific emphasis on clinical and patient interaction challenges. Support staff including volunteers will receive a scaled-down PCS training package with specific emphasis on welcoming and guiding patients at the health facility. All training activities and workshops will be led by study personnel and trainers with experience in adult learning methodology.

5.3.2.1. PCS for clinical staff

The PCS module for all clinical staff starts with a series of four self-observation activities completed by health workers over a period of 4-5 weeks. Health workers will conduct the self-observation exercises individually during their routine work at health facilities. These observations serve three purposes: (1) to raise awareness of health workers about how their interactions with others affects their ability to work, (2) to begin to build a support network between colleagues, and (3) to help to identify issues directly relevant to the health workers in lower level health facilities. Through the self-observation activities, health workers are asked to become aware of their behavior around a particular topic and write a short summary of how their behavior affected those around them and their subsequent ability to achieve work goals. Topics include the following: (1) 'how do you listen?', (2) 'how do you ask good questions?', (3) 'what happens when you are stressed?', and (4) 'how do you invite the patient to cooperate?' (Appendices F to J). On completion of each self-observation, participants join other health worker colleagues to discuss their own observations and give support about how to carry out the next observations. The results of the observation activities will be used to guide health workers through the PCS training modules.

Table 5: Clinical staff PCS module themes and learning outcomes

PCS module	Learning outcomes
Introduction to PCS, self-observational activities, and HCM	Health workers will be able to: <ul style="list-style-type: none"> • Identify their own motivations for work • Understand the meaning and importance of providing patient centered services • Start developing self-awareness through self-observation activities • Understand the meaning and importance health center management
Improving communication and building rapport with patients	Health workers will be able to: <ul style="list-style-type: none"> • Apply skills in verbal and verbal communication to build rapport and active listening • Identify ways to listen actively in spite of busy work environments • Recognise how we think of people affects how we behave towards them • Understand that respect is a core value for how we can put patients at ease and strengthen skills to show respect to others
Asking good questions and giving advice to patients	Health workers will be able to: <ul style="list-style-type: none"> • Strengthen verbal and non-verbal communication skills in asking good questions • Overcome barriers that prevent patients from giving good information to health workers • Implement strategies to give appropriate information on diagnosis and treatment to patients
Improving interactions with colleagues	Health workers will be able to: <ul style="list-style-type: none"> • Contribute to a positive working environment • Motivate and inspire others to work better by identifying ways to bring about positive change • Give constructive feedback • Communicate effectively with colleagues by identifying how we react to stress impacts how we react to others
Improving the patient visit	Health workers will be able to: <ul style="list-style-type: none"> • Implement strategies to improve the welcome of patients at the health facility to patients • Implement strategies to ensure patients are seen fairly • Implement strategies to improve the orientation of patients at the health center • Appropriately utilize volunteers to address current staffing gaps • Contribute to improving patient satisfaction by working together with all clinical and support staff

The PCS module consists of five half-day day themed workshops, which build on the self-observation exercises. The modules and learning outcomes are outlined in Table 5. The modules will use a combination of learning approaches including didactic material on each theme; appreciative enquiry exercises; role-plays or other participatory activities; and group discussions. The didactic component is important for framing the central concepts and theories around each theme. Appreciative enquiry exercises will allow participants to explore ways in which they successfully worked through difficult situations and identify what qualities they employed, using analysis and reinforcement of positive experiences to lead to behavior change, rather than focusing solely on negative experiences or deficiencies. Participants will work in small groups for these exercises. The group discussion will explore reactions to the participatory activities and develop methods that can be employed to achieve successful outcomes related to the theme. Additional ice-breaker and group-building activities will be used to engage and motivate participants throughout the workshop.

The half-day workshops will be approximately 3 hours in length and will be conducted over 4-5 weeks at a convenient location in the study area. Training dates will be selected with input from the in-charges to minimize disruption to the daily operations of the health facilities.

5.3.2.2. PCS for support staff

The PCS workshop for support staff will consist of one half-day module using a combination of learning approaches. The module is a simplified version of the clinical staff PCS workshop on improving the patient visit and will include the presentation of didactic material on the theme; appreciative enquiry exercises; role-plays or other participatory activities; and group discussion. The module themes and learning outcomes are outlined in Table 6.

The half-day workshop will be approximately 3 hours in length and will be conducted over 1 week at a convenient location in the study area. Training dates will be selected with input from the in-charges to minimize disruption to the daily operations of the health facilities.

Table 6: Support staff PCS module theme and learning outcomes

PCS for support staff – Improving the patient visit	Support staff will be able to: <ul style="list-style-type: none">• Understand the meaning and importance of providing patient centered services• Implement strategies to improve the welcome of patients at the health facility to patients• Implement strategies to ensure patients are seen fairly• Implement strategies to improve the orientation of patients at the health center• Appropriately utilize volunteers to address current staffing gaps• Contribute to improving patient satisfaction by working together with all clinical and support staff
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5.4. CONSUMABLES

Results from the formative research indicate that drug shortages and stock-outs at health facilities are a major problem, especially for AL, the first-line treatment for uncomplicated malaria. Both the quantitative and qualitative research show that these shortages have an impact on community members' perceptions of care provided at health centers and health workers' ability to provide good quality care. In addition, most health centers lack laboratory facilities and currently do not have the capacity to confirm the diagnosis of malaria. A major aim of the HFI is to ensure a continuous and adequate supply of drugs and RDTs for malaria.

5.4.1. Drug delivery from National Medical Stores

In Uganda, the National Medical Store (NMS) has recently adopted a new 'modified push' system for distributing drugs to lower-level health centers. Districts are to make an annual procurement plan, and NMS will deliver the drugs every 2 months, based on that plan. If no additional requests are made by health facilities or the district, NMS will provide a standard delivery of drugs based on the procurement plan, regardless of health facility need or disease prevalence. Once the procurement plan is developed, and annual orders have been made, health facilities will have limited power to change the drug deliveries.

As part of the HFI, in-charges will be training in drug supply management as outlined in section 5.2.3 and will be encouraged to complete drug stock cards and the ADDAT form (Appendix D) to help track the distribution of drugs from NMS.

5.4.2. Supply artemether-lumefantrine

If the amount of AL provided to the health centers by NMS is not adequate to meet demand, or if the procurement of AL fails, the project will supply supplemental AL obtained from Joint Medical Stores, Quality Chemicals, or other suitable supplier in Uganda. Batch numbers, expiry dates, date received, and date opened will be recorded for all AL supplied.

5.4.3. RDTs for malaria

Most health centers do not have access to a laboratory or malaria diagnostic facilities. As part of the HFI package, we will ensure adequate supplies of RDTs at all health centers. One of the HRP2-based tests, are recommended in the most recent WHO / FIND Product Testing Report (<http://www.wpro.who.int/sites/rdt/home.htm>) and are approved by the Uganda National Drug Authority, will be used. Batch numbers, expiry dates, date received, and date opened will be recorded for all RDTs supplied. RDTs may be introduced into lower-level health centers by the MoH. If so, we will track distribution and use of RDTs in a manner similar to that of drugs, as described above, and will supplement distribution of RDTs if needed.

6 STANDARD CARE

6.1. OVERVIEW

In this study, 10 health facilities will be randomly assigned to the standard care arm. Standard care will include services typically provided by government-run facilities.

6.2. STAFFING AND PATIENT ATTENDANCE

In our formative research, we interviewed 17 health workers, including the in-charges of health centers, to gain an understanding of the current situation at the local government-run health facilities. Not all health centres are open every day, depending on the availability of drugs and staff. The mean number of patients visiting the health centres each day is approximately 50-60, and staffing shortages are an issue at most health centers (Table 7).

Table 7: Patient attendance and staffing, stratified by level of health centre

	HC II N=12	HC III N=3
Patients visiting (mean, SD, range)	51.2 (20.4) 25-100	52.5 (15) 30-60
Staff stationed (mean, SD, range)	2.08 (0.66) 1-3	9.75 (0.95) 9-11
Staff available (mean, SD, range)	1.4 (0.51) 1-2	4.25 (0.96) 3-5

6.3. INFRASTRUCTURE AND SUPPLIES

Infrastructure at the health centres in this area is limited; most lack electricity and running water. Drug stock-outs are a common problem at HC IIs and IIIs. Most centres, but not all, stock AL but few centres stock artesunate + amodiaquine, the alternative treatment for uncomplicated malaria. Stock-outs of both parenteral and oral quinine are also common. Malaria is diagnosed clinically, without laboratory confirmation at most health centres, even at the two HCIIIs with laboratories.

6.4. STANDARD CARE

Standard care will include services typically provided by government-run facilities; we will not provide any additional support to these facilities. Health care will be provided to patients attending these facilities according to the usual standards; in-charges will continue to manage the facilities using their standard approach, no additional training will be provided to the health workers stationed at these facilities; and no support for staffing or supplies will be provided beyond what is supplied by the district and MoH.

7 CROSS-SECTIONAL SURVEYS

7.1. OVERVIEW

Cross-sectional surveys will be conducted in randomly selected children under-five, and those between the ages of 5-15 years of age. The number of children sampled will be weighted according to the total population of each cluster to achieve a harmonic mean of 200 for each age category. A total of 8766 children will be sampled in each survey. Surveys will be conducted at baseline and then annually for each year; new populations of children will be selected for each survey. The survey will include a structured questionnaire administered to the primary caregiver, and a clinical and laboratory assessment of each child.

7.2. DEFINITIONS

Household: A household will be defined as any single permanent or semi-permanent dwelling structure acting as the primary residence for a person or group of people that generally cook and eat together. Some households may include members who sleep in other dwelling structures within the same compound, if the members are still dependent on the head of household in the main household.

Household resident: A resident within each household will be defined as a person who intends to have a sleeping place primarily at that location for a period of the next 6 months. This may include people who sleep in a separate house within the same compound, if they are still dependent on the head of household for decisions on finances and health care.

7.3. ENROLLMENT

7.3.1. Recruitment

All households enumerated during the census will be assigned a unique number. A random sample of households with at least one child under fifteen years of age will be selected from each cluster to generate a list of households to be approached. Three separate lists will be generated prior to each survey from the original census list. Study personnel will conduct door-to-door screening to identify those households with at least one child of appropriate age. Households without a child of appropriate age will be removed from the recruitment list. Residents not home during the initial contact will be re-visited on at least three other occasions over a six-week period before eliminating them from our sample selection process.

7.3.2. Screening

When a household with at least one child of appropriate age is identified, study personnel will briefly describe the purpose of the study in the appropriate language (usually Japadhola, Luganda or Swahili) with parent(s) or guardian(s), and proceed with screening (Appendix K). The inclusion criteria are: 1) age < 15 years, 2) agreement of parents or guardians to provide informed consent, and 3) agreement of a child aged 8 years or older to provide assent. The exclusion criterion is: 1) inability to locate the child. One child under five and one child between the ages of 5-15 years from each household will be eligible for participation. If more than one child of appropriate age resides in the household, study personnel will record the gender and ages of all children under five and all children between the ages of 5-15 years, and one child from each age category will be randomly selected for participation. If only one child of appropriate age, or only one child in each age category, resides in the household they will be selected for participation. Previous participation in one of the cross-sectional surveys will not be an exclusion criterion; children who have previously participated in a survey will still be eligible to participate.

7.3.3. Informed Consent

Study personnel will conduct the informed consent discussion with the parent(s) or guardian(s). Informed consent will be conducted in the appropriate language and a translator will be used if necessary. Consent forms will be available in English and the local languages (Appendix L & M). Following the informed consent discussion, parents/guardians will be asked by the study personnel to sign a written consent form for their child to participate in a research study and a second approved consent form for the future use of biological specimens obtained during the course of the study in the baseline CSS. If the parent/guardian is unable to read or write, their fingerprint will substitute for a signature, and a signature from a witness to the informed consent procedures will be obtained. Written assent to participate in the study will also be obtained from children aged 8 years and older at the time of screening (Appendix N). In the repeat CSS, only Appendices L and N will be used.

7.3.4. Enrollment

Children who fulfil the eligibility criteria will be assigned a study number and will undergo the survey procedures outlined below. If a child selected to participate is not at home on the day of the initial visit, the household will be re-visited on at least three other occasions over a six-week period before excluding the child.

7.4. SURVEY PROCEDURES

7.4.1. Survey questionnaire

Primary caregivers of selected children will be asked to complete a survey questionnaire to gather information about bednet use and management of child who was febrile within the last two weeks, including source of care, diagnostics test results, drug treatment, and actions taken for management of illnesses (Appendix O, Part 1). Data will be collected about management of fever in any child

under the primary caregiver's care, and will not be restricted to children selected to participate in the survey. If more than one child has been febrile in the last two weeks, data will be collected on management of the most recent illness. If the primary caregiver is not available on the day of the initial visit, the household will be re-visited on at least three other occasions over a six-week period to administer the questionnaire. If the primary caregiver is not available after four visits, the survey questionnaire will not be completed. However, the child or children selected for the cross-sectional survey from that household will not be excluded, and all additional information collected will be utilized. In the last annual cross-sectional survey, all women of child-bearing age (13-49 years) in the household will be asked to provide birth histories, which will allow us to estimate all-cause mortality in children under five (Appendix O, Part 2).

7.4.2. Clinical and laboratory assessment

Participating children will undergo a brief history and physical examination, including measurement of temperature, height, weight, mid-upper arm circumference, and spleen size (Appendix P). Blood will be collected by fingerprick for thick blood smear, hemoglobin, and for storage on filter paper for future molecular testing. In the repeat CSS, filter paper samples will not be collected.

7.4.3. Management of ill children

Children enrolled in the survey who report fever in the past 48 hours, or who have a temperature of $\geq 38.0^{\circ}\text{C}$ will have an RDT performed. Febrile children will be treated with paracetamol as appropriate. Children with a positive RDT and no evidence of severe malaria will be treated with AL. Children with a positive RDT and evidence of danger signs of severe disease will be referred for further evaluation and treatment. Children with a hemoglobin level of $< 5.0 \text{ g/dL}$ will be referred for further evaluation and transfusion. Any child with other concerning clinical symptoms will also be referred to an appropriate health care facility at the discretion of the study personnel.

8 COHORT STUDY

8.1. OVERVIEW

A cohort of children under five will be enrolled from 25 households randomly selected from each cluster, for a total of 500 households. The cohort will be dynamic, in that all children within a household, who are under the age of five and who meet selection criteria, will be included. A household survey will be conducted at the start of the study. Children will undergo clinical and laboratory assessments at baseline and then every six months. Primary caregivers will be asked to prospectively collect information on the clinical symptoms of participating children and expenditures for health care using pictorial diaries. Study personnel will visit the households monthly to collect the diaries and administer a monthly questionnaire. Participants will be followed for approximately 18 months in total, the equivalent of approximately 12 months following roll-out of the intervention. At the end of study follow-up, all children enrolled from a participating household will be discontinued at the same time. Thus, children enrolled through dynamic recruitment will be followed for less than 18 months. Households will be discontinued at the 18-month clinical visit, or soon thereafter.

8.2. ENROLLMENT

8.2.1. Recruitment

All households enumerated during the census will be assigned a unique number. A random sample of households with at least one child under five will be selected from each cluster prior to randomization to generate a list of households to be approached. Study personnel will conduct door-to-door screening to identify those households with at least one child of appropriate age. Households without a child of appropriate age will be removed from the recruitment list. Residents not home during the initial contact will be re-visited on at least three other occasions over a six-week period before eliminating them from our sample selection process. When a household with at least one child of appropriate age is identified, study personnel will briefly describe the purpose of the study in the appropriate language (usually Japadhola, Luganda or Swahili) with parent(s) or guardian(s). If the parent(s)/guardian(s) are interested in the study, the study personnel will schedule an appointment date for screening. Residents not home during the initial contact will be re-visited on at least 3 other occasions over a 6-week period before eliminating them from our sample selection process. All children of appropriate age from a single household will be eligible for evaluation for study enrollment.

8.2.2. Screening

Children will be screened at convenient sites within the community. Interviews will be conducted in the appropriate language with parents or guardians. Selection criteria are based on the goal of recruiting a representative sample of children from our target population (Appendix Q). The

inclusion criteria are: 1) age < 5 years, and 2) agreement of parents or guardians to provide informed consent. The exclusion criteria are: 1) intention to move during the follow-up period, and 2) current enrollment in another research study. During the screening process, study personnel will assess for initial eligibility criteria through conversation with the parent/guardian (including age of the child, willingness of the parent/guardian to participate in the study and to provide informed consent, and intention to move from Tororo). If the initial screening criteria are met, the parent/guardian will be asked to provide informed consent for their child to participate in the study. If parents/guardians are undecided about consenting for their child (or children) to participate in the study at the initial screening visit, they will be allowed up to one week to make a final decision about study participation.

8.2.3. Informed Consent

Study personnel will conduct the informed consent discussion with the parent(s) or guardian(s). Informed consent will be conducted in the appropriate language and a translator will be used if necessary. Consent forms will be available in English and the local languages (Appendices R & S). Following the informed consent discussion, parents (or guardians) will be asked by the study personnel to sign a written consent form approved by the IRBs for their child to participate in a research study and a second approved consent form for the future use of biological specimens obtained during the course of the study. If the parent or guardian is unable to read or write, their fingerprint will substitute for a signature, and a signature from a witness to the informed consent procedures will be obtained.

8.2.4. Enrollment

Children who meet the eligibility criteria will be assigned a study number, and will undergo a clinical and laboratory evaluation. Height, weight, and temperature will be measured, and spleen size will be evaluated (Appendix T). Blood will be collected by finger prick for thick blood smear, hemoglobin, and for storage on filter paper for future molecular testing.

8.2.5. Management of ill children at enrollment

Children enrolled in the cohort study who report fever in the past 48 hours, or who have a temperature of $\geq 38.0^{\circ}\text{C}$ will have an RDT performed. Febrile children will be treated with paracetamol as appropriate. Children with a positive RDT and no evidence of severe malaria will be treated with AL. Children with a positive RDT and evidence of danger signs of severe disease will be referred for further evaluation and treatment. Children with a hemoglobin level of $< 5.0 \text{ g/dL}$ will be referred for further evaluation and transfusion. Any child with other concerning clinical symptoms will also be referred to an appropriate health care facility at the discretion of the study personnel.

8.3. HOUSEHOLD SURVEYS

Following enrollment, or within a 2 week period from the date of enrollment, a household survey will be performed at all participating households (Appendix U). Primary caregivers will be asked to complete a survey questionnaire to gather information about bednet use and management of a child

who was febrile within the last two weeks, including source of care, diagnostics test results, drug treatment, and actions taken for management of illnesses. Data will be collected about management of fever in any child under the primary caregiver's care, and will not be restricted to children selected to participate in the cohort study. If more than one child has been febrile in the last two weeks, data will be collected on management of the most recent illness. The household survey will then be repeated approximately 12 months after enrollment (Appendix UII). If the primary caregiver is not available on the day of the initial visit, the household will be re-visited on at least three other occasions over a six-week period to administer the questionnaire. If the primary caregiver is not available after four visits, the household survey questionnaire will not be completed. However, the child or children selected for the cohort study from that household will not be excluded, and all additional information collected will be utilized.

8.4. FOLLOW-UP

8.4.1. Household diaries and monthly visits

Primary caregivers will be asked to keep a diary of health of study participants for the duration of the study (Appendix V). The diaries will be based on instruments previously developed and validated in studies in Uganda and elsewhere in Africa.[92,95] The diaries have been developed by a Ugandan artist with input from the community, and will be adapted to the local setting if necessary. The diaries will be used to collect information on clinical symptoms and health care expenditures. Households will be visited by study personnel every two weeks during the first two months, and then monthly, to collect completed diaries. At each monthly visit, questionnaires will also be administered to gather additional data on the health of the study participants, management of any illnesses, and health care expenditures (Appendix W). The information collected in the diaries and the questionnaires will be complementary. Study personnel will review the diaries with the primary caregivers at each monthly visit and caregivers will be allowed to refer to the diaries while the questionnaire is administered to help prompt their memory. Small incentives (including sugar, soap, or washing powder) will be provided to each household during the monthly visit to encourage completion of the diaries.

8.4.2. Follow-up evaluations

Clinical and laboratory evaluations will be repeated every 6 months over the period of study follow-up in all cohort study participants (Table 8). At the end of study follow-up, all households will be given an insecticide-treated bednet (ITN), and each participating child will be given a small token of appreciation, such as a cup or plastic sandal shoes.

8.4.3. Management of ill children during follow-up

At the follow-up assessments, children who report fever in the past 48 hours, or who have a temperature of $\geq 38.0^{\circ}\text{C}$ will have an RDT performed. Febrile children will be treated with paracetamol as appropriate. Children will be managed as described above in section 7.2.5. Any child with concerning clinical symptoms will be referred to an appropriate health care facility at the discretion of the study personnel.

Table 8. Study objectives and outcome measures		
Evaluation	Baseline	Every 6 months
Clinical evaluations		
Height, weight	X	X
Temperature	X	X
Spleen size	X	X
Laboratory evaluations		
Thick blood smear	X	X
Hemoglobin	X	X
Filter paper sample	X	X
Household evaluations		
Household KAP survey	X	(~12 months post enrollment)
Pictorial diaries	—	Monthly
Household questionnaires	—	Monthly

9.1. OVERVIEW

We will conduct monitoring and evaluation (M&E) activities at all government-run health facilities in the study area, including those that are randomized to the intervention and those that are not. Patient exit interviews will be conducted to gather information on rational use of ACTs and patient satisfaction. In addition, standardized information will be captured from all facilities including data on patient attendance, drug stock-outs, and staffing shortages every month. Additional, detailed information on RDT utilization and ACT prescribing practices will also be collected from HFI facilities. A knowledge questionnaire will be administered annually to consenting health workers at all facilities. M&E activities will begin within one month after the roll-out period for the HFI has been completed.

9.2. PATIENT EXIT INTERVIEWS

9.2.1. Overview

Exit interviews will be conducted with children under five and their caregivers at all health facilities. The purpose of the interviews is to evaluate for rational prescribing of ACTs, and to determine the level of satisfaction with the health facility visit. Three rounds of surveys are planned. In the first two surveys, 10 patients will be selected by convenience sampling from each facility to participate in the interviews (200 total per survey). In the final survey, 50 patients will be recruited to participate (1000 total in survey). In total, 1400 patients will participate in the interviews.

9.2.2. Recruitment

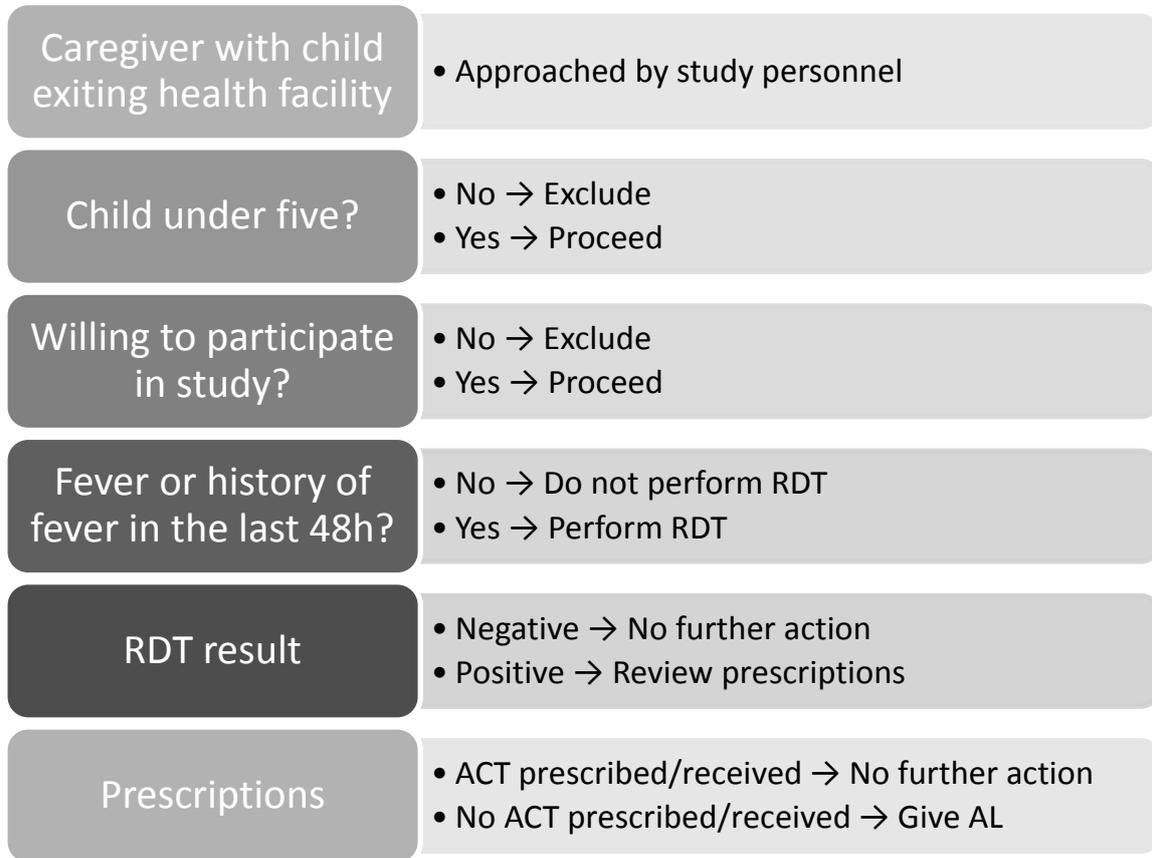
As children and their caregivers are leaving the health facility, study personnel will ask the caregiver if their child is under five and if they would be willing to participate in an interview regarding the health care visit (Figure 4). When a caregiver with a child of appropriate age is identified, study personnel will briefly describe the purpose of the study in the appropriate language (usually Japadhola, Luganda or Swahili) with parent(s) or guardian(s). The inclusion criteria are: 1) age < 5 years, and 2) agreement of parents or guardians to provide informed consent (Appendix X). There are no exclusion criteria. If more than one child of appropriate age was seen at the health facility that day, all children will be eligible to participate.

9.2.3. Informed Consent

Study personnel will conduct the informed consent discussion with the parent(s) or guardian(s). Informed consent will be conducted in the appropriate language and a translator will be used if necessary. Consent forms will be available in English and the local languages (Appendix Y). Following the informed consent discussion, parents/guardians will be asked by the study personnel to sign a

written consent form for their child to participate in a research study. If the parent/guardian is unable to read or write, their fingerprint will substitute for a signature, and a signature from a witness to the informed consent procedures will be obtained.

Figure 4. Patient exit interview algorithm



9.2.4. Interview

Children who fulfil the eligibility criteria will be assigned a study number and will undergo the survey procedures. Caregivers of enrolled children will be interviewed using a standardized questionnaire (Appendix Z) to gather information about the purpose of the visit, presenting complaint, the child's symptoms, whether a RDT or blood smear was done, the diagnosis given, medications prescribed, and medications received. Additional information about the satisfaction of the caregiver with the visit to the facility will also be obtained.

9.2.5. RDT results

If a child has a temperature of $>38.0^{\circ}\text{C}$ or a history of fever in the past 48 hours, a fingerprick blood sample will be obtained to perform a RDT. Febrile children will be treated with paracetamol as appropriate. The results of the RDTs performed by the study personnel will be compared to the results of RDTs performed by health facility staff, where possible. Children with a positive RDT and no evidence of severe malaria, who have not been prescribed or received an ACT, will be given AL (Figure 4). Children with a positive RDT and evidence of danger signs of severe disease will be

referred to an appropriate facility for further evaluation and treatment, regardless of the medicine prescribed.

9.3. HEALTH FACILITY SURVEILLANCE

9.3.1. All facilities

We plan to conduct routine surveillance at all health facilities approximately every 1-3 months. The purpose of the surveillance is to collect information about patient attendance, drug stocks, and health facility costs from all facilities. Study personnel will collect the information during a routine visit to the health facilities. The in-charge of the facility will be approached and informed about the surveillance activities. An information sheet (Appendix AA) will be used to describe the purpose of the activities and verbal consent to collect information will be obtained from the in-charge. Data on patient attendance including date visited, village of residence, age, sex, and diagnoses will be collected from the out-patient registers (Appendix BB, Part 1, Section 2). Data on stocks of AL will be collected from the stock cards at each health facility. If patient registers are completed and the in-charge agrees, the patient registers may be taken to the PRIME study office for data entry and then returned to the health facilities. The patient register and drug stock cards are standard HMIS data collection tools, and are in place in all health facilities. Study personnel will work with the MoH, district officials, and in-charges of health facilities to ensure that the registers capture the essential information. Indicators that will be tracked at all health facilities will include (Appendix BB, Part 2):

- Number of patients seen at the facility
- Number of children under five
- Number of patients with fever
- Number of patients prescribed an ACT
- Number of patients diagnosed with malaria

The surveillance form will also be used to collect information on health facility costs (Appendix BB, Part 3) including 1) drugs & supplies, 2) overheads (utilities, capital equipment, space), and 3) staff allocation and activities. Part 3 will only be conducted once during the course of the study.

9.3.2. HFI facilities

Additional information on utilization of RDTs and use of ACTs will be collected at facilities randomized to the HFI and any other facilities where RDTs are available (Appendix BB, Part 2). This information will be extracted from the out-patient registers and drug stock cards by study personnel. The data collected will complement the information collected in the health center management training module (section 5.2.4). Additional indicators evaluated in the health facility surveillance will include:

- Number (proportion) of patients who had a RDT performed
- Number (proportion) of patients with a positive RDT
- Number (proportion) of patients diagnosed with malaria
- Number (proportion) of patients diagnosed with malaria by RDT result
- Number (proportion) of patients with a positive RDT prescribed an ACT
- Number (proportion) of patients with a negative RDT prescribed an ACT
- Number (proportion) of patients without a RDT done prescribed an ACT

9.3.3. Out-patient registers

Staff at all health facilities will be expected to complete the out-patient registers (OPD) provided by the MoH as part of HMIS. For this study, the standard HMIS forms have been modified slightly to include two additional columns to capture individual patient data on history of fever, temperature, whether an RDT was performed, and if so, the result. To help acknowledge the role that the in-charges and other members of staff play in completing the additional columns in the OPD, and in supporting our surveillance activities by providing information to complete Appendix BB, we propose to provide periodic recognition to all health facilities, including tea, coffee, sugar, milk, soap, and pens.

9.4. HEALTH WORKER KNOWLEDGE QUESTIONNAIRES

Questionnaires will be administered to health workers at all health facilities following implementation of the intervention to assess their knowledge about fever case management. All available health workers will be approached to participate in the knowledge questionnaire. Information sheets will be used to describe the purpose of the knowledge questionnaire and verbal consent will be obtained from the health care worker before conducting the questionnaire (Appendix CC). The knowledge questionnaire includes structured questions allowing for open-ended answers to assess the health workers' knowledge about malaria transmission, symptoms, diagnosis, and treatment, and etiology of non-malaria fevers (Appendix DD). Additional assessment of health worker knowledge will be carried out using the pre- and post-training questionnaires administered by the JUMP team in their training on fever case management at approximately one year after the roll-out of the intervention (Appendix E). Approximately two years after implementation of the intervention, assessment of health worker knowledge and skills for performing RDTs will be conducted using a modified version of Appendix E. Additional information about prior training on use of RDTs will be gathered, and health workers will be observed performing an RDT and managing a child with suspected malaria. Information sheets will be used to describe the purpose of the assessment to caretakers of children participating in the observation exercise (Appendix II).

10 ADVERSE EVENT MONITORING

10.1. OVERVIEW

Adverse event monitoring will be conducted in children enrolled into the cohort study. Data on serious adverse events and suspected adverse drug reactions will be collected retrospectively during the monthly interviews. Reports of serious adverse events that are classified as at least ‘possibly’ related to administration of AL, including those classified as possibly, probably, or definitely related, and reports of all ‘Suspected Unexpected Serious Adverse Reactions (SUSARs) will be submitted to the IRBs according to their guidelines for expedited reporting. All serious adverse event reports and summary reports of suspected adverse drug reactions will be submitted to the IRBs, the Data and Safety Monitoring Board (DSMB), and the ACT Consortium Drug Safety Register (ACTcDSR) annually.

10.2. DEFINITIONS

Serious adverse event (SAE): An experience that results in any of the following outcomes:

- Death during the period of study follow-up
- Life-threatening experience (one that puts a participant at immediate risk of death at the time of the event)
- Inpatient hospitalization during the period of study follow-up
- Persistent or significant disability or incapacity
- Specific medical or surgical intervention to prevent one of the other serious outcomes listed in the definition.

Adverse drug reaction (ADR): A response to a medicine which is noxious and unintended, and which occurs at doses normally used in man.

Suspected Unexpected Serious Adverse Reactions (SUSAR): An ADR that is suspected of having a causal relationship to the trial medication and is unexpected.

10.3. IDENTIFICATION OF ADVERSE EVENTS

At each monthly visit, study personnel will inquire about the occurrence of any SAEs and any suspected ADRs. Two severity grading scales will be used to grade severity of events: 1) the WHO toxicity grading scale, which will be used by all projects involved in the ACT Consortium, and 2) a severity grading scale used previously in clinical trials in Uganda, which is based on the WHO toxicity grading scale and the National Institutes of Health, Division of Microbiology and Infectious Diseases grading scales (Appendices EE & FF).

10.4. REPORTING OF ADVERSE EVENTS

For each SAE and suspected ADR identified, an adverse event report form will be completed (Appendix GG). The following information will be recorded for all experiences that are reported:

- Description of the patient (ID number, age, sex, weight)
- Description of the adverse event
- Date of event onset and date of resolution
- Date event reported
- Maximum severity of the event
- Causality and expectedness
- Whether the event was serious
- Outcome of the event
- Drug information (names, doses, dates administered for all drugs taken one month prior)
- Past medical history
- Known allergies and/or prior experience with drugs taken

All adverse event report forms will be entered into a database and reported annually to the IRBs, the DSMB, and the ACTcDSR. Reports of serious adverse events that are classified as at least 'possibly' related to administration of AL and reports of all 'Suspected Unexpected Serious Adverse Reactions (SUSARs)' will be submitted to the IRBs according to their guidelines for expedited reporting.

10.5. ACT CONSORTIUM DRUG SAFETY REGISTER

10.5.1. Overview

Safety data collected in our study will be submitted to the central ACT Consortium Register within timescale agreed by the Consortium's Steering Committee. The Steering Committee will ensure the timely dissemination of any early warnings of emerging patient safety information within the project to all parties in the Consortium and to other relevant stakeholders. All individual patient data transferred to the ACT Consortium Register will be identifiable by study number only. No names or addresses of individuals will be stored. The adverse event data will be coded centrally using industry-standard MedDRA (Medical Dictionary of Drug Regulatory Authorities) coding systems.

10.5.2. Database

The database will fully comply with ICH – E6 Guideline for Good Clinical Practice,[96] in particular for the handling of electronic data (section 5.5.3), and will:

- Ensure and document that the electronic data processing system(s) conform to the sponsor's established requirements for completeness, accuracy, reliability, and consistent intended performance (i.e. validation).
- Maintain standard operation procedures for using these systems.
- Ensure that the systems are designed to permit data changes in such a way that the data changes are documented and that there is no deletion of entered data (i.e. maintain an audit trail, data trail, edit trail).

- Maintain a security system that prevents unauthorized access to the data.
- Maintain a list of the individuals who are authorized to make data changes
- Maintain adequate backup of the data.
- Safeguard the blinding, if any (e.g. maintain the blinding during data entry and processing).
- The individual patient data transferred to the central pharmacovigilance team will be identifiable by study number only. No names and addresses of individuals will be stored.

10.5.3. Mechanisms for data handling/sharing:

Each study will have ethical approval from all overseeing institutions, and sign an agreement regarding the data fields to be shared with the central database prior to the transfer of data to the Liverpool School of Tropical Medicine (LSTM), who will manage the database. The agreement will be voluntary between the ACT Consortium study institution and the ACTc Pharmacovigilance database institution (LSTM). The study institution will remain the owner of their data at all times and the data will be used for pharmacovigilance monitoring within the ACT Consortium. Any future requests for information from the central database will require the permission of the owners of the data to enable access to the collated dataset.

11 LABORATORY PROCEDURES

11.1. MICROSCOPY

Thick blood smears will be stained with 2% Giemsa for 30 minutes and read by experienced laboratory technologists who are not involved in direct participant care. For the cohort study and first cross-sectional survey, parasite densities will be calculated by counting the number of asexual parasites per 200 leukocytes (or per 500 leukocytes, if the count is <10 asexual parasites/200 leukocytes), assuming a leukocyte count of 8,000/ μ l. A blood smear will be considered negative when the examination of 100 high power fields does not reveal asexual parasites. For the second and final cross-sectional survey, thick blood smears will be read only for presence or absence of asexual parasites, parasite density will not be determined. Gametocytemia will also be determined from thick smears. For quality control, all slides will be read by a second microscopist and a third reviewer will settle any discrepant readings.

11.2. RAPID DIAGNOSTIC TESTS FOR MALARIA

We will use RDTs when assessing febrile participants in the cross-sectional surveys, the cohort study, and in the patient exit interviews. In addition, we plan to support the distribution of RDTs to the HFI facilities. If RDTs are not distributed by the MoH to lower-level health facilities, we will provide RDTs to all HFI facilities. If RDTs are provided by the MoH, we will supply RDTs only when stock-outs occur. HRP2-based RDTs that have been approved by in the latest round of WHO / FIND product testing (<http://www.wpro.who.int/sites/rdt/home.htm>) will be used.

Each RDT will be interpreted by a health worker, and the results will be recorded in the appropriate log book. An RDT result will be considered positive if both the control line and the test line are visible after the development time. A result will be considered negative if the control line is visible, but no test line appears. The result will be considered invalid if no control line is visible, regardless of whether or not a test line appears.

11.3. HEMOGLOBIN MEASUREMENT

Hemoglobin will be measured from fingerprick blood samples using a portable spectrophotometer (HemoCue, Anglom, Sweden).

11.4. MOLECULAR STUDIES

Each time a thick blood smear is obtained in the baseline cross-sectional survey and cohort study blood will also be collected onto filter paper. Samples will be collected by fingerprick sampling. Blood will be placed onto filter paper in approximately 25 ul aliquots per blood spot (4 blood spots per sample). The samples will be labeled with study numbers and dates, air-dried, and stored in

small, sealed sample bags at ambient temperature with desiccant. Parasite DNA will subsequently be removed from the filter paper and prepared for molecular analysis using a chelex extraction method. Molecular studies may include analyses of polymorphisms in parasite and/or human genes for mutations that may impact on clinical malaria, and genotyping of malaria parasites. Molecular studies will be performed only for research purposes and will have no impact on the clinical management of study participants.

12 STATISTICAL ISSUES

12.1. SAMPLE SIZE CALCULATIONS

12.1.1. Cluster randomized study

Cross-sectional surveys of children under five, and children aged 5-15 years will be conducted annually. The primary outcome for the cluster randomized study will be the prevalence of anemia (hemoglobin < 11.0 g/dL) in children under five as measured in the cross-sectional surveys, which is assumed to be 65% at baseline estimated from data collected in a household survey conducted Mulanda sub-county in West Budama South (Rachel Pullen, unpublished data). We plan to test the primary hypothesis that children under five randomized to the HFI will have a lower prevalence of anemia than children randomized to receive standard care. There is some variability in total cluster sizes so that sampling an equal number of children from each cluster (the most efficient design for a cluster randomized trial) while maintaining power to detect differences between intervention arms is logistically infeasible. Therefore children will be sampled from each cluster in proportion to the total cluster size, with a planned harmonic mean of 200 children sampled from each cluster (Table 9). With two study intervention arms, 10 clusters per intervention, a coefficient of variation between clusters of 0.2, and allowing for the stratified design, a harmonic mean of 200 children under five surveyed in each cluster will allow us to detect a difference in anemia prevalence between the two intervention arms of 17%, (or more) with power of 80% and significance of 5. If we assume that the clusters are more homogeneous, with a coefficient of variation of 0.1, then a difference of about 10% (or more) can be detected. As a secondary outcome, we will evaluate the prevalence of parasitemia in children under five, and in children aged 5-15 years. We will test the secondary hypothesis that children under five, and children aged 5-15 years, that are randomized to health facility-based care will have a lower prevalence of parasitemia than children randomized to receive standard care. In the older age group, the prevalence of parasitemia is estimated to be 60% at baseline based on data collected in Mulanda sub-county (Rachel Pullen, unpublished data). Children aged 5-15 years will also be sampled from each cluster proportionally to the total cluster size. Again, with two study intervention arms, 10 clusters per intervention, and a coefficient of variation between clusters of 0.2, a harmonic mean of 200 children aged 5-15 years surveyed in each cluster will allow us to detect a difference in parasitemia prevalence in the two intervention arms of 16%, with power of 80% and significance of 5%.

Table 9. Target sample size by cluster			
Cluster	Health facility	Target sample size per age group	Total sample size per cluster
1	Maundo	261	522
2	Were	216	432
3	Katajula	247	494
4	Paya	215	430
5	Pusere	216	432
6	Nawire	228	456
7	Kirewa	227	454
8	Chawolo Kirewa	255	510
9	Kisoko	323	646
10	Morkiswa	245	490
11	Petta	192	384
12	Makawari	228	456
13	Mbula	218	436
14	Gwaragwara	261	522
15	Osia	136	272
16	Mwelo	221	442
17	Lwala	106	212
18	Panyangasi	255	510
19	Mudodo	240	480
20	Chawolo Mulanda	93	186

12.1.2. Cohort study

The primary outcome for the longitudinal cohort study will be treatment incidence density, which is assumed to be 2.5 treatments per year at baseline. We plan to recruit 500 households into the longitudinal study (25 in each cluster), and will recruit all children under five years in the selected households. The cohort is dynamic, so children who are born or move into participating households will be recruited, and children who die or move out of participating households will no longer contribute to follow-up. We conservatively estimate that at any one time the average number of children under five per household will be at least 1.6. Given this, 250 households, and at least 400 children at any one time, will be available in each intervention group. Since the cohort is dynamic, no allowance for losses to follow-up is required. A follow-up period of 1 year will result in 400 child-years of follow-up in total per study arm; shared between 10 clusters, this will result in 40 person-years per cluster on average. If the baseline group experience an average of 2.5 treatments per child per year, then a difference of one treatment on average over 1 year of follow-up can be detected between the two interventions (for example if the HFI group experiences 2.5 treatments during the year and the standard care group experiences 3.5 treatments during the year assuming a coefficient of variation between clusters of 0.2, power of 80%, significance level of 5%, and allowing for the stratified design).

12.1.3. Patient exit interviews at health facilities

The primary outcome for the patient exit interviews will be the proportion of children under five with suspected malaria, who are not treated according to malaria treatment guidelines during their

visit to the health facility, based on the result of a RDT performed by the PRIME study staff that is either inappropriately receiving an ACT with a negative RDT result, or not receiving an ACT with a positive RDT. The hypothesis is that the proportion of children inappropriately treated with an ACT will be lower in the facilities randomized to the intervention arm compared to those in the standard care group. Assuming this proportion to be 35% in the standard care group, interviewing 50 children and their caregivers in each of the 20 clusters will give 80% power to detect a difference in the proportion inappropriately treated between the two intervention arms of 12% (or more) at the 5% significance level, assuming a coefficient of variation between clusters of 0.2 and allowing for the stratified design.

12.2. ANALYTICAL PLAN

12.2.1. Analytical approach

Since this is a cluster randomised trial, analysis will be conducted at both the cluster level using summary statistics from each cluster, and at the individual level. The primary analysis will be based on the cluster-level results as this is expected to be more robust when the number of clusters randomised is not large. A two-stage approach based on cluster summaries will be used to adjust for individual- and cluster-level covariates, where appropriate.

Analysis will be conducted primarily on an intention to treat (ITT) basis, where data collected will be analysed according to the assigned cluster. To address potential contamination issues due to children attending health facilities other than the one that defines their cluster, i.e. the health facility they live closest to, we shall also analyse data on a per protocol (PP) basis. For this analysis, data collected will be analysed according to the facility at which the child accesses healthcare.

12.2.2. Baseline characteristics and trial profile

Baseline demographic characteristics will be available from the census survey conducted in the first phase of the project, the baseline cross-sectional survey, and the household survey for the cohort study. Data from each source will be separately tabulated by trial arm and by stratum. A trial profile will be produced. This will show, by trial arm, the numbers of households screened, eligible and enrolled for the cross-sectional surveys, plus numbers not enrolled (with reasons); the numbers of children within each age group (<5 years and 5-15 years) recruited for the cross-sectional surveys. For the cohort study, the trial profile will show the numbers of households and children screened, eligible and enrolled, plus numbers not enrolled (with reasons). The number of six-monthly visits at which clinical evaluations were conducted and the number of monthly visits at which household questionnaires were completed will be tabulated by study arm, both overall and separately for each time point.

12.2.3. Cross-sectional survey outcomes

The primary outcome for the cross-sectional surveys will be the prevalence of anemia (defined as hemoglobin < 11.0 g/dL). At each endpoint (one and two years after baseline), the crude prevalence of anemia will be tabulated for each cluster. Although there will be some variation in cluster sample sizes, this is not large and cluster size is unlikely to be associated with differences in prevalence of

anemia, therefore the simple mean prevalence across the 10 clusters per intervention arm will be used to calculate point estimates for the overall prevalence of anemia in each intervention arm. A weighted average of the cluster prevalences will also be calculated for comparison, with the weights provided by the sample size for each cluster. A risk ratio for the effect of the intervention will be calculated directly from the cluster-based point estimates. If necessary, a logarithmic transformation will be applied to normalize cluster-specific prevalences before analyzing the data. A stratified t-test will be used to compare the means of the cluster-specific proportions, where the within-stratum between-cluster variance will be estimated as the residual mean square from a two-way analysis of variance of the log-prevalences on stratum and treatment arm, including an interaction term. A 95% confidence interval (CI) for the risk ratio, adjusting for stratum, will be calculated from this variance using a t-statistic with 16 degrees of freedom.

Adjusted analysis for the effect of the intervention on prevalence of anemia will also be performed to account for any baseline imbalances between groups. We will adjust for the cluster-specific prevalence of anemia collected at the baseline cross sectional survey. Additional *a priori* individual-level factors to be adjusted for are age group, sex, use of insecticide treated nets, and distance to the health facility. Any other individual- or cluster-specific factors found to be unbalanced at baseline will also be adjusted for. Adjustment will be performed by fitting a logistic regression model, including terms for stratum and the covariates to be adjusted for, but no term for intervention arm, to data from all clusters. From this the predicted prevalence of anemia for each cluster will be available. The ratio between the observed and predicted prevalence will be calculated (risk ratio-residuals). A stratified t-test will then be conducted on the risk ratio-residuals and the covariate-adjusted risk ratio (and 95% CI) for the effect of the intervention will be calculated by applying the two-way analysis of variance method described above to the residuals.

A secondary analysis of individual-level data will be implemented by fitting generalized estimating equation (GEE) models with an exchangeable correlation structure and robust standard errors, and including a fixed effect for stratum. Wald tests will be used to calculate p-values and 95% confidence intervals for the odds ratio for the effect of the intervention. Approaches based on individual-level data have been found to be less robust than the cluster-level approach where the number of clusters is not large, therefore results will be treated with caution.

It is possible that community-based interventions (CBI) may be scaled up during the study period. If this scaling-up is implemented approximately at the one year cross-sectional survey it will be possible to examine its impact by comparing outcomes from one to two years in the individual-level regression analysis described above, although the study has not been powered for this comparison. Otherwise it will not be possible to quantify the impact of any scaling-up of these activities on cross-sectionally collected outcomes.

12.2.4. Cohort study outcomes

The primary outcome for the cohort study will be antimalarial treatment incidence density, defined as the rate of antimalarial treatments administered to children in the cohort over the period of follow up. The number of events, child-years of follow-up and corresponding incidence rate will be tabulated by cluster. For each intervention arm, the cluster-specific rates will then be averaged to give a point estimate of the rate for each intervention. Rate ratios for the effect of the intervention on each outcome will then be calculated from these point estimates. The distribution of cluster-specific rates is likely to be skewed, therefore a logarithmic transformation will be applied to normalize rates before analysis. A test of the null hypothesis that the rate ratio is equal to one will

be conducted using a stratified t-test, where the within-stratum between-cluster variance will be estimated as the residual mean square from a two-way analysis of variance of the log-rates on stratum and treatment arm, including an interaction term. A 95% confidence interval (CI) for the rate ratio will be calculated from this variance using a t-statistic with 16 degrees of freedom.

Adjusted analysis will be performed to account for any baseline differences between groups. *A priori* individual-level factors to be adjusted for are baseline anemia, age group, sex, use of insecticide treated nets, and distance to the health facility. Any other individual- or cluster-specific factors found to be unbalanced between the intervention arms at baseline will also be adjusted for. Adjusted rate ratios will be calculated using a similar two-stage process as that described for the cross-sectional outcomes above, except Poisson regression will be used to calculate predicted rates and hence rate ratio residuals.

For cohort study outcomes, it will be possible to allow for changes in underlying rates of these events due to scaling-up of CBIs in the study area. This will be done by splitting the follow-up time for each cluster into periods representing pre- and post-scale-up, and examining the effect of the intervention on event rates, stratified by time-period.

12.2.5. Outcomes measured at health facilities

The primary outcome collected at health facilities will be inappropriate treatment of malaria, as quantified by the proportion of children under five with suspected malaria and a negative RDT result that are inappropriately treated with an ACT plus the proportion of children under five with suspected malaria and a positive RDT result that are not treated with an ACT. These data will be collected every six months at exit interviews from health facilities.

For each time point, the proportion will be tabulated by cluster, and the cluster-specific mean proportions will be averaged to give a point estimate of proportion in appropriately treated with an ACT in each intervention arm. The risk ratio for the impact of the intervention will then be calculated. The two-way analysis of variance and stratified t-test approach described above for the cross-sectional survey prevalence outcomes will then be applied to test the null hypothesis that the risk ratio equals one and to derive a 95% CI for the risk ratio. Adjusted analyses will also be performed to account for any baseline differences between the study arms, using the same two-stage approach described above. *A priori* individual-level factors to be adjusted for are age group and sex.

Scaling-up of CBIs in the study area is unlikely to impact on outcomes measured at exit interviews from health facilities, therefore no further analysis is planned to account for this.

13 DATA & SAFETY MONITORING BOARD

13.1. OVERVIEW

A data and safety monitoring board (DSMB) will be assembled in conjunction with the LSHTM and the ACT Consortium, consisting of a minimum of three members who are independent of the project and who have made no significant input into the project's design. Members will include a chairman, a statistician, a clinical monitor, and a local safety monitor, if needed. The DSMB, investigators, and the sponsor will agree on the rules for reporting safety data during the course of the project, and the rules for recommending premature termination of the project on grounds of safety or efficacy. The DSMB will review the analytical plan and will agree to review the interim reported data at pre-specified intervals.

13.2. MONITORING PLAN

We plan to prepare an interim report for review by the DSMB after approximately one half of the total projected follow-up time has been observed; specifically, after the HFI has been fully active for approximately one year, the first annual cross-sectional survey has been completed, and over 75% of the cohort study participants have been followed for one year. The interim report will contain information on study progress and data quality (including recruitment, follow-up, and protocol adherence), safety data (serious adverse events), and primary outcome data (prevalence of anemia, antimalarial treatment incidence density, inappropriate use of ACTs). A shell interim report will be prepared by project members in conjunction with our statisticians, and will be submitted to the DSMB for review prior to the start of the study.

13.3. STOPPING GUIDELINES

The DSMB will have the authority to recommend cessation of the project for reasons related to safety of trial subjects, and to notify the sponsor accordingly. Interpretation of results and decisions about discontinuation of the study will be made by the members of the DSMB.

14 DATA MANAGEMENT

14.1. DATA MANAGEMENT

14.1.1. Cross-sectional surveys

Screening forms, consent forms, survey questionnaires, and clinical case record forms will be completed by the field teams. Microscopy results will be recorded in a laboratory record book by lab technicians. All record forms will be reviewed by project coordinators for completeness and accuracy. Data entered onto paper record forms will be entered into a computerized database (Microsoft Access) by a data entry clerk and will be double-entered to verify accuracy. Electronic versions of the baseline cross-sectional survey questionnaire will be created for personal digital assistants (PDAs) using appropriate software (Visual CE, Syware Inc). Survey teams will move in pairs; one team member will administer the survey questionnaire and record answers on a PDA, while another team member will record answers on a paper questionnaire. Data captured on PDAs will be downloaded daily to a Microsoft Access database. Data captured on paper record forms will be used as back-up if synchronization of the PDA to the computerized database fails. The repeat CSS will be completed by the field teams using hand-held computers (tablets). Prior to conducting the data collection, information from the questionnaires and fields for entering results of biomarker testing will be programmed into the hand-held computers. Programming will include range checks, structure checks and internal consistency checks. Data from these devices will be transferred at the end of every day to our core data facility and stored on a secure server.

14.1.2. Cohort study

Screening forms, consent forms, household survey forms, clinical case record forms, and monthly questionnaires will be completed by the field teams. Information recorded on the pictorial diaries by primary caregivers will be transferred onto standardized data extraction forms by study personnel. Microscopy results will be recorded in a laboratory record book by lab technicians. All record forms will be reviewed by project coordinators for completeness and accuracy. Data entered onto paper record forms and the data extraction forms will be entered into a computerized database (Microsoft Access) by a data entry clerk and will be double-entered to verify accuracy. Electronic versions of the initial household survey questionnaire and the monthly questionnaire will be created for the PDAs using appropriate software (Visual CE, Syware Inc). Field teams will move in pairs; one team member will administer the appropriate questionnaire and record answers on a PDA, while another team member will record answers on a paper version of the questionnaire. Data captured on PDAs will be downloaded daily to a Microsoft Access database. Data captured on paper record forms will be used as back-up if synchronization of the PDA to the computerized database fails. The repeat household survey will be completed by the field teams using hand-held computers (tablets). Prior to conducting the data collection, information from the questionnaires and fields for entering results of biomarker testing will be programmed into the hand-held computers. Programming will include range checks, structure checks and internal consistency checks. Data from these devices will be transferred at the end of every day to our core data facility and stored on a secure server.

14.1.3. M&E of health facilities

The patient exit interviews, health facility surveillance forms, and health worker knowledge questionnaires will be completed by field teams. All record forms will be reviewed by project coordinators for completeness and accuracy. Data from the M&E components will be collected using a combination of paper record forms, PDA questionnaires, and tablet questionnaires. Data entered onto paper record forms and the data extraction forms will be entered into a computerized database (Microsoft Access) by a data entry clerk and will be double-entered to verify accuracy. Electronic versions of the health facility surveillance forms will be created for the PDAs using appropriate software (Visual CE, Syware Inc). Data captured on PDAs will be downloaded daily to a Microsoft Access database. Data captured on paper record forms will be used as back-up if synchronization of the PDA to the computerized database fails. The final round of patient exit interviews will be completed by the field teams using hand-held computers (tablets). Some health facility surveillance data will also be collected using the tablets. Prior to conducting the data collection, information from the questionnaires and fields for entering results of biomarker testing will be programmed into the hand-held computers. Programming will include range checks, structure checks and internal consistency checks. Data from these devices will be transferred at the end of every day to our core data facility and stored on a secure server.

14.2. QUALITY ASSURANCE AND QUALITY CONTROL

All members of the study team will be trained in the project objectives, methods of effective communication with study participants, and collection of high quality data. Study team members will receive additional training specific to the tasks they will perform within the project including interviewing techniques, administration of surveys, completing questionnaires, and use of PDA and tablet devices. Standard Operating Procedures (SOPs) will be written for all project activities and booklets of all relevant documents will be provided to each member of the project team. Study group meetings will be conducted by the principal investigator to assess progress of the study, address any difficulties, and provide performance feedback to the members of the study group. Any corrections to data collection forms will be made by striking through the incorrect entry with a single line and entering the correct information adjacent to it, according to Good Clinical Practice guidelines.[96] The correction will be initialed and dated by the investigator. The investigators will allow all requested monitoring visits, audits or reviews.

14.3. RECORDS AND STORAGE

All study documents will be kept in secured filing cabinets in the Infectious Disease Research Collaboration offices. The principal investigator will be responsible for the security of all project documents. Back-up files of databases will be stored onto the main project server after each data entry session. Participants will be identified by their study ID number, and participant names will not be entered into the computerised database.

14.4. DATA SHARING

This project is one of 16 participating in the ACT Consortium (www.actconsortium.org/). As part of the ACT Consortium, a policy liaison network will be organized to help synthesize data from the multiple projects and communicate the results to policy makers. Consortium researchers will share data with the policy liaison network to facilitate analyses and ensure broad dissemination of the research findings.

15 PROTECTION OF HUMAN PARTICIPANTS

15.1. INSTITUTIONAL REVIEW BOARDS

This study will be reviewed by the following organizations:

1. London School of Hygiene and Tropical Medicine Ethics Committee
2. Makerere University Faculty Research and Ethical Committee
3. Uganda National Council of Science and Technology
4. University of California, San Francisco Committee for Human Research

15.2. INFORMED CONSENT PROCESS

Study personnel will conduct screening interviews and informed consent discussions with individual children and their parent/guardian during the screening process for the cross-sectional surveys and the cohort study. Informed consent will be conducted in the appropriate language (usually Luganda) and a translator will be used if necessary. Consent forms will be available in both English and Luganda. Following the informed consent discussion in the baseline CSS and cohort study, parents (or guardians) will be asked by the study personnel to provide their written consent on the approved informed consent document for their child to participate in a research study and a second approved consent form for the future use of biological specimens obtained during the course of the study. Following the informed consent discussion in the repeat CSS and the PEI, parents (or guardians) will be asked by the study personnel to provide their written consent on the approved informed consent document for their child to participate in a research study only. If the parent or guardian is unable to read or write, their fingerprint will substitute for a signature, and a signature from a witness to the informed consent procedures will be obtained. Written assent to participate in the cross-sectional surveys will also be obtained from children aged 8 years and older at the time of screening. An additional information sheet will be provided to the cohort study parents (or guardians) to update them on the plans to end the cohort study (Appendix HH), and written consent from the parents (or guardians) will be sought at the time of study termination.

15.3. CONFIDENTIALITY

Parents and guardians will be informed that participation in a research study may involve a loss of privacy. All records will be kept as confidential as possible. Participants will be identified primarily by their study number and patient names will not be entered into the computerized database. No individual identities will be used in any reports or publications resulting from the study.

15.4. RISKS AND DISCOMFORTS

15.4.1. Privacy

Care will be taken to protect the privacy of participants, as described in this protocol. However, there is a risk that others may inadvertently see participants' information, and thus their privacy compromised.

15.4.2. Risks of randomization

This will be a randomized trial in which we propose to enhance the care provided at government-run health facilities. There is a risk that residents living in villages within clusters randomized to the standard care arm may receive health care that is inappropriate, ineffective, or delayed, given that care delivered from those facilities will not be enhanced. However, it is not clear if care provided by HFI facilities will improve the health of children or quality of care above care standardly available; this study is designed to answer that question.

15.4.3. Fingerprick blood draws

Participants in the cross-sectional surveys and cohort study will have blood removed by fingerprick for laboratory evaluations, which has been associated with discomfort, bleeding, bruising, and rarely infection.

15.4.4. Risk of artemether-lumefantrine

AL appears to be safe and well-tolerated,[97,98] which is supported by the results of studies in Uganda.[35,36,99,100] In one study, participants treated with AL were more likely to have elevated temperature than those treated with AQ+SP or AQ+AS, which may have been due to the known antipyretic properties of amodiaquine, a component of the other two study regimens.[100] In addition, a higher risk of delayed diarrhea was observed in AL-treated patients, which has previously been reported.[101,102]

In a review of the safety and tolerability of AL in 1869 patients (including 368 children aged < 5 years), the most commonly reported adverse events that were possibly related to AL included gastrointestinal events (abdominal pain, anorexia, nausea, vomiting, and diarrhea), headache, and dizziness, while pruritis and rash occurred uncommonly.[102] Most events were of mild or moderate severity and were similar to symptoms associated with clinical malaria. The tolerability profile of AL compared favourably to other antimalarial drugs, including CQ, mefloquine, SP, and quinine.[102] In a systematic review including eight comparative clinical trials, AL was found to be associated with less vomiting (mild or moderate) than CQ, mefloquine, halofantrine, and AS + mefloquine.[103]

The chemical structure of lumefantrine is similar to halofantrine, raising concern for possible cardiac toxicity with AL. Treatment with halofantrine is associated with changes in cardiac conduction, particularly prolongation of the QT interval, which can produce arrhythmias.[104] However, no serious cardiac toxicity has been reported with AL.[103] A study of cardiac effects in healthy volunteers found a concentration-dependent prolongation of the QTc interval in all participants treated with halofantrine, but no change in the QTc interval after treatment with AL.[105]

Electrocardiographic data from clinical trials evaluating AL are encouraging, indicating that the frequency of QTc prolongation with AL is similar to that observed with CQ, mefloquine, and AQ + mefloquine.[102,106,107]

15.4.5. RDTs for malaria

The accuracy of RDTs for diagnosing malaria has been well-studied.[108-112] In Uganda, RDTs based on histidine-rich protein 2 (HRP2) and RDTs based on plasmodium lactate dehydrogenase (pLDH) were compared with expert microscopy and polymerase chain reaction (PCR)-corrected microscopy for 7000 patients at sites of varying malaria transmission intensity across Uganda.[109] When all sites were considered, the sensitivity of the HRP2-based test was 97% when compared with microscopy and 98% when corrected by PCR; the sensitivity of the pLDH-based test was 88% when compared with microscopy and 77% when corrected by PCR. The specificity of the HRP2-based test was 71% when compared with microscopy and 88% when corrected by PCR; the specificity of the pLDH-based test was 92% when compared with microscopy and >98% when corrected by PCR. Based on Plasmodium falciparum PCR-corrected microscopy, the positive predictive value (PPV) of the HRP2-based test was high (93%) at all but the site with the lowest transmission rate; the pLDH-based test and expert microscopy offered excellent PPVs (98%) for all sites. The negative predictive value (NPV) of the HRP2-based test was consistently high (>97%); in contrast, the NPV for the pLDH-based test dropped significantly (from 98% to 66%) as transmission intensity increased, and the NPV for expert microscopy decreased significantly (99% to 54%) because of increasing failure to detect subpatent parasitemia.

15.4.6. Compensation

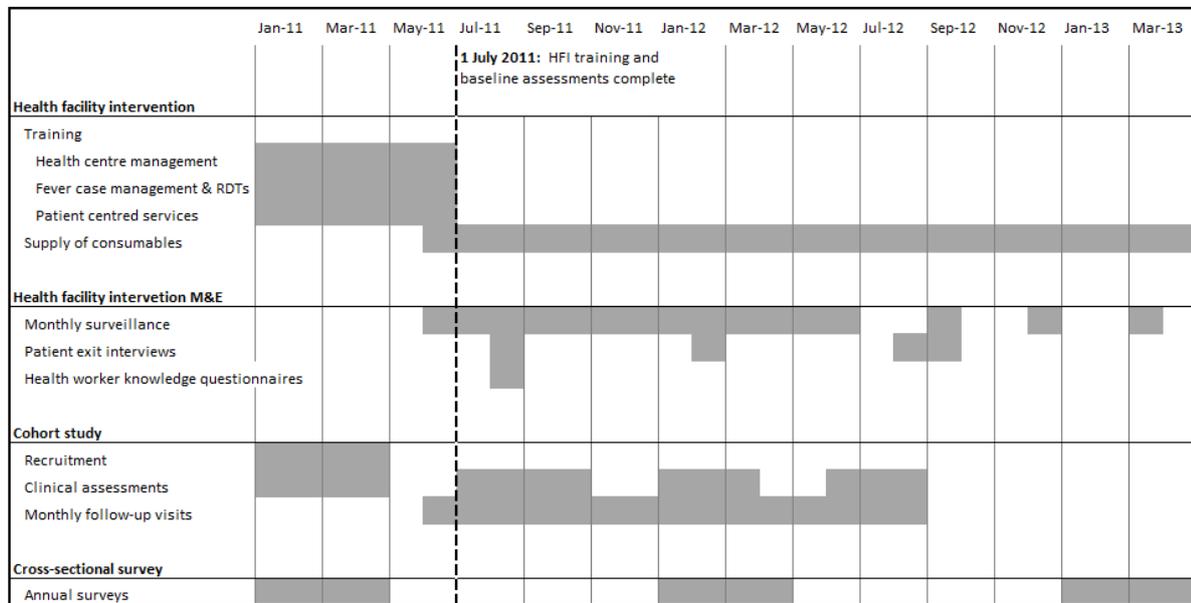
Participants will not be paid for participating in this study. Most assessments will be conducted at households or health facilities, which will eliminate the need for travel and minimize opportunity costs for the participants. If cross-sectional survey or cohort study participants are referred by study personnel to a health facility for further assessment, transportation will either be provided by the study team, or the costs of transportation will be borne by the project. Any other costs of transportation related to project activities will be reimbursed by the project. Households participating in the cohort study will receive small incentives (soap, washing powder, or sugar) at monthly visits. All children participating in the cohort study will be given an insecticide-treated bednet at the end of study follow-up. Health facilities will also receive periodic recognition for their participation in the surveillance activities, including sugar, tea, coffee, or soap.

15.4.7. Alternatives

Children whose parents or guardians choose not to participate in this study will not be enrolled in the cross-sectional survey or cohort study. Children excluded from the study will still be eligible for standard care of medical problems as they arise at the government-run health facilities or other available health centers.

16 TIMELINE

Figure 5. ACT PRIME Study implementation



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18 APPENDICES

Appendix A:	Intervention components, barriers addressed, and intended outcomes
Appendix B:	Health facility intervention information sheet
Appendix C:	Primary health care funds accounting tool
Appendix D:	ACT Drug Distribution Assessment Tool (ADDAT)
Appendix E:	User's manual: Use of Rapid Diagnostic Tests (RDTs) for malaria in fever case management in Uganda
Appendix F:	Health worker self-observational information sheet
Appendix G:	Health worker self-observational task sheets (1)
Appendix H:	Health worker self-observational task sheets (2)
Appendix I:	Health worker self-observational task sheets (3)
Appendix J:	Health worker self-observational task sheets (4)
Appendix K:	Cross-sectional survey screening form
Appendix L:	Cross-sectional survey informed consent to participate in a research study
Appendix M:	Cross-sectional survey informed consent for future use of biological specimens
Appendix N:	Cross-sectional survey assent form
Appendix O:	Cross-sectional survey questionnaire form
Appendix P:	Cross-sectional survey case record form
Appendix Q:	Cohort study screening form
Appendix R:	Cohort study informed consent to participate in a research study
Appendix S:	Cohort study informed consent for future use of biological specimens
Appendix T:	Cohort study case record form
Appendix U:	Cohort study household survey
Appendix Ull:	Revised Cohort study household survey
Appendix V:	Cohort study pictorial diaries
Appendix W:	Cohort study monthly questionnaires
Appendix X:	Exit interview screening form
Appendix Y:	Exit interview informed consent to participate in a research study
Appendix Z:	Patient exit interview questionnaire form
Appendix AA:	Health facility surveillance information sheet
Appendix BB:	Health facility surveillance questionnaire form (Parts 1 & 2)
Appendix CC:	Health care worker knowledge questionnaire information sheet
Appendix DD:	Health care worker knowledge questionnaire form
Appendix EE:	WHO toxicity grading scale
Appendix FF:	UMSP toxicity grading scale
Appendix GG:	Serious adverse event report form
Appendix HH:	Cohort study information sheet for termination of study activities
Appendix II:	Caregivers participating in health worker knowledge assessment information sheet

APPENDIX A: Intervention components, barriers, and outcomes

Intervention Component	Barriers intended to address	Intended outcome
1. Health Centre Management		
Training in health centre management: <ul style="list-style-type: none"> Financial management (budgeting and accounting) Supply management (drug stocking) Information management 	<ul style="list-style-type: none"> Lack of in-charge skills to manage the health centre Low motivation of staff due to poor health centre administration Under-utilization or lack of appropriate tools to appropriately manage health centres Lack of information to adequately manage the health facility and report to local and district stakeholders 	Improved accounting of PHC funds Improved forecasting and stocking of needed supplies Improved utilization of health information
2. Health Worker Training		
Training in fever case management and use of RDTs	<ul style="list-style-type: none"> Poor knowledge of malaria case management Inadequate/unavailable infrastructure or diagnostic laboratory facilities 	Good clinical care Improved management of malaria and non-malaria illnesses Improved HW-patient interactions Professional conduct Prompt and fair treatment Appropriate use of volunteers Improved welcoming & guiding
Training in Patient-Centered Services	<ul style="list-style-type: none"> Lack of patient-centred thinking Communication problems including language barrier Discrimination/preferential treatment of patients Poor relationships between staff and communities Inappropriate use of volunteers Poor patient flow and management 	
3. Supply of Consumables		
Drug delivery from NMS	<ul style="list-style-type: none"> Frequent stock-outs of drugs Poor procurement system Patients have to pay for drugs or services 	Good clinical care Free services Improved availability of drugs Appropriate treatment of malaria and non-malarial illnesses
Support supply of artemether-lumefantrine	<ul style="list-style-type: none"> Frequent stock-outs of first line antimalarial treatment 	
RDTs for malaria	<ul style="list-style-type: none"> Inadequate/unavailable infrastructure or diagnostic laboratory facilities RDTs not available nationally 	



APPENDIX B. INFORMATION SHEET – Health facility intervention ACT PRIME Study

Introduction

Dr. Sarah Staedke and colleagues from the Uganda Malaria Surveillance Project / Infectious Diseases Research Collaboration are investigating delivery of health care services in Tororo District. We are doing a research study to see if we can improve the health of children in this area by improving services at government-run health facilities.

What will be done in this study?

Certain health centers in Tororo district will be selected to take part in the intervention to improve services, or to continue with their current services. Assignment to the two groups has been determined by a lottery. The chance of being placed into either of the groups is the same. Your health center has been selected to take part in the intervention.

The health facility intervention will focus on 1) health center management training, 2) health worker training, and 3) supply of malaria diagnostics and antimalarial drugs. The intervention package will be introduced to all health centers selected to take part over approximately 8-10 weeks. After this time, all health centers in the area will be assessed every month to determine how well the intervention is working. Our study personnel will continue to support the intervention at the selected health centers for the full duration of the study.

What will happen if my health center takes part in this study?

The intervention will include three different training packages, which you and other members of staff at your facility will be asked to take part in:

1) Health center management training. All in-charges of health centers assigned to the intervention will be trained in health center management. The purpose of this training is to equip in-charges with the skills and tools required to effectively and efficiently manage their health center. The training will include three components: financial management, supply management, and information management. Our study staff will carry out a series of half-day training workshops with the in-charges every 1-2 weeks, and the training module will last approximately 4-5 weeks. The in-charges will be taught how to collect data about primary health care (PHC) funds and drug supplies during the training. All health workers will also be trained on the importance of information management and how to utilize data on patient attendance, diagnoses made, and treatment provided.



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2) Fever case management training. All clinical staff, including in-charges and other health workers, will receive training in fever case management. The training program will last two weeks and will be followed by support supervision over the next six months and refresher training as required.

3) Patient-centered services (PCS) training. The purpose of this training is to identify and improve interpersonal interactions between health workers and patients. All clinical staff, including in-charges, will receive the full PCS training package which will start with a series of 4 self-observation activities completed over a period of 4-5 weeks. These activities will guide the health workers through a PCS workshop which will consist of 5 half-day modules, lasting about 3 hours, carried out over 4-5 weeks. The modules will focus on introduction to PCS, improving interactions with patients and colleagues, and improving the patient visit. Support staff, including volunteers will receive a scaled-down PCS training package with specific emphasis on improving the patient visit. The PCS workshop for support staff will consist of 1 half-day themed module carried out over 1 week. Health workers and support staff will be trained in two groups to ensure that work at the health centers continues alongside the training.

After beginning the intervention, we will collect information to see how well it is working. Every month, we will visit the health centers to gather information on patient attendance, drug stock-outs, staffing, and diagnosis and treatment of malaria. Every six months, we will interview patients as they are leaving the health center to learn more about their experience with the health center visit. Once a year, we will ask all health workers to take part in a survey about management of malaria and other fever illnesses to learn more about their knowledge and practices. The data we collect will be used by project investigators and may be shared with other researchers and policy-makers to answer questions about how best to deliver health services.

How long will this study last?

The intervention will be introduced over 2-3 months. The total duration of the study will be about 2 ½ years.

Can I stop being in the study?

You can decide to stop participating at any time. Just tell our study personnel right away if you wish to stop the activities.

What risks can I expect from participating in the study?

Participation in any research study may involve a loss of privacy. Information you provide about your health center will be recorded, but your name will not be used in any reports of the information provided. The information obtained from these study activities will be locked up at our project offices. We will do our best to make sure that any personal information is kept private.



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Are there benefits to taking part in the study?

Through the intervention, we aim to improve the health of children in this area by improving services at the health centers. As part of the intervention, our project will provide training to in-charges and other health workers, which will benefit you directly, and help provide malaria drugs and tests for diagnosing malaria, which will benefit the health facilities and patients. The information that we gather in this study will help researchers and policy-makers understand how best to improve health services in this area.

What other choices do I have if I do not take part in the study?

You are free to choose not to take part in the study. If you decide not to take part, there will be no penalty to you.

What are the costs of taking part in the study? Will I be paid for taking part in the study?

There are no costs to you for taking part in this study. You will not be paid for taking part in this study. The training activities will take place in convenient locations within Tororo district. Any transport costs incurred by trainees will be reimbursed by the project.

What are my rights if I take part in the study?

Taking part in this study is your choice. You may choose either to take part or not to take part. If you decide to take part in this study, you may change your mind at any time. No matter what decision you take, there will be no penalty to you in any way.

Who can answer my questions about the study?

You can talk to the researchers about any questions or concerns you have about these study activities. Contact Dr. Sarah Staedke or other members of the Uganda Malaria Surveillance Project / Infectious Disease Research Collaboration on telephone number 0414-530692. If you have any questions, comments or concerns about taking part in these self-observation activities, first talk to the researchers. If for any reason you do not wish to do this, or you still have concerns about doing so, you may contact Dr Charles Ibingira, Makerere University Faculty of Medicine Research and Ethical Committee at telephone number 0414-530020.

Giving verbal consent to take part in the study:

You may keep this information sheet if you wish. Participation in these activities is voluntary. You have the right to decline to take part in the activities, or to withdraw from them at any point without penalty. If you do not wish to take part in the activities, you should inform the researcher now. If you do wish to take part in these activities, you should tell the researcher now.

APPENDIX D: ACT DRUG DISTRIBUTION ASSESSMENT TOOL (ADDAT)

Health centre code [] []	Health worker ID [] []	ADDAT reporting month [] [] / [] [] / [] [] day month year	GREEN: The activity is on track. No work is required at this point to ensure this activity is on track.	YELLOW: The activity is only partly on track. Some action is required for this activity to become on track.	RED: The activity not is not on track. Much work is required for this activity to become on track.
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Activity	Is the activity GREEN, YELLOW, or RED?	Describe status of the activity	Describe how was the issue was resolved	Date [day / month / year]
The date of drug pick-up from the HSD	<input type="checkbox"/> Green <input type="checkbox"/> Yellow <input type="checkbox"/> Red			
Transportation for drugs from HSD to health centre	<input type="checkbox"/> Green <input type="checkbox"/> Yellow <input type="checkbox"/> Red			
Storage of drugs at the health centre?	<input type="checkbox"/> Green <input type="checkbox"/> Yellow <input type="checkbox"/> Red			
The drug stock-card	<input type="checkbox"/> Green <input type="checkbox"/> Yellow <input type="checkbox"/> Red			
Stocks for AL (Coartem, Lumartem)	<input type="checkbox"/> Green <input type="checkbox"/> Yellow <input type="checkbox"/> Red			
Order for re-supply of AL/RDTs, if required	<input type="checkbox"/> Green <input type="checkbox"/> Yellow <input type="checkbox"/> Red			
Communication with staff regarding AL/RDT stocks	<input type="checkbox"/> Green <input type="checkbox"/> Yellow <input type="checkbox"/> Red			
Other activities this period	<input type="checkbox"/> Green <input type="checkbox"/> Yellow <input type="checkbox"/> Red			



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APPENDIX F. INFORMATION SHEET

Health worker self-observation activities

ACT PRIME Study

Introduction

Dr. Sarah Staedke and colleagues from the Uganda Malaria Surveillance Project / Infectious Diseases Research Collaboration are investigating the provision of health care services in Tororo District. We are doing a research study to see if we can improve the health of children in this area by improving services at government-run health facilities. Certain health centers in Tororo district will be selected to take part in the intervention to improve services, or to continue with their current services. Assignment to the two groups has been determined by a lottery. The chance of being placed into either of the groups is the same.

Why are these self-observation activities being done?

We would like to know more about the interaction between health workers and patients in this area. To do this, we are asking health workers to take part in a series of self-observation activities about their behaviors and experiences interacting with patients and to participate in training in patient-centered services. This information will help us to plan future training activities and health care studies in Tororo District.

What will happen if I take part in these self-observation activities?

We would like you to participate in a series of self-observation activities in which you will reflect on your interpersonal behaviors and how you interact with patients. We will start with a three hour introduction to the planned activities. You will then be asked to complete a series of tasks over a period of 4-5 weeks, which will be linked to training modules in patient-centered services. The self-observational activities involve becoming aware of your behavior and writing a short summary of how your behavior affects those around you and your ability to achieve work goals. On completion of each task, you will be invited to join other health workers to discuss your observations and give support to each other during 4 training sessions on patient-centered services that will cover improving interactions with patients and colleagues, and improving the patient visit. We will ask you to give your written summaries to the workshop trainers. The summaries will be typed and stored electronically. All information gathered will be treated as confidential by the study personnel, and records of the interviews will be kept securely in locked filing cabinets and offices. No personal identification information such as names will be used in any reports arising out of this research. . The data we collect will be used by project investigators and may be shared with other researchers and policy-makers to answer questions about how best to deliver health services.



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How long will these self-observation activities last?

The introduction to the self-observation activities will last about 3 hours. Over the 4-5 week period, you will carry out four self-observation tasks and participate in five half-day training sessions in patient-centered services.

Can I stop being in the self-observation activities?

You can decide to stop participating at any time. Just tell the project researcher right away if you wish to stop the activities.

What risks can I expect from participating in the self-observation activities?

Participation in any research study may involve a loss of privacy. Information you provide about your experiences and opinions will be recorded, but your name will not be used in any reports of the information provided. No quotes or other results arising from your participation in this study will be included in any reports, even anonymously, without your agreement. The information obtained from these self-observation activities will be locked at our project offices. We will do our best to make sure that the personal information gathered for this survey is kept private.

Are there benefits to taking part in these self-observation activities?

While we do not anticipate any immediate benefits to you, the self-observation activities may help you to develop an awareness of your interpersonal interactions with your colleagues and patients. Additionally, the information that you provide will help researchers plan for future training activities and health care studies in this area.

What other choices do I have if I do not take part in the self-observation activities?

You are free to choose not to take part in the self-observation activities. If you decide not to take part, there will be no penalty to you.

What are the costs of taking part in these self-observation activities? Will I be paid for taking part in these self-observation activities?

There are no costs to you for taking part in these activities. You will not be paid for taking part in these activities.

What are my rights if I take part in these self-observation activities?

Taking part in these self-observation activities is your choice. You may choose either to take part or not to take part. If you decide to take part in these self-observation activities, you may change your mind at any time. No matter what decision you take, there will be no penalty to you in any way.



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Who can answer my questions about the self-observation activities?

You can talk to the researchers about any questions or concerns you have about these self-observation activities. Contact Dr. Sarah Staedke or other members of the Uganda Malaria Surveillance Project / Infectious Diseases Research Collaboration on telephone number 0414-530692. If you have any questions, comments or concerns about taking part in these self-observation activities, first talk to the researchers. If for any reason you do not wish to do this, or you still have concerns about doing so, you may contact Dr Charles Ibingira, Makerere University Faculty of Medicine Research and Ethical Committee at telephone number 0414-530020.

Giving verbal consent to take part in the self-observation activities:

You may keep this information sheet if you wish. Participation in these activities is voluntary. You have the right to decline to take part in the activities, or to withdraw from them at any point without penalty. If you do not wish to take part in the activities, you should inform the researcher now. If you do wish to take part in these activities, you should tell the researcher now, and the introduction session will begin shortly. If you do not agree to quotes or other results arising from your participation in the study being included, even anonymously, in any reports about the study, please tell the researcher now.



APPENDIX G: HEALTH WORKER SELF-OBSERVATION ACTIVITY #1: HOW DO YOU LISTEN?

Introduction

You have learned about the practice of self observation which will help you to develop awareness – to be able to “see” how you communicate with others.

When doing the self-observation activities, it is important to be *focused*. Try to look at one thing so you will be able to see the pattern in what you are doing. You will see what you are doing well and what you need to learn more about. If you look at too much at the same time, you will not see the patterns.

This week we will start with focusing on the communication skill of *listening*.

How do you listen to others and how do they react?

Think about how you listen to others every day. Do you

- Listen “with open ears and heart” until the person has finished?
- Listen “with your mouth full of words”, impatient to explain your view?
- Give your answer or your next question as the person is talking because you believe you know what he/she will say?
- Listen with the intention to really understand the other person’s point of view; ask questions to find out more, see the others’ point of view and then offer your own ideas?
- Do some of each, depending on the situation and your mood?

There are 3 Steps for this self-observation activity which you can complete over one week as follows:

- | | |
|--|----------|
| Step 1 –How do you listen? | 2-3 days |
| Step 2 – What are the consequences of listening? | 2-3 days |
| Step 3 – How do your moods affect how you listen? | 1-2 days |

Remember these tips for carrying out your observations:

- Carry this page of instructions in a notebook.
- When you plan your workday, plot in one or two times or situations when you know you will be interacting with patients or others, and plan to observe yourself.
- Before the consultation/meeting, read the instructions again to remind yourself what you are looking for.
- Try to be aware during the meeting or conversation how you behave regarding the habit you are observing.



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- After the meeting/event, reflect on what you have observed in your own behavior, and make a few notes in your notebook.

Step 1: How do you listen to others?

Here are two ways to help you look at *how you listen to others*.

Try each of the following over the first 2-3 days.

1 – After a consultation with a patient, take a few minutes to ask yourself:

- How did I listen?
- Did I get the patient's ideas right?
- Did I make the patient feel I was interested in her problem?
- Did I really listen – or was I too much in a hurry?

Make your notes in your notebook about what you learned about your listening.



2 – During a meeting with your colleague(s), pay attention to how you listen. After the meeting, take a few moments to ask yourself:

- How well did I listen?
- Did I show interest in the other people's ideas?
- How did I do this, and how did it work?
- If I listened well – what happened to the other person(s)?

Make your notes in your notebook about what you learned about your listening.

Continue to observe how you listen to others as often as possible. Can you start to see your pattern?



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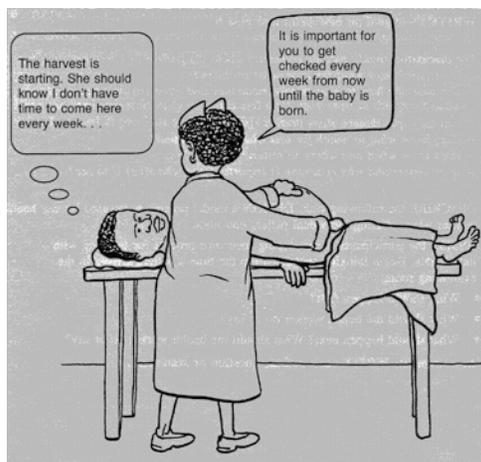


After 2-3 days, move on to Step 2.

Step 2: What are the consequences of listening?

Now start looking at **how your listening affects communication.**

Continue to observe how you listen to others using the instructions in Step 1.



While thinking about how you listen to others, also ask yourself:

- What happens to the other person when I listen well?
- What happens if I don't listen well?

Try looking at yourself during the patient consultation. Try to see when you use the different listening methods and what are the results. Look at what feelings your different listening methods seem to bring out in other people.

Reflect and make notes in your notebook about how your listening affects others.

After 2-3 more days, move to Step 3.



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Step 3: How do your moods affect how you listen?

Now start looking at how your different *moods affect the way you listen*.

Continue to observe how you listen to others. While thinking about how you listen, ask yourself:

- What happens to my listening habits when I am feeling fresh & well rested?
- What happens to your listening habits when I am overworked?
- What happens to my listening habits after I have just had a negative interaction with my in-charge?
- What happens to my listening habits when I have many patients to see?
- What happens to my listening habits when I am hungry? Sad/feeling down? Angry/irritated? Frustrated? Worried?
- What effect does the way I am listening and communicating have on my interaction exchange with the patient?



Reflect and make notes in your notebook about how your moods affect how you listen and the quality of your communication.

Discovering the pattern

Complete Steps 1-3 once or twice a day for a whole week and you will start to see a pattern of how you behave “automatically” when you listen. You will also discover what the effect is on others when you listen well, and not so well.



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Discussing with your colleagues

When you return to the next PCS training module, you will have the chance to discuss what you observed with your colleagues.

If you like, you can discuss with your colleagues before the next PCS training. You may want to see:

- How do your colleagues do their observations?
- What have you experienced and found out?

Use the tips on the next page for providing constructive feedback to your colleagues.



Guidelines for constructive dialogue with colleagues

When discussing your observations with your colleague, there are two things that can happen depending on how you choose to provide feedback:

Choice 1: Supporting you colleague's motivations and insights

Learning about yourself can be a sensitive issue. When discussing observations with colleagues, show respect and appreciation – then they will feel safe, and you will help them (and yourself) learn well.

How do you do this?

- Ask **open ended questions** to understand more about what colleagues have observed, and listen actively.
- Help him/her think about what they have observed and how they feel about it. What was the effect on the patient/colleague? What did the person get from the experience?
- Be **encouraging and appreciative** to help your colleague talk and share. Then you can share from your observations, and let him/her ask you questions. This gives a good basis for a discussion of how you can use what you have seen, to improve practice.

Choice 2: Turning off your colleague's motivation

Many things we may do automatically without a bad intent, may make your colleague shut up rather than share from her/his experience of doing observations.

Things to avoid:

- Try not to judge or devalue what your colleague has seen and felt, it will hurt, and your colleague might get angry – or close up. With good reason! The message he/she might get from you is: "I know better what this means than you do". You can imagine how this feels and how it affects your communication.
- Try to avoid commenting about your own observations when your colleague has just started to describe his/her own findings. Your focus is then on getting her/him to listen to YOU, rather than you listening to him/her. You also know how this feels. Watch what it does to the communication when you fall into this trap.

Be respectful, appreciative, curious, and generous with your listening!

This does not mean you have to agree with each other - it just means you agree to try to see the other person's point of view, from his/her perspective. This will help us all to learn well together.



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APPENDIX H.

HEALTH WORKER SELF-OBSERVATION ACTIVITY #2: HOW DO YOU ASK GOOD QUESTIONS?

Introduction

Last week you looked at how you listen in different situations. You saw how you act in certain moods and what happened to the communication you when you listened in different ways.

For example, when listening to others:

- Do you try to really listen to find out what **their** ideas are, or are you more concerned about getting the other person to listen to **your** opinion and ideas?
- Or do you do a bit of both?
- Do you decide when to do what, or does it happen automatically?

This week we will focus on the “the companion skill” to listening – asking questions.

These two skills – listening and asking – are what you use most in your work. If you practice these skills, it will make a difference to the quality of your work.

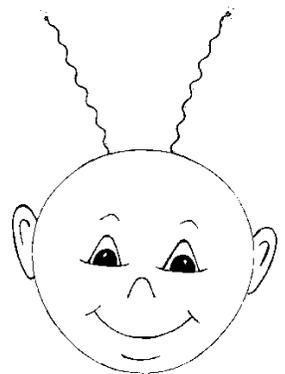
How do you ask questions?

There are 4 Steps for this self-observation activity which you can complete over this week as follows:

- | | |
|---|------------|
| Step 1 – How do you ask questions to colleagues? | 2 days |
| Step 2 – How do you ask questions to patients? | 2 days |
| Step 3 – Asking questions with awareness | } 2-3 days |
| Step 4 – Making a change | |

Remember these tips for carrying out your observations:

- Carry this page of instructions in a notebook.
- When you plan your workday, plot in one or two times or situations when you know you will be interacting with patients or others, and plan to observe yourself.
- Before the consultation/meeting, read the instructions again to remind yourself what you are looking for.
- Try to be aware during the meeting or conversation how you behave regarding the habit you are observing.
- After the meeting/event, reflect on what you have observed in your own behavior, and make a few notes in your notebook.



Keep your friend with you to help with your self-observations



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Step 1: How do you ask questions of *colleagues*?

Here are some ways to help you to see how you are asking questions to colleagues.

During a discussion with a colleague, pay attention to what happens when you ask questions.

Do you:

- Respond (automatically) to his/her statements with your own opinion?
- Ask questions to find out more about what the person is thinking?
- Ask questions that are open-ended and get more information from others?
- Ask closed questions that only have “yes” or “no” answers?

Make notes in your notebook about when you use the different ways of asking questions.

Continue to observe how you ask questions to colleagues as often as possible.

After a few discussions with colleagues, take a few moments to ask yourself:

- What are the ***results of asking questions in different ways?***
- How does it affect:
 - 1) my own feelings?
 - 2) the other persons’ feelings?

Make notes in your notebook about the affect of asking questions in different ways.



After 2 days, move on to Step 2.



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Step 2: How do you ask questions of patients?

Now try to look at how you ask questions to patients. Here are some ways to help you to see how you are asking questions of your colleagues.

During a patient consultation, pay attention to what happens when you ask questions. Do you:

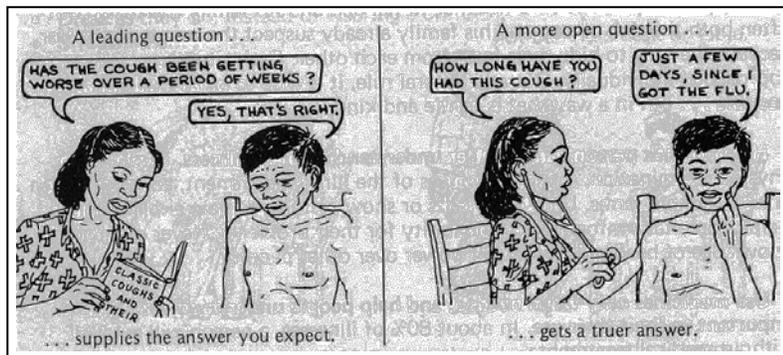
- Respond (automatically) to his/her statements with your own opinion?
- Ask questions to find out more about what the person is thinking?
- Ask questions that are open-ended and get more information from others?
- Ask closed questions that only have “yes” or “no” answers?

Continue to observe how you ask questions to patients as often as possible.

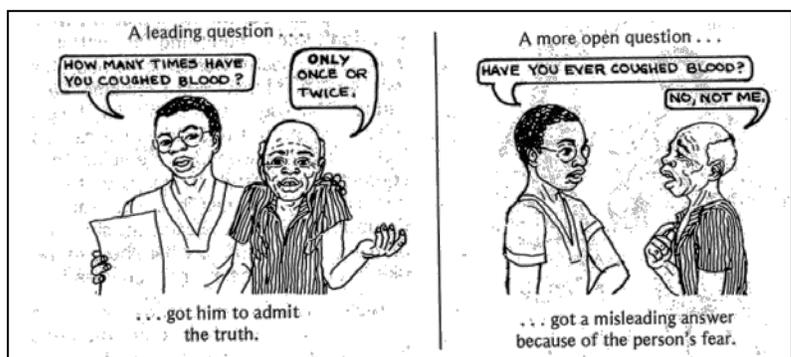
After a few patient consultations, take a few moments to ask yourself:

- What are the **results of asking questions in different ways?**
 - Which questions did I ask that helped the patient to open up and give me information freely?
 - Which questions did I ask that helped me to get a true picture of the patient’s situation, and helped me to make a good diagnosis?
 - What kinds of questions did I ask that seemed to force the patient to just agree with me?

Make notes in your notebook about the **effect** of asking questions in different ways.



After 2 days, move on to Step 3.





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Complete Steps 3 and 4 together over the next 2-3 days.

Step 3: Asking questions with awareness

Over the next few days, look at your notes from Steps 1 and 2 to understand more about how you ask questions.

Think about each discussion with colleagues or consultation with patients and ask yourself:

- Did I ask questions automatically, or did I decide with awareness which question to ask? Why?
- Did I look at how the colleague or patient felt before deciding what question to ask?
- Are there times I am more likely to ask closed questions that only invite a “yes” or “no” answer?
- What is the effect of my mood on how I ask questions?

Write down answers to these questions in your notebook.

Do you see a pattern in how you ask questions?

- Is there a way you are asking questions that seems to function well?
- Are there ways that do not give you information?

Step 4 – Making a change

Finally, make “a picture in your head” of how you want your patients to see you.

Try to behave in a way to achieve this.
Think about how you feel, when you do.

Think about how others respond to you.

Make notes in your notebook to share with your colleagues at the next PCS training module.





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APPENDIX I. HEALTH WORKER SELF-OBSERVATION ACTIVITY #3: WHAT HAPPENS WHEN YOU ARE STRESSED?

Introduction

Over the last two weeks you have looked at how you listen and how you ask good questions of colleagues and patients. You may also already have made some changes in the way you use these skills.

We hope that you are having fun learning about your communication style and discussing what you have learned with your colleagues. We laugh at our experiences in our PCS training modules, and it is good to laugh with your colleagues about your experiences at work. Humor can be very motivating. Just be sure that you are always ‘being constructive’ so that you are not hurting others and making them turn off, if you are being “funny”/sarcastic on their behalf!

If learning is only serious, some people lose interest. A mixture of serious insights and some fun and laughter will bring you the best results when learning new skills.

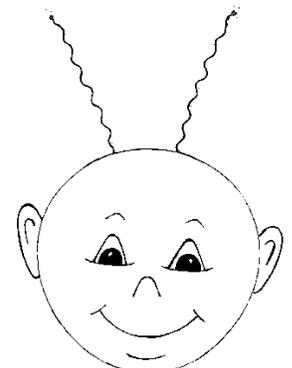
Stress and how it affects you

This week we will focus on how being stressed influences you and your communication with patients and colleagues. Humor is a good method to prevent stress!

Stress is normal and will continue to come into your life from time to time. Being a health worker can be very stressful at times and many people are very unhappy and even get sick from too much stress. Stress can lead to conflicts with colleagues and patients and can make a health worker make wrong decisions that affect patients. If the stress is not taken care of, it can contribute to burnout and a number of other problems.

There are 4 Steps for this self-observation activity which you can complete over this week as follows:

- Step 1** – What makes you stressed?
 - Step 2** – How do you communicate when you are stressed?
 - Step 3** – How does your stress affect others?
 - Step 4** – Your stress-reaction pattern
- } 2-3 days
1-2 days
1-2 days





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Complete Steps 1 and 2 together over the first 2-3 days.

Step 1: What makes you stressed?

On your first day of this self-observation activity, answer the following question in your notebook:

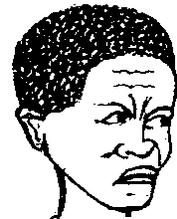
- What is stress?
- How do you know when you are stressed?
- What are the “symptoms” of stress?

Then for the first 2-3 days, pay attention to **what makes you stressed**.

When something happens that stresses you, make notes in your notebook:

- What was it that made you stressed?
- How did you react?
- Why did you react?

These can be issues related to your relationship with your colleagues or boss, with your patients, or with your daily duties. Or it can be a combination.



Step 2: How do you communicate when you are stressed?

After you have found out a few things that stress you, start to look at **how you communicate when you are stressed**.

Each time you feel stressed, take a minute to look at yourself and see if you:

- Listen well?
- Ask questions? What kind of questions do you ask?
- Take control/talk a lot?
- Tell people what to do?
- Seek assistance?
- What else do you do?

Make notes in your notebook about the **effect** of stress on how you communicate with others.

After 2-3 days, move on to Step 3.



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Step 3: How does your stress affect others?

After Steps 1 and 2, you should understand what makes you stressed and how you communicate when you are stressed.

Now try to look at the **effect of your stress on the reaction of the other person**. Each time you react to stress, take a minute to look at yourself and see if the other person:

- Gets defensive
- Starts arguing
- Goes quiet and pulls away
- “Attacks” you
- Tries to convince you not to be stressed
- Sees that you are stressed, listens to you, and offers to help
- What else does the other person do?

Make notes in your notebook about how stress affects how others react to you.

After 1-2 days, move on to Step 4

Step 4: Your stress-reaction pattern

After looking at yourself and how you react to stress, you may start to see your **“stress-reaction” pattern**. Your stress-reaction pattern also affects the reactions you get from the others.

Try to find your stress-reaction pattern.

Look through your notes and see:

- What have you done in each stress situation to reduce the stress or to solve the problem?
- Which strategies do you have that reduce your stress and the stress of patients and colleagues?
- Which reactions from others help you see and reduce your stress?



Make notes in your notebook to share with your colleagues at the next PCS training module.



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APPENDIX J.

HEALTH WORKER SELF-OBSERVATION ACTIVITY #4: HOW DO YOU INVITE THE PATIENT TO COOPERATE?

Introduction

All health workers probably sometimes experience patients as ‘difficult’ and at other times as very cooperative. This is normal – and it often has to do with how you feel and how well you cope with these feelings. Learning to recognize these feelings and take ‘a step back’ before you act, will help you maintain good relations with patients and colleagues, even if at first they seem ‘difficult’.

Health workers try to see each patient as a person. But, when you are feeling tired and overworked you may ‘stop seeing’ your patients as ‘Mrs Katanga’ or ‘Mr Kahane’, and just see them as ‘patients.’ This is when you need to take ‘a step back.’

Over the last three weeks, you have looked at how you listen, how you ask good questions, and how stress affects your communication with colleagues and patients. Maybe you have changed some of your methods to improve your communication. Many people say that the ‘instant feedback’ you get when you start listening with more attention, is so rewarding that they continue with the new habits. When they are being appreciated for their communication behavior, it feels good. ***It then becomes easier to treat the patient well.***



Cooperating with the patient

This week we will focus on putting together the communication skills you have learned over the last few weeks and practice them all with the patient. ***The goal is that that the patient will cooperate well with you and that you establish a good relationship which makes the patient satisfied, well informed about his disease and its treatment, and motivated to follow your advice.***

There are 4 Steps for this self-observation activity which you can complete over this week as follows:

- | | |
|---|----------|
| Step 1 – Using your communication skills | 2-3 days |
| Step 2 – Keeping your communication skills | 2-3 days |



Step 1: Using your communication skills

For the first 2-3 days, pay attention to *how you use the communication skills* you have learned during your PCS training and self-observation activities.

Each time a patient comes to the health centre, take a few minutes to see how you:

- Greet the patient, and make him/her feel comfortable
- Help the patient to find their way around the health centre: where to go and what to do
- Listen to him/her to find out the patient's thoughts and ideas about the disease
- Ask questions
- Give information, advice, and say what action patient should take
- Any other action you take

Make your notes in your notebook about what you do that seems to have a *positive effect* on your communication with the patient and on how the patient cooperates with you.

Make your notes in your notebook about what you do that seems to have a *negative effect*. Ask yourself if your problems could have something to do with the way you use non-verbal communication or use medical terms and jargon, or use of a language the person does not understand well, or – anything else?

After 2-3 days, move on to Step 2.

Step 2: Keeping your communication skills

For the rest of the week, look at your overall communication style and interaction with patients. Try to focus on the following three questions:

- 1 – Do you see a pattern in how you invite the patient to cooperate? What is the pattern? When do you need to take 'a step back'?
 - Make notes in your notebook of the actions you take to successfully invite the patient to cooperate.
- 2 – Do you have 'a picture in your head' of how you want your patients to see you? How do you behave to achieve this 'picture in your head'?
 - Make notes in your notebook of the successes and 'failures' of behaving in this way.
- 3 – How can you work with others to improve the patients' visits to the health centre?
 - Make notes about how you can work with other health centre staff and volunteers to make the patient feel more comfortable and willing to cooperate.

Make notes in your notebooks to discuss with your colleagues at the next PCS training module.



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SELF-OBSERVATION ACTIVITIES FOR THE FUTURE

Introduction

It is a good practice to continue with your self-observation activities and self-awareness building. It is important to always use your 'antennae', 'observer', or 'invisible friend' to help you maintain your self-awareness about how you interact with others.

Repeat the self-observation activity below once every several weeks to help you reflect on and maintain your good communication skills.

Activity: Reflect on your goal

Focus on your communication skills to a "whole". For a few days, reflect generally on your goal as a health worker, and about what kind of professional you want to be, and how you see yourself.

Look at your normal pattern when diagnosing and advising the patient and reflect on the following questions.

Do you sometimes find that you want to...

- Show the patient you are a good professional?
- Show him that you are the one who knows what the problem is, and what to do (rather than listen to his ideas about what is wrong)?
- Show him you have the power, and that he should respect you?
- Expect him to follow your advice, because you have the expertise (and regardless of how you act towards him)?
- Establish a dialogue and a common goal with the patient?

What effect or impact does it have, when you choose different options, on:

- Your communication with the patient
- The outcome of your interaction with the patient
- How you feel about yourself and the service you provided

Make notes in your notebooks and compare with your responses from previous self-observation activities.

Also try to discuss your successes and challenges with your colleagues. Your learning will be more effective if you discuss your observation and questions with your colleagues.

You may want to ask a colleague to observe you and give feedback on how you communicate. Remember to use the guideline on constructive dialogue from Self-Observation Activity #1.

APPENDIX K: CROSS-SECTIONAL SURVEY SCREENING FORM
PART 1: HOUSEHOLD & PARTICIPANT ID

Subcounty ID []	Village ID [] []	Compound number [] [] [] []	Household number [] []	Cluster number [] []
Screening Date [] [] [] / [] [] [] / [] [] [] day month year			Screening ID [] [] [] []	
Age [] [] [] / [] [] [] years months		If child is less than 1 year, complete months, otherwise leave blank		Gender [] 1 = Male 2 = Female

PART 2: SCREENING INTERVIEW with PARENTS/GUARDIANS

Selection criteria	Include	Exclude	
1. Appropriate age			
a. Under five (aged 0 to less than 5 years)	1 = Yes	2 = No	[]
b. Aged 5 to 15 years			
2. Willingness of parent(s)/guardian(s) to provide informed consent	1 = Yes	2 = No	[]
<i>If any answers are '2' from the EXCLUDE column, exclude from the study. If not, proceed to the next section.</i>			

PART 3: AVAILABILITY OF CHILD

	DATE APPROACHED:	Child available to participate in survey?		IF YES, go to Section 4. IF NO, GIVE REASON*	DATE TO RETURN:
1		Yes	No		
2		Yes	No		
3		Yes	No		
4		Yes	No		XXXXXXXXXXXXXXXXXXXX

* 1=Not Home, 2=Come back later, 3=Not interested, 4=Vacant, 77=Other (Please specify above)

PART 4: SCREENING INTERVIEW with CHILD

Selection criteria	Include	Exclude	
3. Able to locate child	1 = Yes	2 = No	[]
4. Willingness of child over 8 years to provide assent to participate	1 = Yes	2 = No	[]
<i>If any answers are '2' from the EXCLUDE column, exclude from the study. If not, proceed to the next section.</i>			

ASSIGN STUDY NUMBER	[] [] [] []
----------------------------	-----------------

All criteria for study inclusion met? 1 = Yes 2 = No <i>If no, exclude from the study</i> []	Date of enrollment (date of survey) [] [] [] / [] [] [] / [] [] [] day month year
--	---

Staff ID: [] []

Data entrant (1st): [] []

Data entrant (2nd): [] []



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- a) We will ask the primary caregiver some questions about him/herself, use of bednets to prevent malaria, and practices for treatment of fever in children.
- b) We will ask all women of child-bearing age living in your household some questions about their children.
- c) We will collect information on your child's general health.
- d) We will briefly examine your child.
- e) A blood sample will be taken from your child's finger to examine for malaria parasites and to measure blood counts.
- f) If your child has had a fever in the last 48 hours (2 days) or has a high temperature, we will do a rapid diagnostic test for malaria.
- g) If your child has a positive test for malaria, we will provide treatment with artemether-lumefantrine (including Coartem or Lumatem), which is the recommended treatment for simple malaria in Uganda.
- h) If your child has a negative test for malaria, has a low blood count, or has signs of severe malaria or another significant illness, we will refer you and your child to an appropriate health center or hospital for further care.
- i) The data we collect will be used by project investigators and may be shared with other researchers and policy-makers to answer questions about how best to deliver health services.

How long will these activities last?

Today the survey activities, including questions, examination, and blood tests will take about 1 hour.

Can I stop my child from being in the survey?

You can decide to stop participating at any time. Just tell our study personnel right away if you wish to stop the activities.

What risks can I expect if my child participates in the survey?

We will obtain one blood sample by fingerprick from your child. The risks of drawing blood from a fingerprick include temporary discomfort from the needle stick, bruising, and skin infection. The amount of blood removed will be too small to affect your child's health.

Participation in any research study may involve a loss of privacy. Information you provide will be recorded, but your name, and your child's name, will not be used in any reports of the information provided. The information obtained from these survey activities will be locked at our project offices. We will do our best to make sure that any personal information is kept private.



Are there benefits to letting my child take part in the survey?

Through the intervention, we aim to improve the health of children in this area by improving services at the health centers. There will be no direct benefit to you from participating in this study. However, the information that we gather in this survey will help researchers and policy-makers understand how best to improve health services in this area.

What other choices do I have if I do not allow my child to take part in the survey?

You are free to choose not to participate in the survey. If you decide not to take part, there will be no penalty to you.

What are the costs of taking part in the survey? Will I be paid for letting my child take part in the survey?

You and your child will not be charged for any of the treatments or procedures we perform today. However, if we refer your child for further evaluation and health care, you will be responsible for all costs for your child's health care. You and your child will not be paid for participation in the survey.

What are my rights if I allow my child to take part in the survey?

Taking part in this survey is your choice. You may choose either to take part or not to take part. If you decide to take part in this survey, you may change your mind at any time. If you decide to withdraw your child from the survey; your child will still be eligible for care at the local health facility and at Tororo District Hospital and at other local clinics. No matter what decision you take, there will be no penalty to you in any way.

What if my child is injured as result of being in this survey?

If your child is injured, or if you have questions about injuries as a result of being in the survey, please contact Dr. Sarah Staedke or other members of the Uganda Malaria Surveillance Project / Infectious Disease Research Collaboration on telephone number 0414-530692. The sponsoring organizations do not have a program to cover your costs if your child is hurt or has other bad results.

Who can answer my questions about the survey?

You can talk to the researchers about any questions or concerns you have about these survey activities. Contact Dr. Sarah Staedke or other members of the Uganda Malaria Surveillance Project / Infectious Disease Research Collaboration on telephone number 0414-530692. If you have any questions, comments or concerns about taking part in these activities, first talk to the researchers. If for any reason you do not wish to do this, or you still have concerns about doing so, you may contact Professor James Tumwine, Makerere University School of Medicine Research and Ethical Committee at telephone number 0414-530020.



WHAT YOUR SIGNATURE OR THUMBPRINT MEANS

Your signature or thumbprint below means that you understand the information given to you in this consent form about your child's participation in the survey and agree with the following statements:

1. "I have read the consent form concerning this survey (or have understood the verbal explanation of the consent form) and I understand what will be required of me and what will happen to me and my child if we take part in it."
2. "My questions concerning this survey have been answered by Dr. Staedke or the person who signed below."
3. "I understand that at any time, I may withdraw my child from this survey without giving a reason and without affecting my child's normal health care and management."
4. "I agree that the child under my care will take part in this survey."

If you wish your child to participate in this survey, you should sign or place your thumbprint below.



WE WILL GIVE YOU A COPY OF THIS SIGNED AND DATED CONSENT FORM

Name of Participant (printed)

Name of Parent/Guardian

Signature or Fingerprint * of Parent/Guardian

Date/Time

Name of Investigator Administering Consent (printed)

Position/Title

Signature of Investigator Administering Consent

Date/Time

*If the parent or guardian is unable to read and/or write, an impartial witness should be present during the informed consent discussion. After the written informed consent form is read and explained to the participant and parent or guardian, and after they have orally consented to their child’s participation in the trial, and have either signed the consent form or provided their fingerprint, the witness should sign and personally date the consent form. By signing the consent form, the witness attests that the information in the consent form and any other written information was accurately explained to, and apparently understood by the parent or guardian, and that informed consent was freely given by the patient and parent or guardian.

Name of Person Witnessing Consent (printed)

Signature of Person Witnessing Consent

Date/Time



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[][]

Cluster number

[][]-[][][][]-[][][][][][]-[][][]

Household ID

[][][][][]

CSS Study ID

APPENDIX M. CROSS-SECTIONAL SURVEY Informed consent for future use of biological specimens

Protocol Title:	ACT PRIME Study: Evaluating the impact of enhanced health facility-based care for malaria and febrile illnesses in children
Site of Research:	Tororo, Uganda
Principal Investigators:	Dr. Sarah Staedke
Date:	23 December 2010

INTRODUCTION

While your child is in this study, there may be blood samples taken from them that may be useful for future research. These samples will be stored long-term at Makerere University Medical School and the London School of Hygiene and Tropical Medicine, and the University of California, San Francisco. Samples may also be shared with investigators at other institutions.

WHAT SAMPLES WILL BE USED FOR

Your child's blood and the malaria parasites in it will be used to study malaria and the response of this disease to treatment. Results of these studies will not affect your child's care.

1. These samples will be used for future research to learn more about malaria and other diseases.
2. Your child's samples will be used only for research and will not be sold or used for the production of commercial products.
3. Genetic research may be performed on samples. However, no genetic information obtained from this research will be placed in your child's medical records. These samples will be identified only by codes so that they cannot be readily identified with your child.

LEVEL OF IDENTIFICATION

Your child's samples will be coded so that your child's name cannot be readily identified. Reports about research done with your child's samples will not be put in their medical record and will be kept confidential to the best of our ability. In the future, researchers studying your child's samples may need to know more about your child, such as their age, gender, and race. If this information is already available because of your child's participation in a study, it may be provided to the researcher. Your child's name or anything that might identify them personally will not be provided. You will not be asked to provide additional consent.



RISKS

There are few risks to your child from future use of their samples. A potential risk might be the release of information from your child's health or study records. Reports about research done with your child's samples will not be put in their health record, but will be kept with the study records. The study records will be kept confidential as far as possible.

BENEFITS

There will be no direct benefit to your child. From studying your child's samples we may learn more about malaria or other diseases: how to prevent them, how to treat them, how to cure them.

RESEARCH RESULTS/MEDICAL RECORDS

1. Results from future research using your child's samples may be presented in publications and meetings but patient names will not be identified.
2. Reports from future research done with your child's samples will not be given to you or your child's doctor. These reports will not be put in your child's medical record.

QUESTIONS

If you have any questions, comments or concerns about the future use of your child's specimens, first talk to the researchers. You may also Contact Dr. Sarah Staedke or other members of the Uganda Malaria Surveillance Project on telephone number 0414-530692. If for any reason you do not wish to do this, or you still have concerns about the future use of your child's specimens, you may contact Dr Charles Ibingira, Makerere University Faculty of Medicine Research and Ethical Committee at telephone number 0414-530020.

FREEDOM TO REFUSE

You can change your mind at any time about allowing your child's samples to be used for future research. If you do, contact Dr. Staedke or other members of the Uganda Malaria Surveillance Project at the numbers listed above. Then your child's samples will no longer be made available for research and will be destroyed. Whether or not you allow us to use your child's samples in future research will not have any effect on your child's participation in this study or future participation in other studies.

WHAT YOUR SIGNATURE OR THUMBPRINT MEANS

Your signature or thumbprint below means that you understand the information given to you in this consent form about your child's specimens to be used for future research. If you wish to allow your child's specimens to be used for future research, you should sign or place your thumbprint below.



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WE WILL GIVE YOU A COPY OF THIS SIGNED AND DATED CONSENT FORM

Name of Participant (printed)

Name of Parent/Guardian

Signature or Fingerprint * of Parent/Guardian

Date/Time

Name of Investigator Administering Consent (printed)

Position/Title

Signature of Investigator Administering Consent

Date/Time

*If the parent or guardian is unable to read and/or write, an impartial witness should be present during the informed consent discussion. After the written informed consent form is read and explained to the participant and parent or guardian, and after they have orally consented to their child’s participation in the trial, and have either signed the consent form or provided their fingerprint, the witness should sign and personally date the consent form. By signing the consent form, the witness attests that the information in the consent form and any other written information was accurately explained to, and apparently understood by the parent or guardian, and that informed consent was freely given by the patient and parent or guardian.

Name of Person Witnessing Consent (printed)

Signature of Person Witnessing Consent

Date/Time



What will happen if I take part in this research?

If you agree to take part in this research, the following will happen today:

- a) We will ask your primary caregiver some questions about him/herself, use of bednets to prevent malaria, and practices for treatment of fever in children.
- b) We will ask all women of child-bearing age living in your household some questions about their children.
- c) We will collect information on your general health.
- d) We will briefly examine you.
- e) A blood sample will be taken from your finger to examine for malaria parasites and to measure blood counts.
- f) If you have had a fever in the last 48 hours (2 days) or have a high temperature, we will do a rapid diagnostic test for malaria.
- g) If you have a positive test for malaria, we will provide treatment with artemether-lumefantrine (including Coartem or Lumatem), which is the recommended treatment for simple malaria in Uganda.
- h) If you have a negative test for malaria, have a low blood count, or have signs of severe malaria or another significant illness, we will refer you to an appropriate health center or hospital for further care.
- i) The data we collect will be used by project investigators and may be shared with other researchers and policy-makers to answer questions about how best to deliver health services.

How long will these research activities last?

Today the research activities, including questions, examination, and blood tests will take about 1 hour.

Can I stop being in the research?

You can decide to stop taking part in the research at any time. Just tell our study personnel right away if you wish to stop the activities.

What risks can I expect if I participate in the research?

We will obtain one blood sample by fingerprick from you. The risks of drawing blood from a finger prick include feeling pain, but it will stop quickly. You may also get a small wound from the needle stick. The amount of blood removed will be too small to affect your health.



Participation in any research study means sometimes we may ask you questions that make you feel uncomfortable but we shall make sure this does not happen many times. Information you provide will be recorded, but your parent's/guardian's name, and your name, will not be used in any reports of the information provided. The information obtained from these research activities will be locked at our project offices. We will do our best to make sure that anything you tell us and your records are kept private.

What will you gain from this research?

Through the research, we aim to improve the health of children in this area by improving the health care given at the health centers. There will be no direct benefit to you from taking part in this study. However, the information that we gather in this research will help researchers and policy-makers understand how best to improve health services in this area.

What other choices do I have if I do not allow to take part in the research?

You are free to choose not to take part in the research. If you decide not to take part, there will be no punishment to you.

What are the costs of taking part in the research? Will I or my parents/guardians be paid if I take part in the research?

You and your parent's/guardians will not pay for any of the treatments or procedures we perform today. However, if we refer you for further check up and health care, your parent's/guardians will have to pay for all costs for your health care. You and your parent's/guardians will not be paid for taking part in the research.

What are my rights if I allow to take part in the research?

Taking part in this research is your choice. You may choose either to take part or not to take part. If you decide to take part in this research, you may change your mind at any time. If you decide to stop being in the research ; you will still be able to get care at the local health facility and at Tororo District Hospital and at other local clinics. No matter what decision you take, there will be no punishment to you in any way.

What if I am injured as result of being in this research?

If you are injured, or if you have questions about injuries as a result of being in the research, please call Dr. Sarah Staedke or other members of the Uganda Malaria Surveillance Project / Infectious Disease Research Collaboration on telephone number 0414-530692. The sponsoring organizations do not have a program to cover your costs if you are hurt or have other bad results.



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Who can answer my questions about the research?

You can talk to the researchers about any questions or concerns you have about these survey activities. Contact Dr. Sarah Staedke or other members of the Uganda Malaria Surveillance Project / Infectious Disease Research Collaboration on telephone number 0414-530692. If you have any questions, comments or concerns about taking part in these activities, first talk to the researchers. If for any reason you do not wish to do this, or you still have concerns about doing so, you may contact Professor James Tumwine, Makerere University School of Medicine Research and Ethical Committee at telephone number 0414-530020.



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WHAT YOUR SIGNATURE OR THUMBPRINT MEANS

Your signature or thumbprint below means that you understand the information given to you in this assent form about your taking part in the research and you agree with the following statements:

- I am being asked to decide if I want to be in this research study.
- I know that I will have to see the survey field workers today.
- The field workers will talk to me, ask me questions, and examine me.
- I know I will have a few drops of blood drawn from my finger today.
- I asked and got answers to my questions. I know that I can ask questions about this survey at any time.
- I know that I can stop being in this survey at any time without anyone being mad at me.

Mark one box with **X**:

I DO CONSENT:

I hereby agree to take part in this survey

I DO NOT CONSENT:

I do not wish to take part in this survey

Name of child:	
Signature or fingerprint of child:	Date:

Witness: I hereby confirm that the study has been explained to the child. All questions (if any) have also been answered to his/her satisfaction, and he/she has, of his own free will, consented to take part in the survey.

Name of witness:	
Signature of witness:	Date:

Name of person explaining study:	
Signature:	Date:

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
Appendix O: Part 1 - Household Survey						
Household Unique Identification- this information is unique for each household on recruitment list, to be programmed as a primary key (to avoid duplicates)						
VISDATE	Date of visit	Date				
STARTIME	Start time of interview	String (HH:SS)				automatically generated
CLUSTER	Cluster number	Numeric		1 - 20		data is recorded twice to ensure data integrity
HHID	Household ID	Numeric		101000101 - 799999999		
STAFFID	Staff ID	Numeric		1 - 99		
NUMCHLDN	Number of children in household	Numeric		1 - 6		
STUDYID1	Study ID for child 1	Numeric		1001 - 1999		data is recorded twice to ensure data integrity
...		
STUDYID6	Study ID for child 1	Numeric		1001 - 1999		
AGREE	Are you going to conduct the interview with this household?	Numeric	1-Yes, 2-No	1, 2		
Section 1: Head of household's (Respondent's) Background						
HHEAD	Are you the head of the household?	numeric	1-Yes, 2-No	1, 2		
HHAGEYRS	How old are you?	Numeric	888 - Don't know 999 - Refused to answer	10 - 120, 888, 999		
HHGEND	Gender for head of household	Numeric	1- Male, 2-Female	1, 2		
HHSCHOOL	Have you ever attended school?	Numeric	1 - Yes 2 - No 99 - Refused to answer	1, 2, 3	if <> 1 then skip to HHJOBTRN	
HHHIGHEST	What is the highest level of school you attended?	Numeric	0 - None 1 - Primary (P1-P4) 2 - Primary (P5-P7) 3 - Secondary (S1-S4) 4 - Secondary(S5-S6) 10 - Certificate/Diploma 11 - University 88 - Don't know 99 - Refused to answer	0 - 11, 77, 88, 99		
HHJOBTRN	Have you completed any other type of job training school?	Numeric	1 - Yes 2 - No 99 - Refused to answer	1, 2, 99	if 1 is not head of household, skip HHEAD	
HHREAD	"Now I would like you to read a sentence. In what language do you read?" SELECT AND SHOW THE APPROPRIATE LITERACY CARD TO CAREGIVER. LISTEN AND GRADE THE READING EFFORT. *If cannot read skip to question #17	Numeric	1 - Cannot read at all* 2 - Can read only parts of the sentence 3 - Able to read the whole sentence 4 - No card with required language 99 - Refused to answer	1, 2, 3, 4, 99	if 1, skip to HHRADIO	

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
HHNEWSPR	Do you read a newspaper or magazine almost every day, at least once a week, less than once a week or not at all?	Numeric	1 - Almost every day 2 - At least once a week 3 - At least once a month 4 - Not at all 5 - Cannot read 99 - Refused to answer	1,2,3,4,5,99		
HHRADIO	Do you listen to the radio almost every day, at least once week, less than once a week or not at all?	Numeric	1 - Almost every day 2 - At least once a week 3 - At least once a month 4 - Not at all 99 - Refused to answer	1,2,3,4,99		
HHTV	Do you watch television almost every day, at least once a week, less than once a week or not at all?	Numeric	1 - Almost every day 2 - At least once a week 3 - At least once a month 4 - Not at all 99 - Refused to answer	1,2,3,4,99		
HHJOB	What is the main activity or job you do to provide your family with income OR "If you do not have regular employment, what other things do you do to help provide your family with income?"	Numeric	1 - Peasant farmer 2 - Student 3 - Military/police/security 4 - Market vendor 5 - Selling goods/shopkeeper/businessman 6 - Transport: Taxi, Bodaboda, bicycle rider 7 - Selling food stuffs (catering/food vendor) 8 - Construction worker/Casual labor 77 - Other _____	1,2,3,4,5,6,7,8,77	if <> 77, skip to HHWORK12	
OHHJOB	Specify other main activity or Job	string				
HHWORK12	Have you done any work in the last 12 months?	Numeric	1 - Yes 2 - No 99 - Refused to answer	1,2,99	if <> 1, SKIP to HHWORKJOB	
HHPAID	Are (were) you paid in cash or kind for this work or are (were) you not paid at all? IF PAID, ASK WHETHER CASH, IN-KIND, OR BOTH.	Numeric	1 - Cash only 2 - Cash and kind 3 - In-kind only 4 - Not paid 99 - Refused to answer	1,2,3,4,99		
HHWORKJOB	if you have NOT done any work in the last 12 months, what have you been doing for most of the time during this period?	Numeric	1 - going to school/studying 2 - looking for work 3 - retired 4 - too ill to work 5 - handicapped, cannot work 6 - housework/child care 7 - Peasant farmer 77 - other 99 - Refused to answer	1,2,3,4,5,6,7,77,99	if = 77, specify other	
HHWORKOT	Specify other non-work activity	String				

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
RESIDENT	How many people usually live in your household (total number including children)?	Numeric		1-32		
WOMENCBA	How many women of child-bearing age (13-49 years) live in your household ?	Numeric		0 - 20		Refer to women that have lived in this HH for at least 6 months
INFOHEAD	Who is providing information for the Head of the household?	Numeric	1- Head of household 2- Primary caregive 3- Other available adult	1,2,3		
Section 2: Primary Caregiver Background						
GIVER	Are you the Primary care giver of this household?	Numeric	1-Yes, 2-No	1,2	if yes, and is head of household,	
PCAGEYRS	How old are you?	Numeric	888- Don't know 999 - Refused to answer	10 - 120, 888, 999	- if < 13 or > 49, skip to section 6. - if refuse to answer, skip to section 6	
PCSCHOOL	Have you ever attended school?	Numeric	1 - Yes 2 - No 99 - Refused to answer	1,2,99	if Not 1 then skip to PCJOBTRN	
PCHIGHEST	What is the highest level of school you attended?	Numeric	1 - Primary (P1-P4) 2 - Primary (P5-P7) 3 - Secondary (S1-S4) 4 - Secondary(S5-S6) 10 - Certificate/Diploma 11 - University 88 - Don't know 99 - Refused to answer	1,2,3,4,10,11,88,99		
PCJOBTRN	Have you completed any other type of job training school?	Numeric	1 - Yes 2 - No 9 - Refused to answer	as per variable codes		
PCREAD	"Now I would like you to read a sentence. In what language do you read?" SELECT AND SHOW THE APPROPRIATE LITERACY CARD TO CAREGIVER. LISTEN AND GRADE THE READING EFFORT. *If cannot read skip to question #17	Numeric	1 - Cannot read at all* 2 - Can read only parts of the sentence 3 - Able to read the whole sentence 4 - No card with required language (specify language) _____ 99 - Refused to answer	as per variable codes	if equal to 1, skip to PCRADIO IF 77, specify other	
PCNEWSPR	Do you read a newspaper or magazine almost every day, at least once a week, less than once a week or not at all?	Numeric	1 - Almost every day 2 - At least once a week 3 - At least once a month 4 - Not at all 8 - Cannot read 99 - Refused to answer	as per variable codes		
PCRADIO	Do you listen to the radio almost every day, at least once week, less than once a week or not at all?	Numeric	1 - Almost every day 2 - At least once a week 3 - Less than once a week 4 - Not at all 99 - Refused to answer	as per variable codes		

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
PCTV	Do you watch television almost every day, at least once a week, less than once a week or not at all?	Numeric	1 - Almost every day 2 - At least once a week 3 - At least once a month 4 - Not at all 99 - Refused to answer	as per variable codes		
PCJOB	What is your occupation, that is, what kind of work do you mainly do? INTERVIEWER: PROBE TO OBTAIN DETAILED INFORMATION ON THE KIND OF WORK RESPONDENT DOES.	Numeric	1 - Peasant farmer 2 - Student 3 - Military/police/security 4 - Construction worker/casual labourer 5 - Housekeeper 6 - Selling goods/shopkeeper/businessman 7 - Selling food stuffs (catering/food vendor) 8 - Taxi, bodaboda or bicycle rider 9 - Mechanic 10 - Government/clerical/secretarial work. 11 - Health worker 12 - Teacher 13 - None/unemployed 77 - Other _____ 99 - Refused to answer	as per variable codes		
OPCJOB	Specify other main activity or Job	String				
PCWORK12	Have you done any work in the last 12 months to earn you an income?	Numeric	1 - Yes 2 - No 9 - Refused to answer	as per variable codes		if Not equal to 1 , skip to PCWORKJB
PCPAID	Are (were) you paid in cash or kind for this work or are (were) you not paid at all? IF PAID, ASK WHETHER CASH, IN-KIND, OR BOTH.	Numeric	1 - Cash only 2 - Cash and kind 3 - In-kind only 4 - Not paid 99 - Refused to answer	as per variable codes		If answered, skip to Section 3
PCWORKJB	if you have NOT done any work in the last 12 months,what have you been doing for most of the time during this period?	Numeric	1 - going to school/studying 2 - looking for work 3 - retired 4 - too ill to work 5 - handicapped, cannot work 6 - housework/child care 77 - other 97 - Not applicable	as per variable codes		if = 77, specify other
PCWORKOT	Specify other non-work activity	String				
Section 3: Household Characteristics (Wealth Indicators)						

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
SWATER	What is the main source of drinking water for members of your household?	Numeric	10 - borehole 11 - pipe into dwelling 12 - piped into yard/compound 13 - public tap 21 - open well in yard/compound 22 - open public well 31 - protected well in yard/compound 32 - protected public well 41 - protected spring 42 - unprotected spring 51 - Surface water(river,stream,lake,dam) 61 - Rain water 62 - Water from tanker truck 63 - Water from vendor 64 - Bottled water 77 - other 99 - Refused to answer	as per variable codes	if = 77 then specify Other	
OTHERSCS	Specify other source of water	String				
TFACLT	What kind of toilet facility do members of your household usually use?	Numeric	1 - flush toilet 2 - vip latrine 3 - covered pit latrine no slab 4 - covered pit latrine w/slab 5 - uncovered pit latrine no slab 6 - uncovered pit latrine w/slab 7 - composting toilet 8 - no facility/bush/field 77 - other 88 - Dont know 99 - Refused to answer	as per variable codes	if = 77 then specify Other	
OTHERFCY	Specify other kind of toilet facilities	String				
ELECTIRC	Does your household have... ...Electricity?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	as per variable codes		
RADIO	...Radio?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	as per variable codes		
TV	...Television?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	as per variable codes		
MOBILE	...Mobile phone?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	as per variable codes		

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
FRIDGE	...Refrigerator?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	as per variable codes		
SOFA	...Sofa set?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	as per variable codes		
BED	...Bed?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	as per variable codes		
CLOCK	...Clock?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	as per variable codes		
FUELTYPE	What type of fuel does your household mainly use for cooking?	Numeric	1 - electricity 2 - lpg/natural gas 3 - biogas 4 - paraffin/kerosene 5 - charcoal 6 - firewood 7 - starw/shrubs/grass 8 - animal dung 95 - no food cooked in household 77 - other 99 - Refused to answer	as per variable codes	if = 77 then specify Other	
OTHERFUE	Specify other type of fuel used	String				
SENERGY	What do you use for lighting energy in this household?	Numeric	1 - electricity 2 - solar 3 - gas 4 - paraffin - hurricane lamp 5 - paraffin - pressure lamp 6 - paraffin - wick lamp 7 - firewood 8 - candles 77 - other 99 - Refused to answer/skipped	as per variable codes	if = 96 then specify Other	
OTHERENG	Specify other source of energy for lighting	String				
MMFLOOR	MAIN MATERIAL OF THE FLOOR RECORD OBSERVATION. MARK ONLY ONE.	Numeric	11 - earth/sand 12 - earth and dung 31 - parquet or polished wood 33 - mosaic or tiles 34 - bricks 35 - cement 36 - stones 77 - other	as per variable codes	if = 77 then specify Other	
OTHERMMF	Specify other material of the floor	String				

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
MMROOF	<p>MAIN MATERIAL OF THE ROOF.</p> <p>RECORD OBSERVATION.</p> <p>MARK ONLY ONE.</p>	Numeric	<p>11-thatched</p> <p>12-mud</p> <p>21-wood/planks</p> <p>22-iron sheets</p> <p>23-asbestos</p> <p>24-tiles</p> <p>25-tin</p> <p>26-cement</p> <p>77-other</p> <p>99 - Refused to answer</p>	as per variable codes	if = 77 then specify Other	
OTHERMMR	Specify other material of the roof	String				
MMEWALLS	<p>MAIN MATERIAL OF THE EXTERIOR WALLS.</p> <p>RECORD OBSERVATION.</p> <p>MARK ONLY ONE.</p>	Numeric	<p>11 - thatched/straw</p> <p>21 - mud and poles</p> <p>22 - un-burnt bricks</p> <p>23 - un-burnt bricks with plaster</p> <p>24 - burnt bricks with mud</p> <p>31 - cement blocks</p> <p>32 - stone</p> <p>33 - timber</p> <p>34 - burnt bricks with cement</p> <p>77 - other</p> <p>99 - Refused to answer</p>	as per variable codes	if = 77 then specify Other	
OTHERMME	Specify other material of the exterior walls	String				
HHROOMS	<p>How many rooms in your household are used for sleeping?</p> <p>(INCLUDING ROOMS OUTSIDE THE MAIN DWELLING)</p> <p>If there are 15 or more rooms, enter 15</p>	Numeric	<p>88 - Don't know</p> <p>99 - Refused to answer</p>	1 - 15,98,99		
WATCH	<p>Does any member of your household own or have...</p> <p>...A watch?</p>	Numeric	<p>1 - Yes</p> <p>2 - No</p> <p>88 - Don't know</p> <p>99 - Refused to answer</p>	as per variable codes		
BICYCLE	...A bicycle?	Numeric	<p>1 - Yes</p> <p>2 - No</p> <p>88 - Don't know</p> <p>99 - Refused to answer</p>	as per variable codes		
SCOOTER	...A motorcycle or motor scooter?	Numeric	<p>1 - Yes</p> <p>2 - No</p> <p>88 - Don't know</p> <p>99 - Refused to answer</p>	as per variable codes		
CART	...An animal-drawn cart?	Numeric	<p>1 - Yes</p> <p>2 - No</p> <p>88 - Don't know</p> <p>99 - Refused to answer</p>	as per variable codes		

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
CAR	...A car or truck?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	as per variable codes		
BANKACCO	...A bank account?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	as per variable codes		
CATTLE	How many Cattle does this household own? If none, enter 00 If more than 95, enter 95	Numeric	888 - Don't know 999 - Refused to answer	0 - 95, 888,999		
GOATS	How many Goats does this household own? If none, enter 00 If more than 95, enter 95 If unknown, enter 98	Numeric	888 - Don't know 999 - Refused to answer	0 - 95, 888,999		
SHEEP	How many Sheep does this household own? If none, enter 00 If more than 95, enter 95 If unknown, enter 98	Numeric	88 - Don't know 99 - Refused to answer	0 - 95, 888,999		
PIGS	How many Pigs does this household own? If none, enter 00 If more than 95, enter 95 If unknown, enter 98	Numeric	888 - Don't know 999 - Refused to answer	0 - 95, 888,999		
CHICKEN	How many chickens does this household own? If none, enter 00 If more than 95, enter 95 If unknown, enter 98	Numeric	888 - Don't know 999 - Refused to answer	0 - 95, 888,999		
HHPSF	How often in the last year did you have problems in satisfying the food needs of the household?	Numeric	1 - never 2 - seldom 3 - sometimes 4 - often 5 - always 88 - Don't know 99 - Refused to answer	as per variable codes		
DHFCTY	How far is it to the nearest health facility? If less than 1 km, enter 00 If more than 95 km, enter 95 If Don't know, enter 98	Numeric	888 - Don't know 999 - Refused to answer	0 - 95, 888,999		

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
MTHFACTY	If you were to go this facility, how would you <u>most likely</u> go there?	Numeric	1 - car/motorcycle 2 - public transport(bus,taxi) 3 - animal/animal cart 4 - walking 5 - bicycle 77 - other 88 - Don't know 99 - Refused to answer	as per variable codes	if = 77 then specify Other	
OTHERMTH	Specify other means of transport to the health facility	String				
Section 4: Bednets - All questions in this section will be repeated for each mosquito net in the household (hhnumnet)						
HAMNETS	Does this household have any mosquito nets ?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	as per variable codes	if NOT 1, skip to SECTION 5	
HNUMNETS	How many mosquito nets does your household have? IF MORE THAN 12, ENTER 13	Numeric	88 - Don't know 99 - Refused to answer	1 - 13, 88, 99		List all nets
OBS1	NET #1: May I have a look at the net to establish the status? OBSERVE THE NET	Numeric	1 - Observed and intact 2 - Observed and has visible holes 3 - Not a net 4 - Not observed	As per variable codes		
BRAND1	OBSERVE OR ASK THE BRAND OR TYPE OF MOSQUITO NET.	Numeric	1 - Long lasting net (Permanet, Duranet, Interceptor, Netprotect, Olyset) 2 - Factory net with insecticide kit (KO- net, Kooper net, Iconet, Safi net) 3 - Factory net with no insecticide (B52, bamboo hut, century, lucky net, victoria) 4 - homemade net 77 - other 88 - Don't know brand 99 - Refused to answer	as per variable codes	if = 1 then skip to SLPNET1 if = 2, 3,4,77, 88 then GO to next question	
OTHERB1	NET #1: Specify other brands or types of mosquito net	string				
MNTHS1	NET #1: How many months ago did your household obtain the mosquito net? IF LESS THAN ONE MONTH, WRITE '0'. IF MORE THAN 36 MONTHS AGO RECORD 95 IF NOT SURE RECORD 888	Numeric	888 - Don't know 95 - More than 36 months 998 - Refused to answer	0-36,95, 888, 999		

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
WHERE1	NET #1: Where did you get the mosquito net from?		1 - Gov't hospital 2 - Gov't health center 3 - Private hospital/clinic 4 - Private pharmacy 5 - Shop 6 - Open market 7 - Hawker 8 - Project/ngo 9 - Campaign/VHT 10 - Church 11 - Gov't distributed 77 - Other 88 - Don't know 99 - Refused to answer	as per variable codes	if = 77 then specify other	
WHERE1OT	NET #1: Specify other source of mosquito net	string				
SMNET1	NET #1: Since you got the mosquito net, was it ever soaked or dipped in a liquid to repel mosquitoes or bugs?	Numeric	1 - Yes 2 - No 77 - Other 88 - Don't know	as per variable codes	if <> 1 then skip to SLPNET1	
TSMNET1	NET #1: How many months ago was the net last soaked or dipped? IF LESS THAN 1 MONTH, RECORD '0'. IF 25 OR MORE MONTHS AGO, RECORD 95 IF NOT SURE, RECORD 98	Numeric	1 - < 6 months 2 - 6 to 25 months 3 - Never 95 - More than 25 months ago 888 - Don't know 999 - Refused to answer	as per variable codes		
SLPNET1	NET #1: Did anyone sleep under this mosquito net last night?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	as per variable codes	if = 1 then skip to NEXT net	
NUSED1	NET #1: What are some of the reasons why this net was not used? PROBE FOR THE MAIN REASON. SELECT ONLY ONE.	Numeric	1 - Too hot 2 - Don't like smell 3 - No mosquitoes 4 - Net too old/too many holes 5 - Net not hang 6 - Don't want to hang 7 - Net no longer kills insects 77 - Other 88 - Don't Know 99 - Refused to answer	as per variable codes		
OTHERN1	NET #1: Specify other reason	String				

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
NTHUNG1	NET #1: If not hung, why not? PROBE FOR THE MAIN REASON. SELECT ONLY ONE.	Numeric	1 - Nowhere to hang 2 - Don't know how to hang net 3 - no tools to hang net 4 - shape did not fit 5 - size did not fit 6 - Don't want to hang 77 - other 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if <> 77 then repeat Section if there are still more nets in the house (based on HNUMNETS)	
OTHERNT1	NET # 1: Specify other reason why the net was not hung.	String			after this question, repeat Section 4 if there are still more nets in the house (based on	
Section 5: Experience with managing an ill child in the last 2 weeks						
FEVERCH	Has any of the children under your care been ill with a fever at any time in the past 2 weeks?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	as per variable codes	If NOT equal to 1, skip to END	
TMTCD	Did you seek advice or treatment for the illness from any source?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	as per variable codes	If NOT equal to 2, skip to FSEEK1	
NSTRT	Why have you not sought advice or treatment from any source? (Tick all that apply)					
NSTRTA	..... Child just fell ill	Numeric	1- Ticked 2 - Not ticked	1, 2		
NSTRTB	..... Child not very ill	Numeric	1- Ticked 2 - Not ticked	1, 2		
NSTRTC	..... Clinic too far	Numeric	1- Ticked 2 - Not ticked	1, 2		
NSTRTD	..... Have no money	Numeric	1- Ticked 2 - Not ticked	1, 2		
NSTRTE	..... Waiting for child's father	Numeric	1- Ticked 2 - Not ticked	1, 2		
NSTRTF	..... Don't know what to do	Numeric	1- Ticked 2 - Not ticked	1, 2		
NSTRTG	..... Already had medicine at home	Numeric	1- Ticked 2 - Not ticked	1, 2		
NSTRTH	..... Other	Numeric	1- Ticked 2 - Not ticked	1, 2		

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
OCHOT	Specify other	string				
FSEEK1	ACTION #1: What did you do FIRST (Including tepid sponging and herbs)?	Numeric	1 - Nothing 2 - Tepid sponging 3 - Gave Herbs Kept at home 4 - Gave Medicines Kept at home 5 - Bought medicines from a Duka/shop 6 - Bought medicines from drug shop/Pharmacy 7 - Took to Traditional healer 8 - Took to a public health centre,clinic or hospital 9 - Bought drugs from clinic 77 - Other 88 - Don't Know 99 - Refused to answer	as per variable codes	if equal to 77, specify other	
FSEEK01	ACTION #1: Specify other action	string				
ACTN1	Action # 1: How long had the child been ill when this FIRST action was taken?	Numeric	1 - < 24 hrs 2 - 1-3 days 3 - 4-7 days 4 - > 7 days 88 - Don't know 99 - Refused to answer			
SEEK1A	ACTION #1: If you took your child to a Public Health Centre,Clinic or Hospital,Where did you go?	Numeric	1 - Public health Centre 2 - Tororo District Hospital 3 - Private Hospital/Clinic 77 - Other 88 -Don't Know 99-Refused to answer	as per variable codes	if = 1 go to NAMEPHC1 if = 1 or 2 go to SEEKPUBL if =77, specify other	
SEEK01	ACTION #1: Specify other public/private health center or NGO	string				

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
NAMEPHC1	ACTION #1: If you went to public health center, What is the name of the public health center you went to?	Numeric	1 - Nawire HC II 2 - Panyangasi HC III 3 - Osia HC II 4 - Mbula HC II 5 - Chawolo-Mulanda HC II 6 - Kisoko HC III 7 - Katajula HC II 8 - Chawolo-Kirewa HC II 9 - Morkiswa HC II 10 - Petta HC III 11 - Paya HC III 12 - Pusere HC II 13 - Gwaragwara HC II 14 - Mudodo HC II 15 - Mwelo HC II 16 - Kirewa HC III 17 - Maundo HC II 18 - Were HC II 19 - Lwala HC II 20 - Makawari HC II	as per variable codes		
SEEKPUBL	ACTION #1: Why did you go to the Public health centre or Public hospital ?	Numeric	1 - I heard there were drugs 2 - Someone told me to go 3 - It's closest to my home 4 - It's free(No cost) 5 - I always go to the Public health Centre 6 - They were nice to me the last time i went 7 - They told me to come back 8 - The drug given last time was unsuccessful 9 - There were no drugs at the health centre the last time i went 77 - Other 88 - Don't Know 99 - Refused to answer/skipped	as per variable codes	if equal to 77, specify other	
SEEKPBO1	Specify other reason for going to the public health center or hospital	String				
SERPUB1	ACTION #1: How satisfied were you with the health care that your child received at the Public health centre?	Numeric	1 - Very dissatisfied 2 - Dissatisfied 3 - Uncertain 4 - Satisfied 5 - Very satisfied 99 - Refused to answer	as per variable codes	if = 1 or 2 go to SEVPUB1 otherwise skip to OUTPUBL1	
SEVPUB1	ACTION #1: If dissatisfied or very dissatisfied, what were the reasons for being dissatisfied? LIST ALL THAT APPLY					

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
SEVPUB1A	.... Long waiting time	Numeric	1 - Ticked 2 - Not ticked	1,2		
SEVPUB1B	.... No trained professionals	Numeric	1- Ticked 2 - Not ticked	1,2		
SEVPUB1C	.... No drugs were given	Numeric	1 - Ticked 2 - Not ticked	1,2		
SEVPUB1D	.... No lab tests done	Numeric	1 - Ticked 2 - Not ticked	1,2		
SEVPUB1E	.... Rude HCW	Numeric	1- Ticked 2 - Not ticked	1,2		
SEVPUB1F	.... Had to pay for care	Numeric	1 - Ticked 2 - Not ticked	1,2		
SEVPUB1G	.... Treatment was unsuccessful	Numeric	1 - Ticked 2 - Not ticked	1,2		
SEVPUB1H	.... Refused to answer	Numeric	1 - Ticked 2 - Not ticked	1,2		
OUTPUBL1	ACTION #1: What was the treatment outcome when you took your child to the public health facility for healthcare?	Numeric	1 - Recovered quickly 2 - Recovered slowly 3 - Did not recover, so had to take child back 4 - Did not recover so I sought care elsewhere 77 - Other 99 - Refused to answer	as per variable codes	if 77, specify other outcome If action did not involve medication, skip to TESTMAL1	
OUTOTH1	ACTION #1: Specify other treatment outcome	string				
MEDGIV1	ACTION #1: If your child took medicine FIRST , what did he/she take? RECORD ALL MENTIONED.					
MEDGIV1A	..... Panadol	Numeric	1 - Ticked 2 - Not ticked	1,2	if =1 then must answer DURT1x, NUMTMESx, and NUMDAYSx	
NUMTMS1A	ACTION #1: How many times was panadol given per day?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
NUMDS1A	ACTION #1: For how many days was panadol given?	Numeric	88- Don't know 99 - Refused to answer	1 - 7, 88, 99		
DURT1A	ACTION #1: How long had the child been ill when panadol was taken?	Numeric	1 - <24 hrs 2 - 1 - 3 days 3 - 4 - 7 days 4 - >7 days 88 - Don't know 99 - Refused to answer	1,2,3,4,88,99		
MEDGIV1B	..... Aspirin	Numeric	1 - Ticked 2 - Not ticked	1,2	if =1 then must answer DURT1x, NUMTMESx, and NUMDAYSx	

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
NUMTMS1B	ACTION #1: How many times was Aspirin given per day?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
NUMDS1B	ACTION #1: For how many days was Aspirin given?	Numeric	88- Don't know 99 - Refused to answer	1 - 7, 88, 99		
DURTN1B	ACTION #1: How long had the child been ill when Aspirin was taken?	Numeric	1 - <24 hrs 2 - 1 - 3 days 3 - 4 - 7 days 4 - >7 days 88 - Don't know 99 - Refused to answer	1,2,3,4,88,99		
MEDGIV1C	..... Chloroquine(CQ)	Numeric	1 - Ticked 2 - Not ticked	1,2	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAYSx	
NUMTMS1C	ACTION #1: How many times was Chloroquine(CQ) given per day?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
NUMDS1C	ACTION #1: For how many days was Chloroquine(CQ) given?	Numeric	88- Don't know 99 - Refused to answer	1 - 7, 88, 99		
DURTN1C	ACTION #1: How long had the child been ill when Chloroquine(CQ) was taken?	Numeric	1 - <24 hrs 2 - 1 - 3 days 3 - 4 - 7 days 4 - >7 days 88 - Don't know 99 - Refused to answer	1,2,3,4,88,99		
MEDGIV1D	..... Fansidar(SP)	Numeric	1 - Ticked 2 - Not ticked	1,2	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAYSx	
NUMTMS1D	ACTION #1: How many times was Fansidar(SP) given per day?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
NUMDS1D	ACTION #1: For how many days was Fansidar(SP) given?	Numeric	88- Don't know 99 - Refused to answer	1 - 7, 88, 99		
DURTN1D	ACTION #1: How long had the child been ill when Fansidar(SP) was taken?	Numeric	1 - <24 hrs 2 - 1 - 3 days 3 - 4 - 7 days 4 - >7 days 88 - Don't know 99 - Refused to answer	1,2,3,4,88,99		
MEDGIV1E	..... Chloroquine + Fansidar(CQ+SP)	Numeric	1 - Ticked 2 - Not ticked	1,2	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAYSx	
NUMTMS1E	ACTION #1: How many times was CQ+SP given per day?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
NUMDS1E	ACTION #1: For how many days was CQ+SP given?	Numeric	88- Don't know 99 - Refused to answer	1 - 7, 88, 99		

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
DURTN1E	ACTION #1: How long had the child been ill when CQ+SP was taken?	Numeric	1 - <24 hrs 2 - 1 - 3 days 3 - 4 - 7 days 4 - >7 days 88 - Don't know 99 - Refused to answer	1,2,3,4,88,99		
MEDGIV1F	..... Amodiaquine	Numeric	1 - Ticked 2 - Not ticked	1,2	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAYSx	
NUMTMS1F	ACTION #1: How many times was Amodiaquine given per day?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
NUMDS1F	ACTION #1: For how many days was Amodiaquine given?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
DURTN1F	ACTION #1: How long had the child been ill when Amodiaquine was taken?	Numeric	1 - <24 hrs 2 - 1 - 3 days 3 - 4 - 7 days 4 - >7 days 88 - Don't know 99 - Refused to answer	1,2,3,4,88,99		
MEDGIV1G	..... Quinine	Numeric	1 - Ticked 2 - Not ticked	1,2	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAYSx	
NUMTMS1G	ACTION #1: How many times was Quinine given per day?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
NUMDS1G	ACTION #1: For how many days was Quinine given?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
DURTN1G	ACTION #1: How long had the child been ill when Quinine was taken?	Numeric	1 - <24 hrs 2 - 1 - 3 days 3 - 4 - 7 days 4 - >7 days 88 - Don't know 99 - Refused to answer	1,2,3,4,88,99		
MEDGIV1H	..... Artemether-Lumefantrine (Coartem or Lumartem)	Numeric	1 - Ticked 2 - Not ticked	1,2	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAYSx	
NUMTMS1H	ACTION #1: How many times was Coartem given per day?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
NUMDS1H	ACTION #1: For how many days was Coartem given?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
DURTN1H	ACTION #1: How long had the child been ill when Coartem was taken?	Numeric	1 - <24 hrs 2 - 1 - 3 days 3 - 4 - 7 days 4 - >7 days 88 - Don't know 99 - Refused to answer	1,2,3,4,88,99		

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
MEDGIV1I	..... Cotrimoxazole	Numeric	1 - Ticked 2 - Not ticked	1,2	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAYx	
NUMTMS1I	ACTION #1: How many times was Cotrimoxazole given per day?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
NUMDS1I	ACTION #1: For how many days was Cotrimoxazole given?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
DURTN1I	ACTION #1: How long had the child been ill when Cotrimoxazole was taken?	Numeric	1 - <24 hrs 2 - 1 - 3 days 3 - 4 - 7 days 4 - >7 days 88 - Don't know 99 - Refused to answer	1,2,3,4,88,99		
MEDGIV1J	..... Amoxicillin	Numeric	1 - Ticked 2 - Not ticked	1,2	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAYx	
NUMTMS1J	ACTION #1: How many times was Cotrimoxazole given per day?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
NUMDS1J	ACTION #1: For how many days was Cotrimoxazole given?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
DURTN1J	ACTION #1: How long had the child been ill when Cotrimoxazole was taken?	Numeric	1 - <24 hrs 2 - 1 - 3 days 3 - 4 - 7 days 4 - >7 days 88 - Don't know 99 - Refused to answer	1,2,3,4,88,99		
MEDGIV1K	..... Other1	Numeric	1 - Ticked 2 - Not ticked	1,2	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAYx	
NUMTMS1K	ACTION #1: How many times was the other 1 drug given per day?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
NUMDS1K	ACTION #1: For how many days was the other1 drug given?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
DURTN1K	ACTION #1: How long had the child been ill when the other1 drug was taken?	Numeric	1 - <24 hrs 2 - 1 - 3 days 3 - 4 - 7 days 4 - >7 days 88 - Don't know 99 - Refused to answer	1,2,3,4,88,99		
MEDGIV1L	..... Other2	Numeric	1 - Ticked 2 - Not ticked	1,2	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAYx	
NUMTMS1L	ACTION #1: How many times was the other 2 drug given per day?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
NUMDS1L	ACTION #1: For how many days was the other 2 drug given?	Numeric	88- Don't know 99 - Refused to answer	1 - 7, 88, 99		
DURTN1L	ACTION #1: How long had the child been ill when the other 2 drug was taken?	Numeric	1 - <24 hrs 2 - 1 - 3 days 3 - 4 - 7 days 4 - >7 days 88 - Don't know 99 - Refused to answer	1,2,3,4,88,99		
MEDGIV1M	..... Other3	Numeric	1 - Ticked 2 - Not ticked	1,2	if =1 then must answer DURTN1x, NUMTMESx, and NUMDRAYSx	
NUMTMS1M	ACTION #1: How many times was the other 3 drug given per day?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
NUMDS1M	ACTION #1: For how many days was the other 3 drug given?	Numeric	88- Don't know 99 - Refused to answer	1 - 7, 88, 99		
DURTN1M	ACTION #1: How long had the child been ill when the other 3 drug was taken?	Numeric	1 - <24 hrs 2 - 1 - 3 days 3 - 4 - 7 days 4 - >7 days 88 - Don't know 99 - Refused to answer	1,2,3,4,88,99		
MEDGIV1N	..... Unknown	Numeric	1 - Ticked 2 - Not ticked	1,2	if =1 then must answer DURTN1x, NUMTMESx, and NUMDRAYSx	
NUMTMS1N	ACTION #1: How many times was the unknown drug given per day?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 88, 99		
NUMDS1N	ACTION #1: For how many days was the unknown drug given?	Numeric	88- Don't know 99 - Refused to answer	1 - 7, 88, 99		
DURTN1N	ACTION #1: How long had the child been ill when the unknown drug was taken?	Numeric	1 - <24 hrs 2 - 1 - 3 days 3 - 4 - 7 days 4 - >7 days 88 - Don't know 99 - Refused to answer	1,2,3,4,88,99		
MEDGIV1O	..... Not Applicable	Numeric	1 - Ticked 2 - Not ticked	1,2	if =1 then must answer DURTN1x, NUMTMESx, and NUMDRAYSx	
TESTMAL1	ACTION #1: Was your child tested for malaria (finger or heel prick) when you went to this place?	Numeric	1 - Yes 2 - No 77 - Other 88 - Don't know 99 - Refused to answer	1,2,77,88,99	if NOT 1, skip to ILLRES1	

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
TESTYP1	ACTION #1: If yes, do you know what type of test was done? For example, was the blood placed onto a glass slide or onto a white stick?	Numeric	1 - Blood smear 2 - RDT 77 - Other 88 - Don't know	1,2,77,88	if 77, specify other test done	
TESTYO1	ACTION #1: Specify other test done	string				
TOLDRES1	ACTION #1: Where you told the result of the test?	Numeric	1 - Yes 2 - No 88 - Don't know	1,2,88	if NOT 1, skip to ILLRES1	
TESTRES1	ACTION #1: If yes, what was the result of the test?	Numeric	1 - Positive for malaria 2 - Negative for malaria 77 - Other 88 - Don't know 99 - Refused to answer	1,2,77,88,99		
TESTREO1	ACTION #1: If other result, specify	string				
ILLRES1	ACTION #1: Did the child's illness resolve after this FIRST action?	Numeric	1 - Yes 2 - No 88 - Don't know	1,2,88		
ANYACTO1	Have you done any other action until now?	Numeric	1 - Yes 2 - No	1,2	if Yes, Continue to SECOND action, else skip to SCETION 6	
....	....	....	....	....	....	Variables for ACTION #2,3,.....,8; have index 2,3,....,8
BDTST	At any time during the illness, did the child have blood taken from his/her finger or heel for testing?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	1,2,88,99		
DURILL	How long did the child's illness last?	Numeric	1 - < 24 hrs 2 - 1-3 days 3 - 4-7 days 4 - > 7 days 5 - Ongoing	1,2,3,4,5		
ILLDLYS	Did you experience any delays in treating your child's illness?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	1,2,88,99	if NOT 1, skip to SPEND	
RESDYS	What were the reasons for the delay? LIST ALL THAT APPLY					
RESDYSA	... No transport available	Numeric	1 - Ticked 2 - Not ticked	1,2		
RESDYSB	... Not enough money available	Numeric	1 - Ticked 2 - Not ticked	1,2		

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
RESDYSC	... Needed to find coverage for work	Numeric	1 - Ticked 2 - Not ticked	1,2		
RESDYSD	... Needed to arrange for child care	Numeric	1 - Ticked 2 - Not ticked	1,2		
RESDYSE	... Waiting at the health facility	Numeric	1 - Ticked 2 - Not ticked	1,2		
RESDYSF	... Was not at home	Numeric	1 - Ticked 2 - Not ticked	1,2		
RESDYSG	... Other	Numeric	1 - Ticked 2 - Not ticked	1,2	If ticked, specify other reason for delay	
RESDYSH	... Don't know	Numeric	1 - Ticked 2 - Not ticked	1,2		
RESDYSI	... Refused to answer	Numeric	1 - Ticked 2 - Not ticked	1,2		
RESDLYSO	specify other reason for the delay	string				
SPEND	Did you spend any money on management of this illness?	Numeric	1 - Yes 2 - No	1,2	If equal to 2, skip to RESDELY	
HWDRUGS	How much did you spend on Drugs? COST IS GREATER THAN 200000, ENTER 200000	IF Numeric		0 - 200000		
HWTRANS	How much did you spend on Transport? IF COST IS GREATER THAN 200000, ENTER 200000	Numeric		0 - 200000		
HWFEES	How much did you spend on clinical,hospital and laboratory bills? IF COST IS GREATER THAN 200000, ENTER 200000	Numeric		0 - 200000		
SPENDO	Did you spend on anything else in regards to treatment of the illness?	Numeric	1 - Yes 2 - No	1,2	If equal to 2, skip to RESDELY	
HWOTHER	How much was spent on other things?	Numeric		50 - 200000		
RESDELY	Did caring for your child and managing his/her illness prevent you from doing your usual activities ?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	1,2,88,99	If equal to 2, skip to END	
HCHMISS	If yes, how much time did you miss?	Numeric		1 - 100		
UNITS	Units of time missed (HRS, DAYS,....)	Numeric	1 - Hours 2 - Days 88 - Weeks	1,2,88		

Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
STOPTIME	STOPTIME = Current time	Date/Time				
VSTATUS	Result of visit?	Numeric	1 - Completed 2 - No household member at home or no competent respondent at home at time of visit 3 - Entire household absent for extended period of time 77 - Other 99 - Refused to be interviewed	1,2,3,77,99	If 77, specify other results of the visit	
OVSTATUS	Specify other result	string				
TOTVISIT	Total number of visits	Numeric		1 - 4		

APPENDIX P: CROSS-SECTIONAL SURVEY CLINICAL RECORD FORM (1)

Subcounty ID []	Village ID [] []	Compound Number [] [] [] []	Household Number [] []	Date of visit [] [] / [] [] / [] [] day month year
Cluster number [] []	Study ID [] [] [] [] [] []		Gender [] 1 = Male 2 = Female	Age: [] [] / [] [] years months

SECTION 1: BEDNETS

1. "Does this child have (sleep under) a mosquito net?"	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer [] []	<i>If no, go to Section 2: Case Record Form</i>
2. "If yes, did the child sleep under the mosquito net last night?"	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer [] []	
3. "How many months ago did you obtain the mosquito net for the child?"	77 = Other _____ 88 = Don't know 99 = Refused to answer	Insert the number of months [] []	
4. "From where did you get the mosquito net?"	1 = Government health center 2 = Government hospital 3 = Private hospital/clinic 4 = Private pharmacy	5 = Shop 6 = Open market 7 = Hawker 8 = Project/NGO 9 = Campaign	10 = Church 77 = Other _____ 88 = Don't know 99 = Refused to answer [] []
5. "May I have a look at the mosquito net?" <i>(Observe the net and record the status)</i>	1 = Observed and intact 2 = Observed and has visible	3 = Not a net 4 = Not observed [] []	<i>If observed go to #6, if not observed skip to #7</i>
6. "What is the brand of the mosquito net?" <i>(If net was observed, record brand; if not, ask the respondent)</i> <i>If '1', go to Section 2: Case Record Form</i>	1 = Long lasting net (Permanet, Smartnet, Olyset) 2 = Factory net with insecticide kit (KO net, Kooper net, Ico net, Safi net) 3 = Factory net with no insecticide (B52, Bamboo, Century, Lucky net, Victoria) 4 = Home made net 77 = Other _____	[] []	
7. How many months ago was the mosquito net last soaked or dipped with insecticide to repel mosquitos?	1 = < 6months 2 = ≥ 6 months 3 = Never	88 = Don't know 99 = Refused to answer [] []	

SECTION 2: CASE RECORD FORM

10. Past medical history (list) _____ _____ _____	
11. "Does the child have any drug allergies?"	1 = Yes 2 = No 88 = Don't know 99 = Refused to answer [] []
12. If yes, to which drugs? (list) _____	
13. Current medications	Drug 1 [] [] Drug 2 [] [] Drug 3 [] [] Drug 4 [] [] Drug 5 [] []
1 = Panadol 2 = Aspirin 3 = Chloroquine 4 = Fansidar (SP) 5 = CQ+SP 6 = Amodiaquine 7 = Quinine	8 = Coartem 9 = Septrin 10 = Amoxicillin 11 = None 12 = Other (list) _____
14. History of fever in the last 48 hours?	1 = Yes 2 = No 88 = Don't know 99 = Refused to answer [] []
15. Temperature (°C), Severity*	[] [] • [] [] [] [] Severity
16. Weight (kg)	[] [] []
18. MUAC (mm)	[] [] [] []
19. Spleen size†	[] [] Hackett's score

*Rank severity on scale of 0-5: 0=Absent 1=Mild 2=Moderate 3=Severe 4=Life-threatening 5=Unable to assess

† Hackett's: 0=Normal, 1=palpable, 2= <½ to umbilicus, 3= >½ to umbilicus, 4= <½ to symphysis pubis, 5= >½ to symphysis pubis

CROSS-SECTIONAL SURVEY CLINICAL RECORD FORM (2)				
Subcounty ID []	Village ID [] []	Compound Number [] [] [] []	Household Number [] []	Date of visit [] [] / [] [] / [] [] day month year
Cluster number [] []			Study ID [] [] [] []	

SECTION 3: FEVER EPISODE
Complete if there is a history of fever or documented temperature (≥ 38.0°C)

20. Clinical Notes – History of present illness

21. Physical examination findings

22. RDT result

0 = Negative	2 = Positive (Pan only)	4 = Invalid	[] []
1 = Positive (Pf only)	3 = Positive (Pf + Pan)	77 = Other	

23. Diagnosis

1 = Uncomplicated malaria	8 = Diarrhea	Diagnosis 1	[] []
2 = Severe malaria	9 = Dysentery	Diagnosis 2	[] []
3 = Otitis media	10 = Urinary tract infection	Diagnosis 3	[] []
4 = Pharyngitis	11 = Skin infection	Diagnosis 4	[] []
5 = Upper respiratory tract infection	12 = Viral illness	Diagnosis 5	[] []
6 = Pneumonia	77 = Other		
7 = Gastroenteritis	88 = Unknown		

24. Was the child referred for additional care?

1 = Yes	[]
2 = No	

25. If yes, where? (specify)

26. Medications prescribed

1 = Panadol	12 = Other (list)	Drug 1	[] []
8 = Coartem (artemether- lumefantrine)	_____	Drug 2	[] []
	_____	Drug 3	[] []
	_____	Drug 4	[] []
		Drug 5	[] []

SECTION 4: LABORATORY RESULTS
Complete for all participants

<p>27. Hemoglobin (g/dL)**</p> <p>[] [] • [] Severity []</p>	<p>28. Parasite density (/ul)</p> <p>[] [] [] [] [] []</p>	<p>29. Gametocytes</p> <p>1 = Yes 2 = No 3 = N/A</p> <p style="text-align: right;">[]</p>
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Hemoglobin ** = If Hb is < 5.0 g/dL, refer to Tororo District Hospital

Staff ID: [] [] Data entrant (1st): [] [] Data entrant (2nd): [] []

APPENDIX Q: COHORT STUDY SCREENING FORM
PART 1: HOUSEHOLD & PARTICIPANT ID

Subcounty ID []	Village ID [] []	Compound number [] [] [] []	Household number [] []	Cluster number [] []
Screening Date [] [] [] / [] [] [] / [] [] [] day month year			Screening ID [] [] [] []	
Age [] [] [] / [] [] [] years months		<i>If child is less than 1 year, complete months, otherwise leave blank</i>		Gender [] 1 = Male 2 = Female

PART 2: SCREENING INTERVIEW with PARENTS/GUARDIANS

Selection criteria	Include	Exclude	
1. Appropriate age —Under five (aged 0 to less than 5 years)	1 = Yes	2 = No	[]
2. Intention to move from Tororo during the follow-up period	1 = No	2 = Yes	[]
3. Current enrollment in another research study	1 = No	2 = Yes	[]

If any answers are '2' from the EXCLUDE column, exclude from the study. If not, proceed to the next section.

PART 3: INFORMED CONSENT

Selection criteria	Include	Exclude	
4. Willingness of parent(s)/guardian(s) to provide informed consent	1 = Yes	2 = No	[]

If any answers are '2' from the EXCLUDE column, exclude from the study. If not, proceed to the next section.

ASSIGN STUDY NUMBER	[] [] [] []
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All criteria for study inclusion met? 1 = Yes 2 = No <i>If no, exclude from the study</i> []	Date of enrollment [] [] [] / [] [] [] / [] [] [] day month year
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Staff ID: [] []

Data entrant (1st): [] []

Data entrant (2nd): [] []



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[][]

Cluster number

[][]-[][]-[][][][]-[][][]

Household ID

[][][][]

Cohort Study ID

APPENDIX R. COHORT STUDY Research participant informed consent form

Protocol Title:	ACT PRIME Study: Evaluating the impact of enhanced health facility-based care for malaria and febrile illnesses in children
Site of Research:	Tororo, Uganda
Principal Investigators:	Dr. Sarah Staedke
Date:	15 September 2011

Introduction

Dr. Sarah Staedke and colleagues from the Uganda Malaria Surveillance Project / Infectious Diseases Research Collaboration are investigating delivery of healthcare services in Tororo District. We are doing a research study to see if we can improve the health of children in this area by improving services at government-run health facilities.

Why is this study being done?

Certain health centers in Tororo district will be selected to either take part in the intervention to improve services, or to continue with their current services. Assignment to the two groups has been determined by a lottery. The chance of being placed into either of the groups is the same. To find out how well the intervention is working, we would like to review the health of children living near the health centers. We plan to invite a group of children under five from 500 households near the health centers to take part in a 2-year study.

How is this study being done?

Households will be selected to participate by a lottery. In each household, all children under five will be eligible to take part. If a new child is born into your household, they will be eligible to take part. A household survey will be conducted at the start of the study to learn more about your household and how you manage illnesses in children. The household survey will then be repeated approximately one year after enrollment, and we will also ask all women of child bearing age living in your household some questions about their children. We will examine children and do blood tests five times during the study. We will ask members of your household to record information about the health of your children and how much you spend on their treatment using a diary with pictures. We will visit you once a month to collect the diaries and ask some questions about the health of your children.



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What will happen if my child takes part in this study?

If you agree to let your child (or children) participate in this study, the following will happen today:

- a) We will collect information on your child's general health and will briefly examine your child.
- b) A blood sample will be taken from your child's finger to examine for malaria parasites and to measure blood counts.
- c) We will also store a sample of blood on filter paper for future research purposes that will not impact on the health care of your child.
- d) If your child has had a fever in the last 48 hours (2 days) or has a high temperature, we will do a rapid diagnostic test for malaria.
- e) If your child has a positive test for malaria, we will provide treatment with artemether-lumefantrine (including Coartem or Lumartem), which is the recommended treatment for simple malaria in Uganda.
- f) If your child has a negative test for malaria, has a low blood count, or has signs of severe malaria or another significant illness, we will refer you and your child to an appropriate health center or hospital for further care.
- g) You will be asked to record information about the health of your child and certain problems using a diary with pictures. You will also be asked to record how much money you spend on your child's health care. We will give you pre-printed forms to help you record this information. You will be given instructions on how to complete the forms and will not be required to read in order to complete the forms. We will ask that you complete the forms for the duration of the study period (2 years). A member of the study staff will visit you at home at least once a month to collect completed diary forms, to give you new forms, and to ask additional questions about the health of your child during the previous month.
- h) Either today or within the next two weeks, a member of the study staff will come to your home to ask you additional questions about your home and how members of your household manage malaria and other illnesses. We will also answer any questions you might have about how to fill in the diary forms.
- i) At the monthly visits to your home, we will also ask if your child has had any health problems after treatment for an illness. If your child has any serious health problems, or problems after treatment with artemether-lumefantrine (including Coartem or Lumartem), we will ask you some questions about the illness, the treatment, and the details of event.

Every six months for the next 2 years, we will schedule appointments for you and your child. At these appointments, the following will happen:

- a) We will examine your child.
- b) A blood sample will be taken from your child's finger to examine for malaria parasites and to measure blood counts.



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- c) We will also store a sample of blood on filter paper for future research purposes that will not impact on the health care of your child.
- d) If your child has had a fever in the last 48 hours (2 days) or has a high temperature, we will do a rapid diagnostic test for malaria.
- e) If your child has a positive test for malaria, we will provide treatment with artemether-lumefantrine (including Coartem or Lumartem), which is the recommended treatment for simple malaria in Uganda.
- f) If your child has a negative test for malaria, has a low blood count, or has signs of severe malaria or another significant illness, we will refer you and your child to an appropriate health center or hospital for further care.

How long will these activities last?

The study will last for 2 years.

How will the data be used?

- a) The data we collect will be used by project investigators and may be shared with other researchers and policy-makers to answer questions about how best to deliver health services.
- b) Information about problems following treatment will be stored in a central register to help researchers understand more about the safety of drug treatments.

Can I stop my child from being in the study?

You can decide to stop participating at any time. Just tell our study personnel right away if you wish to stop the activities.

What risks can I expect if my child participates in the study?

We will obtain five blood samples by fingerprick from your child. The risks of drawing blood from a fingerprick include temporary discomfort from the needle stick, bruising, and skin infection. The amount of blood removed will be too small to affect your child's health.

Participation in any research study may involve a loss of privacy. Information you provide will be recorded, but your name, and your child's name, will not be used in any reports of the information provided. The information obtained from these study activities will be locked up at our project offices. We will do our best to make sure that all personal information is kept private.

Are there benefits to letting my child take part in the study?

Through the intervention, we aim to improve the health of children in this area by improving services at the health centers. There will be no direct benefit to you from participating in this study. However, the



information that we gather in this study will help researchers and policy-makers understand how best to improve health services in this area.

What other choices do I have if I do not allow my child to take part in the study?

You are free to choose not to participate in the study. If you decide not to take part, there will be no penalty to you.

What are the costs of taking part in the study? Will I be paid for letting my child take part in the study?

You and your child will not be charged for any of the treatments or procedures we perform today. However, if we refer your child for further evaluation and health care, you will be responsible for all costs for your child's health care. You and your child will not be paid for participation in the study.

What are my rights if I allow my child to take part in the study?

Taking part in this study is your choice. You may choose either to take part or not to take part. If you decide to take part in this study, you may change your mind at any time. If you decide to withdraw your child from the study; your child will still be eligible for care at the local health facility and at Tororo District Hospital and at other local clinics. No matter what decision you take, there will be no penalty to you in any way.

What if my child is injured as result of being in this study?

If your child is injured, or if you have questions about injuries as a result of being in the study, please contact Dr. Sarah Staedke or other members of the Uganda Malaria Surveillance Project / Infectious Disease Research Collaboration on telephone number 0414-530692. The sponsoring organizations do not have a program to cover your costs if your child is hurt or has other bad results.

Who can answer my questions about the study?

You can talk to the researchers about any questions or concerns you have about these study activities. Contact Dr. Sarah Staedke or other members of the Uganda Malaria Surveillance Project / Infectious Disease Research Collaboration on telephone number 0414-530692. If you have any questions, comments or concerns about taking part in these activities, first talk to the researchers. If for any reason you do not wish to do this, or you still have concerns about doing so, you may contact Professor James Tumwine, Makerere University School of Medicine Research and Ethical Committee at telephone number 0414-530020.



WHAT YOUR SIGNATURE OR THUMBPRINT MEANS

Your signature or thumbprint below means that you understand the information given to you in this consent form about your child's participation in the study and agree with the following statements:

1. "I have read the consent form concerning this survey (or have understood the verbal explanation of the consent form) and I understand what will be required of me and what will happen to me and my child if we take part in it."
2. "My questions concerning this survey have been answered by Dr. Staedke or the person who signed below."
3. "I understand that at any time, I may withdraw my child from this survey without giving a reason and without affecting my child's normal health care and management."
4. "I agree that the child under my care will take part in this survey."

You will also be asked to sign another informed consent form for the use of stored specimens. If you wish your child to participate in this study, you should sign or place your thumbprint below.



THE REPUBLIC OF UGANDA



WE WILL GIVE YOU A COPY OF THIS SIGNED AND DATED CONSENT FORM

Name of Participant (printed)

Name of Parent/Guardian

Signature or Fingerprint * of Parent/Guardian

Date/Time

Name of Investigator Administering Consent (printed)

Position/Title

Signature of Investigator Administering Consent

Date/Time

*If the parent or guardian is unable to read and/or write, an impartial witness should be present during the informed consent discussion. After the written informed consent form is read and explained to the participant and parent or guardian, and after they have orally consented to their child’s participation in the trial, and have either signed the consent form or provided their fingerprint, the witness should sign and personally date the consent form. By signing the consent form, the witness attests that the information in the consent form and any other written information was accurately explained to, and apparently understood by the parent or guardian, and that informed consent was freely given by the patient and parent or guardian.

Name of Person Witnessing Consent (printed)

Signature of Person Witnessing Consent

Date/Time



THE REPUBLIC OF UGANDA



[][]

Cluster number

[][]-[][]-[][][][]-[][][]

Household ID

[][][][]

Cohort Study ID

APPENDIX S. COHORT STUDY

Informed consent for future use of biological specimens

Protocol Title:	ACT PRIME Study: Evaluating the impact of enhanced health facility-based care for malaria and febrile illnesses in children
Site of Research:	Tororo, Uganda
Principal Investigators:	Dr. Sarah Staedke
Date:	15 September 2011

INTRODUCTION

While your child is in this study, there may be blood samples taken from them that may be useful for future research. These samples will be stored long-term at Makerere University Medical School and the London School of Hygiene and Tropical Medicine, and the University of California, San Francisco. Samples may also be shared with investigators at other institutions.

WHAT SAMPLES WILL BE USED FOR

Your child's blood and the malaria parasites in it will be used to study malaria and the response of this disease to treatment. Results of these studies will not affect your child's care.

1. These samples will be used for future research to learn more about malaria and other diseases.
2. Your child's samples will be used only for research and will not be sold or used for the production of commercial products.
3. Genetic research may be performed on samples. However, no genetic information obtained from this research will be placed in your child's medical records. These samples will be identified only by codes so that they cannot be readily identified with your child.

LEVEL OF IDENTIFICATION

Your child's samples will be coded so that your child's name cannot be readily identified. Reports about research done with your child's samples will not be put in their medical record and will be kept confidential to the best of our ability. In the future, researchers studying your child's samples may need to know more about your child, such as their age, gender, and race. If this information is already available because of your child's participation in a study, it may be provided to the researcher. Your child's name or anything that might identify them personally will not be provided. You will not be asked to provide additional consent.



THE REPUBLIC OF UGANDA



RISKS

There are few risks to your child from future use of their samples. A potential risk might be the release of information from your child's health or study records. Reports about research done with your child's samples will not be put in their health record, but will be kept with the study records. The study records will be kept confidential as far as possible.

BENEFITS

There will be no direct benefit to your child. From studying your child's samples we may learn more about malaria or other diseases: how to prevent them, how to treat them, how to cure them.

RESEARCH RESULTS/MEDICAL RECORDS

1. Results from future research using your child's samples may be presented in publications and meetings but patient names will not be identified.
2. Reports from future research done with your child's samples will not be given to you or your child's doctor. These reports will not be put in your child's medical record.

QUESTIONS

If you have any questions, comments or concerns about the future use of your child's specimen's, first talk to the researchers. You may also Contact Dr. Sarah Staedke or other members of the Uganda Malaria Surveillance Project on telephone number 0414-530692. If for any reason you do not wish to do this, or you still have concerns about the future use of your child's specimens, you may contact Professor James Tumwine, Makerere University School of Medicine Research and Ethical Committee at telephone number 0414-530020.

FREEDOM TO REFUSE

You can change your mind at any time about allowing your child's samples to be used for future research. If you do, contact Dr. Staedke or other members of the Uganda Malaria Surveillance Project at the numbers listed above. Then your child's samples will no longer be made available for research and will be destroyed. Whether or not you allow us to use your child's samples in future research will not have any effect on your child's participation in this study or future participation in other studies.

WHAT YOUR SIGNATURE OR THUMBPRINT MEANS

Your signature or thumbprint below means that you understand the information given to you in this consent form about your child's specimens to be used for future research. If you wish to allow your child's specimens to be used for future research, you should sign or place your thumbprint below.



THE REPUBLIC OF UGANDA



WE WILL GIVE YOU A COPY OF THIS SIGNED AND DATED CONSENT FORM

Name of Participant (printed)

Name of Parent/Guardian

Signature or Fingerprint * of Parent/Guardian

Date/Time

Name of Investigator Administering Consent (printed)

Position/Title

Signature of Investigator Administering Consent

Date/Time

*If the parent or guardian is unable to read and/or write, an impartial witness should be present during the informed consent discussion. After the written informed consent form is read and explained to the participant and parent or guardian, and after they have orally consented to their child’s participation in the trial, and have either signed the consent form or provided their fingerprint, the witness should sign and personally date the consent form. By signing the consent form, the witness attests that the information in the consent form and any other written information was accurately explained to, and apparently understood by the parent or guardian, and that informed consent was freely given by the patient and parent or guardian.

Name of Person Witnessing Consent (printed)

Signature of Person Witnessing Consent

Date/Time

APPENDIX T: COHORT STUDY CLINICAL RECORD FORM (1)

Visit Code* []	Study ID [] [] [] [] []			Gender [] 1 = Male 2 = Female	Date of BIRTH [] [] / [] [] / [] [] day month year
Subcounty ID []	Village ID [] []	Compound number [] [] [] [] []	Household # [] []	Cluster # [] []	Date of VISIT [] [] / [] [] / [] [] day month year

*Indicate type of visit: 1 = Enrollment 2 = 6 months 3 = 12 months 4 = 18 months 5 = 24 months

SECTION 1: BEDNETS

1. "Does this child have (sleep under) a mosquito net?"	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer [] []
<i>If no, go to Section 2: Case Record Form</i>		
2. "If yes, did the child sleep under the mosquito net last night?"	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer [] []
3. "How many months ago did you obtain the mosquito net for the child?"	77 = Other _____ 88 = Don't know 99 = Refused to answer	Insert the number of months [] []
4. "From where did you get the mosquito net?"	1 = Government health center 2 = Government hospital 3 = Private hospital/clinic 4 = Private pharmacy	5 = Shop 6 = Open market 7 = Hawker 8 = Project/NGO 9 = Campaign
5. "What is the brand of the mosquito net?"	1 = Long lasting net (Permanet, Smartnet, Olyset) 2 = Factory net with insecticide kit (KO net, Kooper net, Ico net, Safi net) 3 = Factory net with no insecticide (B52, Bamboo, Century, Lucky net, Victoria) 4 = Home made net 77 = Other _____	10 = Church 77 = Other _____ 88 = Don't know 99 = Refused to answer
<i>If '1', go to Section 2: Case Record Form</i>		
6. How many months ago was the mosquito net last soaked or dipped with insecticide to repel mosquitos?	1 = < 6months 2 = ≥ 6 months 3 = Never	88 = Don't know 99 = Refused to answer [] []

SECTION 2: CASE RECORD FORM

10. Past medical history (list) _____ _____ _____		
11. "Does the child have any drug allergies?"	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer [] []
12. If yes, to which drugs? (list) _____		
13. Current medications	Drug 1 [] []	Drug 2 [] []
1 = Panadol 2 = Aspirin 3 = Chloroquine 4 = Fansidar (SP) 5 = CQ+SP 6 = Amodiaquine 7 = Quinine	8 = Coartem 9 = Septrin 10 = Amoxicillin 11 = None 12 = Other (list) _____	Drug 3 [] [] Drug 4 [] [] Drug 5 [] []
14. History of fever in the last 48 hours?	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer [] []
15. Temperature (°C), Severity*	[] [] • []	Severity [] []
16. Weight (kg) [] []	17. Height (cm) [] [] []	
18. MUAC (mm) [] [] []	19. Spleen size† [] Hackett's score	

*Rank severity on scale of 0-5: 0=Absent 1=Mild 2=Moderate 3=Severe 4=Life-threatening 5=Unable to assess

† Hackett's: 0=Normal, 1=palpable, 2= <½ to umbilicus, 3= >½ to umbilicus, 4= <½ to symphysis pubis, 5= >½ to symphysis pubis

COHORT STUDY CLINICAL RECORD FORM (2)

Visit Code* []		Study ID [] [] [] [] []			
Subcounty ID []	Village ID [] []	Compound ID [] [] [] []	Household ID [] []	Cluster # [] []	Date of VISIT [] [] / [] [] / [] [] day month year

*Indicate type of visit: 1 = Enrollment 2 = 6 months 3 = 12 months 4 = 18 months 5 = 24 months

SECTION 3: FEVER EPISODE

Complete if there is a history of fever or documented temperature (≥ 38.0°C)

20. Clinical Notes – History of present illness

21. Physical examination findings

22. RDT result

0 = Negative 2 = Positive (Pan only) 4 = Invalid
1 = Positive (Pf only) 3 = Positive (Pf + Pan) 77 = Other

[] []

23. Diagnosis

- | | |
|---------------------------------------|------------------------------|
| 1 = Uncomplicated malaria | 8 = Diarrhea |
| 2 = Severe malaria | 9 = Dysentery |
| 3 = Otitis media | 10 = Urinary tract infection |
| 4 = Pharyngitis | 11 = Skin infection |
| 5 = Upper respiratory tract infection | 12 = Viral illness |
| 6 = Pneumonia | 77 = Other |
| 7 = Gastroenteritis | 88 = Unknown |

Diagnosis 1 [] []
Diagnosis 2 [] []
Diagnosis 3 [] []
Diagnosis 4 [] []
Diagnosis 5 [] []

24. Was the child referred for additional care?

1 = Yes
2 = No

[]

25. If yes, where? (specify)

26. Medications prescribed

- | | |
|-------------------------------|-------------------|
| 1 = Panadol | 12 = Other (list) |
| 8 = Coartem | _____ |
| (artemether-
lumefantrine) | _____ |
| | _____ |

Drug 1 [] []
Drug 2 [] []
Drug 3 [] []
Drug 4 [] []
Drug 5 [] []

SECTION 4: LABORATORY RESULTS

Complete for all participants

27. Hemoglobin (g/dL)**

Severity

[] [] • [] []

28. Parasite density (/ul)

[] [] [] [] [] [] [] []

29. Gametocytes

1 = Yes 2 = No 3 = N/A

[]

Hemoglobin ** = If Hb is < 5.0 g/dL, refer to Tororo District Hospital

Staff ID: [] []

Data entrant (1st): [] []

Data entrant (2nd): [] []

APPENDIX U: COHORT STUDY HOUSEHOLD SURVEY (1)

Subcounty ID	Village ID	Compound #	Household #	Cluster #	Date of visit
[]	[]	[]	[]	[]	[]/[]/[] day month year
Study IDs	1. []	2. []	3. []	4. []	5. []
					6. []

SECTION 1: PRIMARY CAREGIVER

1. "How old are you?" [] years	2. Gender 1 = Male 2 = Female []
3. "What is the highest level of school you completed?" 0 = None 1 = Primary (P1 — P4)	2 = Primary (P5 — P7) 3 = Secondary (S1 — S4) 4 = Secondary (S5 — S6) 10 = Certificate/Diploma 11 = University 77 = Other 88 = Don't know 99 = Refused to answer []
4. "What is the main activity or job you do to earn income" OR "If you do not have regular employment, what other things do you do to earn income?"	1 = Peasant farmer 2 = Commercial farmer 3 = Brew alcohol 4 = Market vendor 5 = Shop keeper 6 = Transport(Driver/rider) 77 = Other 88 = Don't know 99 = Refused to answer []

SECTION 2: HEAD OF HOUSEHOLD

"Now I would like to ask you some questions about your household."

5. "Is the head of the household male or female?" 1 = Male 2 = Female [] <i>If primary caregiver is also the household head, go to Section 3</i>	6. "How old is the head of household?" [] years
7. "What is the highest level of school completed by the head of household?" 0 = None 1 = Primary (P1 — P4) 2 = Primary (P5 — P7) 3 = Secondary (S1 — S4) 4 = Secondary (S5 — S6)	10 = Certificate/Diploma 11 = University 77 = Other 88 = Don't know 99 = Refused to answer []
8. "What is the main activity or job the head of household does to earn income" OR "If he/she does not have regular employment, what other things does he/she do to earn income?"	1 = Peasant farmer 2 = Commercial farmer 3 = Brew alcohol 4 = Market vendor 5 = Shop keeper 6 = Transport(Driver/rider) 77 = Other 88 = Don't know 99 = Refused to answer []

SECTION 3: TREATMENT SEEKING BEHAVIOR

Attendance of Public health facilities and satisfaction with health care provided at Public Health facilities

10. "Have you ever taken your child to a nearby public health facility for treatment?" 1 = Yes 2 = No	88 = Don't know 99 = Refused to answer [] <i>If yes go to Qn 11. Otherwise, skip to Section 4</i>
11. "If yes, how satisfied were you with the health care that your child received at the public health facility?" 1 = Very dissatisfied 2 = Dissatisfied 3 = Uncertain	4 = Satisfied 5 = Very satisfied 99 = Refused to answer [] <i>If dissatisfied or very dissatisfied go to Qn 12. Otherwise, skip to Qn 13</i>
12. "If dissatisfied or very dissatisfied what were the reasons for being dissatisfied?" (list all that apply)	1 = Long waiting time 2 = No trained professionals 3 = No drugs were given 4 = No lab tests done 5 = Rude HCW 6 = Had to pay for care 7 = Treatment was unsuccessful 77 = Other 99 = Refused to answer [] [] [] [] [] []
13. "What was the treatment outcome when you took your child to the public health facility for health care?"	1 = Recovered quickly 2 = Recovered slowly 3 = Did not recover, and so I had to take child back 4 = Did not recover, so I sought care elsewhere 77 = Other 99 = Refused to answer []

COHORT STUDY HOUSEHOLD SURVEY (2)

Subcounty ID	Village ID	Compound #	Household #	Cluster #	Date of visit
[]	[]	[]	[]	[]	[]/[]/[] day month year

SECTION 4: BEDNETS

14. "Does your household have any mosquito nets?" 1 = Yes 2 = No 88 = Don't know 99 = Refused to answer [] [] <i>If no, go to Section 5</i>	
15. "How many mosquito nets does your household have?" List number [] []	
Net 1	Net 2 (if more than 2 nets, go to extra bednet form)
16a. "How many months ago did you obtain the mosquito net?" 88 = Don't know 99 = Refused to answer 77 = Other Insert number of months [] []	16b. "How many months ago did you obtain the mosquito net?" 88 = Don't know 99 = Refused to answer 77 = Other Insert number of months [] []
17a. "From where did you get the mosquito nets?" [] [] 1 = Government health center 2 = Government hospital 3 = Private hospital/clinic 4 = Private pharmacy 5 = Shop 6 = Open market 7 = Hawker 8 = Project/NGO 9 = Campaign 10 = Church 77 = Other 88 = Don't know 99 = Refused	17b. "From where did you get the mosquito nets?" [] [] 1 = Government health center 2 = Government hospital 3 = Private hospital/clinic 4 = Private pharmacy 5 = Shop 6 = Open market 7 = Hawker 8 = Project/NGO 9 = Campaign 10 = Church 77 = Other 88 = Don't know 99 = Refused
18a. "May I have a look at the mosquito net?" <i>(Observe the net and record the status)</i> 1 = Observed and intact 2 = Observed and has visible holes 3 = Not a net 4 = Not observed []	18b. "May I have a look at the mosquito net?" <i>(Observe the net and record the status)</i> 1 = Observed and intact 2 = Observed and has visible holes 3 = Not a net 4 = Not observed []
19a. "What is the brand of the mosquito net?" <i>(If net was observed, record brand; if not, ask the respondent)</i> 1 = Long lasting net (Permanet, Smartnet, Olyset) 2 = Factory net with insecticide kit (KO, Kooper, Ico, Safi) 3 = Factory net with no insecticide (B52, Bamboo, Century, Lucky, Victoria) 4 = Home made net 77 = Other [] []	19b. "What is the brand of the mosquito net?" <i>(If net was observed, record brand; if not, ask the respondent)</i> 1 = Long lasting net (Permanet, Smartnet, Olyset) 2 = Factory net with insecticide kit (KO, Kooper, Ico, Safi) 3 = Factory net with no insecticide (B52, Bamboo, Century, Lucky, Victoria) 4 = Home made net 77 = Other [] []
20a. How many months ago was the mosquito net last soaked or dipped in insecticide to repel mosquitos? 1 = < 6 mo 2 = ≥ 6 mo 3 = Never 88 = Don't know 99 = Refused to answer [] []	20b. How many months ago was the mosquito net last soaked or dipped in insecticide to repel mosquitos? 1 = < 6 mo 2 = ≥ 6 mo 3 = Never 88 = Don't know 99 = Refused to answer [] []

COHORT STUDY HOUSEHOLD SURVEY (4)

Subcounty ID	Village ID	Compound #	Household #	Cluster #	Date of visit
[]	[]	[]	[]	[]	[]/[]/[] day month year

SECTION 7: SECOND ACTION

44. "What did you do SECOND (including tepid sponging and herbs)?" (choose only one action)

- | | | | |
|---------------------------------|--|------------------------|---|
| 1 = Nothing | 5 = Bought medicines from duka | 77 = Other | |
| 2 = Tepid sponging | 6 = Bought medicines at drug shop/pharmacy | | [] |
| 3 = Gave herbs kept at home | 7 = Took to traditional healer | 88 = Don't know | |
| 4 = Gave medicines kept at home | 8 = Took to public health centre, clinic or hospital | 99 = Refused to answer | <i>If 8, go to #45, otherwise skip to #49</i> |

45. "If you took your child to public health centre, clinic or hospital, where did you go?"

- | | | |
|------------------------------|------------------------|--|
| 1 = Public health centre | 77 = Other | |
| 2 = Tororo District Hospital | | [] |
| 3 = Private hospital/clinic | 88 = Don't know | |
| | 99 = Refused to answer | <i>If 1 or 2, go to #46, otherwise skip to #49</i> |

46. "Why did you go to the public health centre or public hospital?"

- | | | |
|------------------------------|---|------------------------|
| 1 = I heard there were drugs | 5 = I always go to the public health centre | 77 = Other |
| 2 = Someone told me to go | 6 = They were nice to me last time I went | |
| 3 = It's closest to my home | 7 = They told me to come back | 88 = Don't know |
| 4 = It's free (no cost) | 8 = The drug given last time was unsuccessful | 99 = Refused to answer |
| | 9 = There were no drugs at the health centre the last time I went | [] |

47. "How satisfied were you with the health care that your child received at the public health centre?"

- | | | | |
|-----------------------|---------------|------------------------|---|
| 1 = Very dissatisfied | 3 = Uncertain | 5 = Very satisfied | |
| 2 = Dissatisfied | 4 = Satisfied | 99 = Refused to answer | [] |
| | | | <i>If 1 or 2 go to # 48, otherwise, skip to #49</i> |

48. "If dissatisfied or very dissatisfied what were the reasons for being dissatisfied?" (list all that apply)

- | | | | |
|------------------------------|--------------------------------|-----|-----|
| 1 = Long waiting time | 6 = Had to pay for care | [] | [] |
| 2 = No trained professionals | 7 = Treatment was unsuccessful | [] | [] |
| 3 = No drugs were given | 77 = Other | [] | [] |
| 4 = No lab tests done | | [] | [] |
| 5 = Rude HCW | 99 = Refused to answer | [] | [] |

49. "How long had the child been ill when this SECOND action was taken?"

- | | | | |
|--------------|--------------|------------|------------------------|
| 1 = < 24 hrs | 3 = 4-7 days | 77 = Other | 88 = Don't know |
| 2 = 1-3 days | 4 = > 7 days | | 99 = Refused to answer |
| | | | [] |

MEDICINES GIVEN AS SECOND TREATMENT

"If your child took medicine SECOND, what did he/she take?" (Indicate all that were given as a first action)

DRUG	Number of times given per day	Number of days given	How long had the child been ill when the drug was started?		
			1 = < 24 hrs 2 = 1-3 days	3 = 4-7 days 4 = > 7 days	77 = Other (list) 88 = Don't know 99 = Refused to answer
50. Panadol	[]	[]	[]	[]	[]
51. Aspirin	[]	[]	[]	[]	[]
52. Chloroquine	[]	[]	[]	[]	[]
53. Fansidar (SP)	[]	[]	[]	[]	[]
54. CQ+SP	[]	[]	[]	[]	[]
55. Amodiaquine	[]	[]	[]	[]	[]
56. Quinine	[]	[]	[]	[]	[]
57. Coartem	[]	[]	[]	[]	[]
58. Septrin (Bactrim)	[]	[]	[]	[]	[]
59. Amoxicillin	[]	[]	[]	[]	[]
60. Other _____	[]	[]	[]	[]	[]
61. Other _____	[]	[]	[]	[]	[]
62. Other _____	[]	[]	[]	[]	[]
63. Unknown	[]	[]	[]	[]	[]

IF ILLNESS RESOLVED, skip to Section 9: Treatment outcome

COHORT STUDY HOUSEHOLD SURVEY (5)

Subcounty ID	Village ID	Compound #	Household #	Cluster #	Date of visit
[]	[]	[]	[]	[]	[]/[]/[] day month year

SECTION 8: THIRD ACTION

64. "What did you do THIRD (including tepid sponging and herbs)?" (choose only one action)

- | | | |
|---------------------------------|--|---|
| 1 = Nothing | 6 = Bought medicines at drug shop/pharmacy | 77 = Other _____ |
| 2 = Tepid sponging | 7 = Took to traditional healer | 88 = Don't know |
| 3 = Gave herbs kept at home | 8 = Took to public health centre, clinic or hospital | 99 = Refused to answer [] [] |
| 4 = Gave medicines kept at home | | <i>If 8, go to #65, otherwise skip to #69</i> |
| 5 = Bought medicines from duka | | |

65. "If you took your child to public health centre, clinic or hospital, where did you go?"

- | | |
|------------------------------|--|
| 1 = Public health centre | 77 = Other _____ |
| 2 = Tororo District Hospital | 88 = Don't know |
| 3 = Private hospital/clinic | 99 = Refused to answer [] [] |
| | <i>If 1 or 2, go to #66, otherwise skip to #69</i> |

66. "Why did you go to the public health centre or public hospital?"

- | | | |
|------------------------------|---|------------------------|
| 1 = I heard there were drugs | 5 = I always go to the public health centre | 77 = Other _____ |
| 2 = Someone told me to go | 6 = They were nice to me last time | |
| 3 = It's closest to my home | 7 = They told me to come back | 88 = Don't know |
| 4 = It's free (no cost) | 8 = The drug given last time was unsuccessful | 99 = Refused to answer |
| | 9 = There were no drugs at the health centre the last time I went | [] [] |

67. "How satisfied were you with the health care that your child received at the public health centre?"

- | | | |
|-----------------------|---------------|--|
| 1 = Very dissatisfied | 3 = Uncertain | 5 = Very satisfied |
| 2 = Dissatisfied | 4 = Satisfied | 99 = Refused to answer [] [] |
| | | <i>If 1 or 2 go to #68. Otherwise, skip to #69</i> |

68. "If dissatisfied or very dissatisfied what were the reasons for being dissatisfied?" (list all that apply)

- | | | | |
|------------------------------|--------------------------------|---------|---------|
| 1 = Long waiting time | 6 = Had to pay for care | [] [] | [] [] |
| 2 = No trained professionals | 7 = Treatment was unsuccessful | [] [] | [] [] |
| 3 = No drugs were given | 77 = Other _____ | [] [] | [] [] |
| 4 = No lab tests done | 99 = Refused to answer | [] [] | [] [] |
| 5 = Rude HCW | | | |

69. "How long had the child been ill when this THIRD action was taken?"

- | | | |
|--------------|------------------|--------------------------------|
| 1 = < 24 hrs | 4 = > 7 days | 88 = Don't know |
| 2 = 1-3 days | 77 = Other _____ | 99 = Refused to answer [] [] |
| 3 = 4-7 days | | |

MEDICINES GIVEN AS THIRD TREATMENT

"If your child took medicine THIRD, what did he/she take?" (Indicate all that were given as a third action)

DRUG	Number of times given per day	Number of days given	How long had the child been ill when the drug was started?
			1 = < 24 hrs 3 = 4-7 days 77 = Other (list) 2 = 1-3 days 4 = > 7 days 88 = Don't know 99 = Refused to answer
70. Panadol	[] []	[] []	[] []
71. Aspirin	[] []	[] []	[] []
72. Chloroquine	[] []	[] []	[] []
73. Fansidar (SP)	[] []	[] []	[] []
74. CQ+SP	[] []	[] []	[] []
75. Amodiaquine	[] []	[] []	[] []
76. Quinine	[] []	[] []	[] []
77. Coartem	[] []	[] []	[] []
78. Septrin (Bactrim)	[] []	[] []	[] []
79. Amoxicillin	[] []	[] []	[] []
80. Other _____	[] []	[] []	[] []
81. Other _____	[] []	[] []	[] []
82. Other _____	[] []	[] []	[] []
83. Unknown	[] []	[] []	[] []

IF ILLNESS RESOLVED, skip to Section 9 on treatment outcome, otherwise go to Extra Actions Form

COHORT STUDY HOUSEHOLD SURVEY (6)

Subcounty ID	Village ID	Compound #	Household #	Cluster #	Date of visit
[]	[]	[]	[]	[]	[]/[]/[] day month year

SECTION 9: TREATMENT OUTCOME

84. "How long did the child's illness last?"	1 = < 24 hrs 2 = 1-3 days 3 = 4-7 days 4 = >7 days	5 = Ongoing at time of interview 77 = Other _____ 88 = Don't know 99 = Refused to answer	[]
85. "Did you experience any delays in treating your child's illness?"	1 = Yes 2 = No	77 = Other _____ 88 = Don't know 99 = Refused to answer	[]
86. "What were the reasons for the delays?" (list all that apply)	1 = No transport available 2 = Not enough money available 3 = Needed to find coverage for work	4 = Needed to arrange for child care 5 = Waiting at the health facility 6 = Was not at home 77 = Other _____ 88 = Don't know 99 = Refused to answer	[] [] [] [] [] []
87. "How much did you spend on management of this illness?"	Cost of drugs [] [] [] [] [] Ush	Transport [] [] [] [] [] Ush	
	Fees (clinic, hospital, lab) [] [] [] [] [] Ush	Other [] [] [] [] [] Ush	
	TOTAL [] [] [] [] [] Ush		
88. "Did caring for your child and managing his/her illness prevent you from doing your usual activities this month?"	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer	[]
89. "If yes, how much time did you miss?"	If < 1 day, indicate number of hours otherwise, record 00		[] [] hours [] [] days
Field worker ID [] []	ID of observers present at interview [] [] [] []		

APPENDIX U: COHORT STUDY HOUSEHOLD SURVEY (7)

Subcounty ID	Village ID	Compound #	Household #	Cluster #	Date of visit
[]	[] []	[] [] [] []	[] []	[] []	[] [] / [] [] / [] [] day month year

SECTION 4 cont'd: EXTRA BEDNETS (Record number of net)

Net []	Net []
16c. "How many months ago did you obtain the mosquito net?" 88 = Don't know 77 = Other Insert number of months 99 = Refused to answer [] []	16d. "How many months ago did you obtain the mosquito net?" 88 = Don't know 77 = Other Insert number of months 99 = Refused to answer [] []
17c. "From where did you get the mosquito nets?" [] [] 1 = Government health center 5 = Shop 10 = Church 2 = Government hospital 6 = Open market 77 = Other 3 = Private hospital/clinic 7 = Hawker 4 = Private pharmacy 8 = Project/NGO 88 = Don't know 9 = Campaign 99 = Refused	17d. "From where did you get the mosquito nets?" [] [] 1 = Government health center 5 = Shop 10 = Church 2 = Government hospital 6 = Open market 77 = Other 3 = Private hospital/clinic 7 = Hawker 4 = Private pharmacy 8 = Project/NGO 88 = Don't know 9 = Campaign 99 = Refused
18c. "May I have a look at the mosquito net?" (Observe the net and record the status) 1 = Observed and intact 3 = Not a net 2 = Observed and has visible holes 4 = Not observed []	18d. "May I have a look at the mosquito net?" (Observe the net and record the status) 1 = Observed and intact 3 = Not a net 2 = Observed and has visible holes 4 = Not observed []
19c. "What is the brand of the mosquito net?" (If net was observed, record brand; if not, ask the respondent) 1 = Long lasting net (Permanet, Smartnet, Olyset) 3 = Factory net with no insecticide (B52, Bamboo, Century, Lucky, Victoria) [] [] 2 = Factory net with insecticide kit (KO, Kooper, Ico, Safi) 4 = Home made net 77 = Other	19d. "What is the brand of the mosquito net?" (If net was observed, record brand; if not, ask the respondent) 1 = Long lasting net (Permanet, Smartnet, Olyset) 3 = Factory net with no insecticide (B52, Bamboo, Century, Lucky, Victoria) [] [] 2 = Factory net with insecticide kit (KO, Kooper, Ico, Safi) 4 = Home made net 77 = Other
20c. How many months ago was the mosquito net last soaked or dipped in insecticide to repel mosquitos? 1 = < 6 mo 3 = Never 99 = Refused 2 = ≥ 6 mo 88 = Don't know to answer [] []	20d. How many months ago was the mosquito net last soaked or dipped in insecticide to repel mosquitos? 1 = < 6 mo 3 = Never 99 = Refused 2 = ≥ 6 mo 88 = Don't know to answer [] []

Net []	Net []
16e. "How many months ago did you obtain the mosquito net?" 88 = Don't know 77 = Other Insert number of months 99 = Refused to answer [] []	16f. "How many months ago did you obtain the mosquito net?" 88 = Don't know 77 = Other Insert number of months 99 = Refused to answer [] []
17e. "From where did you get the mosquito nets?" [] [] 1 = Government health center 5 = Shop 10 = Church 2 = Government hospital 6 = Open market 77 = Other 3 = Private hospital/clinic 7 = Hawker 4 = Private pharmacy 8 = Project/NGO 88 = Don't know 9 = Campaign 99 = Refused	17f. "From where did you get the mosquito nets?" [] [] 1 = Government health center 5 = Shop 10 = Church 2 = Government hospital 6 = Open market 77 = Other 3 = Private hospital/clinic 7 = Hawker 4 = Private pharmacy 8 = Project/NGO 88 = Don't know 9 = Campaign 99 = Refused
18e. "May I have a look at the mosquito net?" (Observe the net and record the status) 1 = Observed and intact 3 = Not a net 2 = Observed and has visible holes 4 = Not observed []	18f. "May I have a look at the mosquito net?" (Observe the net and record the status) 1 = Observed and intact 3 = Not a net 2 = Observed and has visible holes 4 = Not observed []
19e. "What is the brand of the mosquito net?" (If net was observed, record brand; if not, ask the respondent) 1 = Long lasting net (Permanet, Smartnet, Olyset) 3 = Factory net with no insecticide (B52, Bamboo, Century, Lucky, Victoria) [] [] 2 = Factory net with insecticide kit (KO, Kooper, Ico, Safi) 4 = Home made net 77 = Other	19f. "What is the brand of the mosquito net?" (If net was observed, record brand; if not, ask the respondent) 1 = Long lasting net (Permanet, Smartnet, Olyset) 3 = Factory net with no insecticide (B52, Bamboo, Century, Lucky, Victoria) [] [] 2 = Factory net with insecticide kit (KO, Kooper, Ico, Safi) 4 = Home made net 77 = Other
20e. How many months ago was the mosquito net last soaked or dipped in insecticide to repel mosquitos? 1 = < 6 mo 3 = Never 99 = Refused 2 = ≥ 6 mo 88 = Don't know to answer [] []	20f. How many months ago was the mosquito net last soaked or dipped in insecticide to repel mosquitos? 1 = < 6 mo 3 = Never 99 = Refused 2 = ≥ 6 mo 88 = Don't know to answer [] []

COHORT STUDY HOUSEHOLD SURVEY (8)					
Subcounty ID	Village ID	Compound #	Household #	Cluster #	Date of visit
[]	[] []	[] [] [] []	[] []	[] []	[] [] / [] [] / [] [] day month year

SECTION 8 cont'd: EXTRA ACTION []
(Record number of action)

84. "What did you do NEXT (including tepid sponging and herbs)?" (choose only one action)

1 = Nothing	6 = Bought medicines at drug shop/pharmacy	77 = Other _____
2 = Tepid sponging	7 = Took to traditional healer	88 = Don't know
3 = Gave herbs kept at home	8 = Took to public health centre, clinic or hospital	99 = Refused to answer
4 = Gave medicines kept at home		[] []
5 = Bought medicines from duka		<i>If 8, go to #85, otherwise skip to #89</i>

85. "If you took your child to public health centre, clinic or hospital, where did you go?"

1 = Public health centre	77 = Other _____
2 = Tororo District Hospital	88 = Don't know
3 = Private hospital/clinic	99 = Refused to answer
	[] []
	<i>If 1 or 2, go to #86, otherwise skip to #89</i>

86. "Why did you go to the public health centre or public hospital?"

1 = I heard there were drugs	5 = I always go to the public health centre	77 = Other _____
2 = Someone told me to go	6 = They were nice to me last time	
3 = It's closest to my home	7 = They told me to come back	88 = Don't know
4 = It's free (no cost)	8 = The drug given last time was unsuccessful	99 = Refused to answer
	9 = There were no drugs at the health centre the last time I went	[] []

87. "How satisfied were you with the health care that your child received at the public health centre?"

1 = Very dissatisfied	3 = Uncertain	5 = Very satisfied
2 = Dissatisfied	4 = Satisfied	99 = Refused to answer
		[] []
		<i>If 1 or 2 go to #88. Otherwise, skip to #89</i>

88. "If dissatisfied or very dissatisfied what were the reasons for being dissatisfied?" (list all that apply)

1 = Long waiting time	6 = Had to pay for care	[] []	[] []
2 = No trained professionals	7 = Treatment was unsuccessful	[] []	[] []
3 = No drugs were given	77 = Other _____	[] []	[] []
4 = No lab tests done		[] []	[] []
5 = Rude HCW	99 = Refused to answer	[] []	[] []

89. "How long had the child been ill when this NEXT action was taken?"

1 = < 24 hrs	4 = > 7 days	88 = Don't know
2 = 1-3 days	77 = Other _____	99 = Refused to answer
3 = 4-7 days		[] []

MEDICINES GIVEN AS NEXT TREATMENT
"If your child took medicine THIRD, what did he/she take?" (Indicate all that were given as a third action)

DRUG	Number of times given per day	Number of days given	How long had the child been ill when the drug was started?
			1 = < 24 hrs 3 = 4-7 days 77 = Other (list) 2 = 1-3 days 4 = > 7 days 88 = Don't know 99 = Refused to answer
90. Panadol	[] []	[] []	[] [] _____
91. Aspirin	[] []	[] []	[] [] _____
92. Chloroquine	[] []	[] []	[] [] _____
93. Fansidar (SP)	[] []	[] []	[] [] _____
94. CQ+SP	[] []	[] []	[] [] _____
95. Amodiaquine	[] []	[] []	[] [] _____
96. Quinine	[] []	[] []	[] [] _____
97. Coartem	[] []	[] []	[] [] _____
98. Septrin (Bactrim)	[] []	[] []	[] [] _____
99. Amoxicillin	[] []	[] []	[] [] _____
100. Other _____	[] []	[] []	[] [] _____
101. Other _____	[] []	[] []	[] [] _____
102. Other _____	[] []	[] []	[] [] _____
103. Unknown	[] []	[] []	[] [] _____

IF ILLNESS RESOLVED, skip to Section 9 on treatment outcome, otherwise go to Extra Actions Form

Ques. No.	Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
Appendix UII: Part 1 - Household Survey							
Household Unique Identification- this information is unique for each household on recruitment list, to be programmed as a primary key (to avoid duplicates)							
1	DATEFIRST	Date of initial visit	Date				Can be a date before today for a revisit
2	DATELAST	Date of final visit	Date		cannot be before todays date		automatically generated
3	STARTIME	Start time of interview	String (HH:SS)				automatically generated
4	CLUSTNUM	Cluster number	Numeric		1 - 20		
5	SUBCTYNUM	Sub-county number	Numeric	1 - Nagongera 2 - Paya 3 - Kisoko 4 - Kirewa 5 - Petta 6 - Mulanda 7 - Rubongi	as per variable codes		data is recorded twice to ensure data integrity
6	VILLAGENUM	Village number	Numeric		1 - 999		
7	COMPNUM	Compound number	Numeric		1 - 9999		
8	HHHNUM	Household number	Numeric		1 - 99		
9	STAFFID	Staff ID	Numeric				
Section 1: Head of household's (Respondent's) Background							
10	HHAGEYRS	How old are you?	Numeric	88 - Don't know 99 - Refused to answer/skipped	10 - 120,999		- if < 15 or > 49, skip to section 6. - if refuse to answer, skip to section 6.
11	HHSCHOOL	Have you ever attended school?	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes	if <> 1 then skip to NEWSPR	
12	HHHIGHEST	What is the highest level of school you attended?	Numeric	0 - None - Primary (P1-P4) 2 - Primary (P5-P7) 3 - Secondary (S1-S4) 4 - Secondary(S5-S6) 10 - Certificate/Diploma 11 - University 77 - Other _____ 88 - Don't know 99 - Refused to answer	1 as per variable codes		
13	HHJOBTRN	Have you completed any other type of job training school?	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
14	HHREAD	"Now I would like you to read a sentence. In what language do you read?" SELECT AND SHOW THE APPROPRIATE LITERACY CARD TO CAREGIVER. LISTEN AND GRADE THE READING EFFORT. *If cannot read skip to question #17	Numeric	1 - Cannot read at all* 2 - Can read only parts of the sentence 3 - Able to read the whole sentence 4 - No card with required language (specify language) _____ 99 - Refused to answer/skipped	as per variable codes		
15	HHNEWSPR	Do you read a newspaper or magazine almost every day, at least once a week, less than once a week or not at all?	Numeric	1 - Almost every day 2 - At least once a week 3 - Less than once a week 4 - Not at all 8 - Cannot read 99 - Refused to answer/skipped	as per variable codes		
16	HHRADIO	Do you listen to the radio almost every day, at least once week, less than once a week or not at all?	Numeric	1 - Almost every day 2 - At least once a week 3 - Less than once a week 4 - Not at all 99 - Refused to answer/skipped	as per variable codes		
17	HHTV	Do you watch television almost every day, at least once a week, less than once a week or not at all?	Numeric	1 - Almost every day 2 - At least once a week 3 - Less than once a week 4 - Not at all 99 - Refused to answer/skipped	as per variable codes		
18	HHJOB	What is the main activity or job you do to provide your family with income OR *If you do not have regular employment, what other things do you do to help provide your family with income?	Numeric	1 - Peasant farmer 2 - Student 3 - Military/police/security 4 - Construction worker/casual labourer 5 - Housekeeper 6 - Selling goods/shopkeeper/businessman 7 - Selling food stuffs (catering/food vendor) 8 - Taxi, bodaboda or bicycle rider 9 - Mechanic 10 - Government/clerical/secretarial work. 11 - Health worker 12 - Teacher 14 - None/unemployed 77 - Other _____ 99 - Refused to answer/skipped	as per variable codes	if = 1 then skip to PAID if = 9 then skip to WORK3	

Ques. No.	Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
19	HHWORK12	Have you done any work in the last 12 months?	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes	if = 2 or 9 skip to WKSTMT	
20	HHPAID	Are (were) you paid in cash or kind for this work or are (were) you not paid at all? IF PAID, ASK WHETHER CASH, IN-KIND, OR BOTH.	Numeric	1 - Cash only 2 - Cash and kind 3 - In-kind only 4 - Not paid 99 - Refused to answer/skipped	as per variable codes		
21	HHWORKJOB	if you have done any work in the last 12 months, what have you been doing for most of the time during this period?	Numeric	1 - going to school/studying 2 - looking for work 3 - retired 4 - too ill to work 5 - handicapped, cannot work 6 - housework/child care 96 - other 99 - Refused to answer/skipped	as per variable codes	if = 96, specify other	
22	HHWORKOT	Specify other non-work activity	String				
23	RESIDENTS	How many people usually live in your household (total number including children)?	Numeric		1-32		
24	WOMENCBA	How many women of child-bearing age (13-49 years) live in your household ?	Numeric		1-32		
25	WOMENLIST	List all women of child-bearing age (13-49 years) in your household					
Section 2: Primary Caregiver Background							
22	PCAGEYRS	How old are you?	Numeric	88 - Don't know 99 - Refused to answer/skipped	10 - 120,999	- if < 13 or > 49, skip to section 6. - if refuse to answer, skip to section 6.	
23	PCSCHOOL	Have you ever attended school?	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes	if > 1 then skip to NEWSPR	
24	PCHIGHEST	What is the highest level of school you attended?	Numeric	0 - None - Primary (P1-P4) 2 - Primary (P5-P7) 3 - Secondary (S1-S4) 4 - Secondary(S5-S6) 10 - Certificate/Diploma 11 - University 77 - Other _____ 88 - Don't know 99 - Refused to answer	1 as per variable codes		
25	PCJOBTRN	Have you completed any other type of job training school?	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
26	PCREAD	"Now I would like you to read a sentence. In what language do you read?" SELECT AND SHOW THE APPROPRIATE LITERACY CARD TO CAREGIVER. LISTEN AND GRADE THE READING EFFORT. *If cannot read skip to question #17	Numeric	1 - Cannot read at all* 2 - Can read only parts of the sentence 3 - Able to read the whole sentence 4 - No card with required language (specify language) _____ 99 - Refused to answer/skipped	as per variable codes		
27	PCNEWSPR	Do you read a newspaper or magazine almost every day, at least once a week, less than once a week or not at all?	Numeric	1 - Almost every day 2 - At least once a week 3 - Less than once a week 4 - Not at all 8 - Cannot read 99 - Refused to answer/skipped	as per variable codes		
28	PCRADIO	Do you listen to the radio almost every day, at least once week, less than once a week or not at all?	Numeric	1 - Almost every day 2 - At least once a week 3 - Less than once a week 4 - Not at all 99 - Refused to answer/skipped	as per variable codes		
29	PCTV	Do you watch television almost every day, at least once a week, less than once a week or not at all?	Numeric	1 - Almost every day 2 - At least once a week 3 - Less than once a week 4 - Not at all 99 - Refused to answer/skipped	as per variable codes		

Ques. No.	Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
30	PCJOB	What is your occupation, that is, what kind of work do you mainly do? INTERVIEWER: PROBE TO OBTAIN DETAILED INFORMATION ON THE KIND OF WORK RESPONDENT DOES.	String	1 - Peasant farmer 2 - Student 3 - Military/police/security 4 - Construction worker/casual labourer 5 - Housekeeper 6 - Selling goods/shopkeeper/businessman 7 - Selling food stuffs (catering/food vendor) 8 - Taxi, bodaboda or bicycle rider 9 - Mechanic 10 - Government/clerical/secretarial work. 11 - Health worker 12 - Teacher 14 - None/unemployed 77 - Other _____ 99 - Refused to answer/skipped		skip to Section 3	
31	PCWORK12	Have you done any work in the last 12 months?	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes	if = 2 or 9 skip to WKSTMT	
32	PCPAID	Are (were) you paid in cash or kind for this work or are (were) you not paid at all? IF PAID, ASK WHETHER CASH, IN-KIND, OR BOTH.	Numeric	1 - Cash only 2 - Cash and kind 3 - In-kind only 4 - Not paid 99 - Refused to answer/skipped	as per variable codes		
33	PCWORKJOB	if you have done any work in the last 12 months, what have you been doing for most of the time during this period?	Numeric	1 - going to school/studying 2 - looking for work 3 - retired 4 - too ill to work 5 - handicapped, cannot work 6 - housework/child care 96 - other 99 - Refused to answer/skipped	as per variable codes	if = 96, specify other	
34	PCWORKOT	Specify other non-work activity	String				
Section 3: Household Characteristics (Wealth Indicators)							
35	SWATER	What is the main source of drinking water for members of your household?	Numeric	10 - borehole 11 - pipe into dwelling 12 - piped into yard/compound 13 - public tap 21 - open well in yard/compound 22 - open public well 31 - protected well in yard/compound 32 - protected public well 41 - protected spring 42 - unprotected spring 43 - river/stream 44 - pond/lake 45 - dam 51 - rainwater 61 - water truck 71 - bottled water 96 - other	as per variable codes	if = 96 then specify Other	
36	OTHERSCS	Specify other source of water	String				
37	TFACTLY	What kind of toilet facility do members of your household usually use?	Numeric	1 - flush toilet 2 - vip latrine 3 - covered pit latrine no slab 4 - covered pit latrine w/slab 5 - uncovered pit latrine no slab 6 - uncovered pit latrine w/slab 7 - composting toilet 8 - no facility/bush/field 77 - other 99 - Refused to answer/skipped	as per variable codes	if = 96 then specify Other	
38	OTHERFCY	Specify other kind of toilet facilities	String				
39	ELECTIRC	Does your household have... ...Electricity?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
40	RADIO	...Radio?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
41	TV	...Television?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		

Ques. No.	Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
42	MOBILE	...Mobile phone?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
43	FRIDGE	...Refrigerator?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
44	SOFA	...Sofa set?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
45	BED	...Bed?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
46	CLOCK	...Clock?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
47	FUELTYPE	What type of fuel does your household mainly use for cooking?	Numeric	1 - electricity 2 - lpg/natural gas 3 - biogas 4 - paraffin/kerosene 5 - charcoal 6 - firewood 7 - starw/shrubs/grass 8 - animal dung 95 - no food cooked in household 96 - other 99 - Refused to answer/skipped	as per variable codes	if = 96 then specify Other	
48	OTHERFUE	Specify other type of fuel used	String				
49	SENERGY	What do you use for lighting energy in this household?	Numeric	1 - electricity 2 - solar 3 - gas 4 - paraffin - hurricane lamp 5 - paraffin - pressure lamp 6 - paraffin - wick lamp 7 - firewood 8 - candles 96 - other 99 - Refused to answer/skipped	as per variable codes	if = 96 then specify Other	
50	OTHERENG	Specify other source of energy for lighting	String				
51	MMFLOOR	MAIN MATERIAL OF THE FLOOR RECORD OBSERVATION. MARK ONLY ONE.	Numeric	11 - earth/sand 12 - earth and dung 31 - parquet or polished wood 33 - mosaic or tiles 34 - bricks 35 - cement 36 - stones 96 - other 99 - Refused to answer/Skipped	as per variable codes	if = 96 then specify Other	
52	OTHERMMF	Specify other material of the floor	String				
53	MMROOF	MAIN MATERIAL OF THE ROOF. RECORD OBSERVATION. MARK ONLY ONE.	Numeric	11-thatched 12-mud 21-wood/planks 22-iron sheets 23-asbestos 24-tiles 25-tin 26-cement 96-other 99 - Refused to answer/Skipped	as per variable codes	if = 96 then specify Other	
54	OTHERMMR	Specify other material of the roof	String				
55	MMEWALLS	MAIN MATERIAL OF THE EXTERIOR WALLS. RECORD OBSERVATION. MARK ONLY ONE.	Numeric	11 - thatched/straw 21 - mud and poles 22 - un-burnt bricks 23 - un-burnt bricks with plaster 24 - burnt bricks with mud 31 - cement blocks 32 - stone 33 - timber 34 - burnt bricks with cement 96 - other 99 - Refused to answer/Skipped	as per variable codes	if = 96 then specify Other	
56	OTHERMME	Specify other material of the exterior walls	String				

Ques. No.	Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
57	HHROOMS	How many rooms in your household are used for sleeping? (INCLUDING ROOMS OUTSIDE THE MAIN DWELLING) If there are 15 or more rooms, enter 15	Numeric	88 - Don't know 99 - Refused to answer/skipped	1 - 15,98,99		
58	WATCH	Does any member of your household own or have... ...A watch?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
59	BICYCLE	...A bicycle?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
60	SCOOTER	...A motorcycle or motor scooter?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
61	CAR	...A car or truck?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
62	BANKACCO	...A bank account?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
63	CATTLE	How many Cattle does this household own? If none, enter 00 If more than 95, enter 95	Numeric	88 - Don't know 99 - Refused to answer/skipped	0 - 95, 98,99		
64	GOATS	How many Goats does this household own? If none, enter 00 If more than 95, enter 95 If unknown, enter 98	Numeric	88 - Don't know 99 - Refused to answer/skipped	0 - 95, 98,99		
65	SHEEP	How many Sheep does this household own? If none, enter 00 If more than 95, enter 95 If unknown, enter 98	Numeric	88 - Don't know 99 - Refused to answer/skipped	0 - 95, 98,99		
66	PIGS	How many Pigs does this household own? If none, enter 00 If more than 95, enter 95 If unknown, enter 98	Numeric	88 - Don't know 99 - Refused to answer/skipped	0 - 95, 98,99		
67	CHICKEN	How many chickens does this household own? If none, enter 00 If more than 95, enter 95 If unknown, enter 98	Numeric	88 - Don't know 99 - Refused to answer/skipped	0 - 95, 98,99		
68	HHPSF	How often in the last year did you have problems in satisfying the food needs of the household?	Numeric	1 - never 2 - seldom 3 - sometimes 4 - often 5 - always 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
69	DHFCTY	How far is it to the nearest health facility? If less than 1 km, enter 00 If more than 95 km, enter 95 If Don't know, enter 98	Numeric	88 - Don't know 99 - Refused to answer/skipped	0 - 95, 98,99		
70	MTHFCTY	If you were to go this facility, how would you <u>most</u> likely go there?	Numeric	1 - car/motorcycle 2 - public transport(bus,taxi) 3 - animal/animal cart 4 - walking 5 - bicycle 6 - other 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if = 6 then specify Other	Walk to trading center and take a car or bike is: "car/motorbike". Most common means used!
71	OTHERMTH	Specify other means of transport to the health facility	String				

Section 4: Bednets - All questions in this section will be repeated for each mosquito net in the household (hhnumnet)

Ques. No.	Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
72	HHAMNETS	Does this household have any mosquito nets ?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if = 2 or 9 then skip to Next SECTION	
73	HNUMNETS	How many mosquito nets does your household have? IF MORE THAN 12, ENTER 13	Numeric	99 - Refused to answer/skipped	1 - 13,99		Again, the software is not capable of an 'infinite' number of nets, therefore it has to be preprogrammed for the maximum number of nets we expect to find at a household: 12 was chosen
74	MNTH1	How many months ago did your household obtain the mosquito net? IF LESS THAN ONE MONTH, WRITE '0'. IF MORE THAN 36 MONTHS AGO RECORD 95 IF NOT SURE RECORD 98	Numeric	0 - less than 1 month 88 - Don't know 95 - More than 36 months 99 - Refused to answer/skipped	0-36,88,95,99		
75	WHERE1	Where did you get the mosquito net from?		1 - Gov't health center 2 - Gov't hospital 3 - Private hospital/clinic 4 - Private pharmacy 5 - Shop 6 - Open market 7 - Hawker 8 - Project/ngo 9 - Campaign/VHT 10 - Church 77 - Other 88 - Does not know 99 - Refused to answer/skipped	as per variable codes	if = 96 then specify other	
76	OBS1	May I have a look at (all) the net(s) to establish the brand?	Numeric	1 - Observed and intact 2 - Observed and has visible holes 3 - Not a net 4 - Not observed	as per variable codes		
77	BRAND1	OBSERVE OR ASK THE BRAND OR TYPE OF MOSQUITO NET.	Numeric	1 - Long lasting net (Permanet, Duranet, Interceptor, Netprotect, Olyset) 2 - Factory net with insecticide kit (KONet, Kooper net, Iconet, Safi net) 3 - Factory net with no insecticide (B52, bamboo hut, century, lucky net, victoria) 4 - homemade net 77 - other 88 - Don't know brand 99 - Refused to answer/skipped	as per variable codes	if = 1 then skip to SLPNETx if = 2, 3,4,77, 88 then skip to next question	
78	OTHERB1	Specify other brands or types of mosquitonet	String				
79	SMNET1	Since you got the mosquito net, was it ever soaked or dipped in a liquid to repel mosquitoes or bugs?	Numeric	1 - Yes 2 - No 77 - Other 88 - Don't know	as per variable codes	if <> 1 then skip to SLPNETx	
80	TSMNET1	How many months ago was the net last soaked or dipped? IF LESS THAN 1 MONTH, RECORD '0'. IF 25 OR MORE MONTHS AGO, RECORD 95 IF NOT SURE, RECORD 98	Numeric	1 - < 6 months 2 - ≥6 months 3 - Never 95 - More than 25 months ago 88 - Don't know 99 - Refused to answer	as per variable codes		
81	SLPNET1	Did anyone sleep under this mosquito net last night?	Numeric	1 - Yes 2 - No 8 - Not sure 9 - Refused to answer/skipped	as per variable codes	if = 1 then skip to UNETLxA if = 8 or 9 then repeat Section 4 if there are still more nets in the house (based on HNUMNETS)	
82	NUSED1	What are some of the reasons why this net was not used? PROBE FOR THE MAIN REASON. SELECT ONLY ONE.	Numeric	1 - Too hot 2 - Don't like smell 3 - No mosquitoes 4 - Net too old/too many holes 5 - Net not hang 6 - Don't want to hang 7 - Net no longer kills insects 77 - other 88 - Don't Know 99 - Refused to answer	as per variable codes		

Ques. No.	Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
83	NUSED1I	...Other	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes	if = 1 then specify other	
84	OTHERN1	Specify other	String				
85	NTHUNG1	If not hung, why not? PROBE FOR THE MAIN REASON. SELECT ONLY ONE.	Numeric	1 - Nowhere to hang 2 - Don't know how to hang net 3 - no tools to hang net 4 - shape did not fit 5 - size did not fit 6 - Don't want to hang 77 - other 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if <> 77 then repeat Section if there are still more nets in the house (based on HNUMNETS)	
86	OTHERNT1	Specify other reason why the net was not hung.	String			after this question, repeat Section 4 if there are still more nets in the house (based on HNUMNETS)	
Section 5: Experience with managing an ill child in the last 2 weeks							
77	FEVCH1	Has any of the children under your care been ill with a fever at any time in the past 2 weeks?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
78	FSEEK1	What did you do FIRST (Including tepid sponging and herbs)?	Numeric	1 - Nothing 2 - Tepid sponging 3 - Gave Herbs Kept at home 4 - Gave Medicines Kept at home 5 - Bought medicines from a Duka/shop 6 - Bought medicines from drug shop/Pharmacy 7 - Took to Traditional healer 8 - Took to a public health centre, clinic or hospital 77 - Other 88 - Don't Know 99 - Refused to answer/skipped	as per variable codes		
79	TMTCD1	Did you seek advice or treatment for the illness from any source?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if = 1 or 9 skip to SEEKAx	
80	NSTR1A	Why have you not sought advice or treatment from any source? ...Child just fell ill	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
81	NSTR1B	...Child not very ill	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
82	NSTR1C	...Clinic too far	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
83	NSTR1D	...Have no money	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
84	NSTR1E	...Waiting for child's father	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
85	NSTR1F	...Don't know what to do	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
86	NSTR1G	...Already had medicine at home	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
87	NSTR1H	...Other	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if = 2 or 9 skip to FVCHDX	
88	OCHOT1	Specify other	String				

Ques. No.	Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
89	ACTN1	How long had the child been ill when this FIRST action was taken?	Numeric	1 - < 24 hrs 2 - 1-3 days 3 - 4-7 days 4- > 7 days 88 - Don't know 99 - Refused to answer			
90	SEEK1A	If you took your child to a Public Health Centre,Clinic or Hospital,Where did you go?	Numeric	1 - Public health Centre 2 - Tororo District Hospital 3- Private Hospital/Clinic 77 - Other 88 -Don't Know 99-Refused to answer	as per variable codes	if = 1 or 2 go to SEEKPUBL otherwise skip to	
91	SEEKPUBL	Why did you go to the Public health centre or Public hospital ?	Numeric	1 - I heard there were drugs 2 - Someone told me to go 3 - It's closest to my home 4 - It's free(No cost) 5 - I always go to the Public health Centre 6 - They were nice to me the last time i went 77 - Other 88 - Don't Know 99 - Refused to answer/skipped	as per variable codes		
92	SERVUBL1	How satisfied were you with the health care that your child received at the Public health centre?	Numeric	1 - Very dissatisfied 2 - Dissatisfied 3 - Uncertain 4 - Satisfied 5 - Very satisfied 99 - Refused to answer	as per variable codes	if = 1 or 2 go to SERVPUBL2 otherwise skip to	
93	SERVUBL2	If dissatisfied or very dissatisfied, what were the reasons for being dissatisfied?	Numeric	1 - Long waiting time 2 - No trained professionals 3 - No drugs were given 4 - No lab tests done 5 - Rude HCW 6 - Had to pay for care 7- Treatment was unsuccessful 99 - Refused to answer	as per variable codes		
94	BDTST1	At any time during the illness, did the child have blood taken from his/her finger or heel for testing?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
95	FVCHD1	Is [NAME] still sick with a fever?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
96	MEDGIV	If your child took medicine FIRST ,what did he/she take? RECORD ALL MENTIONED.					
97	MED1	Panadol	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAY5x	
98	MED2	Aspirin	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAY5x	
99	MED3	Chloroquine(CQ)	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAY5x	
100	MED4	Fansidar(SP)	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAY5x	
101	MED5	Chloroquine + Fansidar(CQ+SP)	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAY5x	

Ques. No.	Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
102	MED6	Amodiaquine	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAY5x	
103	MED7	Quinine	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAY5x	
104	MED8	Artemether-Lumefantrine (Coartem)	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAY5x	
105	MED9	Cotrimoxazole(Septrin)	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAY5x	
106	MED10	Amoxicillin	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAY5x	
107	MED11	Other	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAY5x	
108	MED12	Other	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAY5x	
109	MED13	Other	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAY5x	
110	MED14	Unknown	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if =1 then must answer DURTN1x, NUMTMESx, and NUMDAY5x	
111	DURTN1	How long had the child been ill when the drug was taken?	Numeric	1 - < 24 hrs 2 - 1-3 days 3 - 4-7 days 4 - > 7 days 77- other 88 - Don't know 99 - Refused to answer	as per variable codes		
112	NUMTMES	How many times was the drug given per day?	Numeric	88 - Don't know 99 - Refused to answer/skipped	1 - 7, 8,9	Record Number	
113	DURILL	How long did the child's illness last ?	Numeric	1 - < 24 hrs 2 - 1-3 days 3 - 4-7 days 4 - > 7 days 5- Ongoing at time of interview 77- other 88 - Don't know 99 - Refused to answer	as per variable codes		
114	ILLDLYS	Did you experience anydelays in treating your child's illness?	Numeric	1 - Yes 2 - No 77- other 88 - Don't know 99 - Refused to answer	as per variable codes	Record Number	
115	RESDLYS	What were the reasons for the delay?(List all that apply)	Numeric	1 - No transport available 2 - Not enough money available 3 - Needed to find coverage for work 4- Needed to arrange for child care 5-Waiting at the health facility 6- Was not at home 77- other 88 - Don't know 99 - Refused to answer	as per variable codes	Record Number	
116	HWMCHILL	How much did you spend on the management of this illness?	Numeric(Ushs)	Cost of Drugs..... Transport..... Fees(Clinic,hospital,lab)..... Other..... TOTAL.....			
117	RESEDELAY	Did caring for your child and managing his/her illness prevent you from doing your usual activities ?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer	as per variable codes		

Ques. No.	Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
118	HWMCHMISS	If yes, how much time did you miss?	Numeric			Record Number (Hours,days,weeks)	
119	NUMDAYS	For how many days was the drug given ?	Numeric	88 - Don't know 99 - Refused to answer	1 - 7, 8,9	Record Number	
120	OTHERACTN1	Specify other ACTIONS taken	String			Record Number of ACTION and repeat questions from FSEEK	

APPENDIX O: Part 2 - Women's Survey - Complete for all women of child-bearing age (13-49 years) within the household

Section 1: Respondent's Background

121	WAGEYRS	How old are you?	Numeric	88 - Don't know 99 - Refused to answer/skipped	13-49, 88, 99	- if < 13 or > 49, skip PART 2 of Appendix O	
122	WSCHOOL	Have you ever attended school?	Numeric	1 - Yes 2 - No 88 - Don't know 99 - Refused to answer/skipped	as per variable codes		
123	WHIGHEST	What is the highest level of school you attended?	Numeric	0- None 1 - Primary(1-4) 2 - primary(5-7) 3 - Secondary (S1-S4) 4 - Secondary(S5-S6) 10-Certificate/Diploma 11 - University 77 - Other 88 - Don't know 99 - Refused to answer	as per variable codes		

Section 2: Birth History - Repeat questions in this section for every child birthed to this woman

124	TTBTH	How many total births have you had in your lifetime, including children who were born alive but who later died?	Numeric	99 - Refused to answer/skipped	0 - 35,99		
125	DTRBTD	On what day, month and year was your child born, (even if this birth was a child who later died)?	Numeric	88 - Don't know	1 - 31, 88		
126	DTRBTM	...Month	Numeric	88 - Don't know	1 - 12, 88		
127	DTRBTY	...Year	Numeric	8888 - Don't know	1970 - 2011, 8888, 9999		
128	CHAGE	Child age	Numeric				automatically generated
129	CHDLV	Is this child still alive?	Numeric	1 - Yes 2 - No 9 - Refused to answer/skipped	as per variable codes		
130	CHDDD	If the child died, HOW OLD was the child when s(he) died?	Numeric	INSERT YEARS OR MONTHS		if <> less than 1 month at death, enter 0 years. 0 months	

Section 3 : Malaria Knowledge

131	FEVLG	I would like to ask you a few questions about fever in children. When a child is sick with fever, how long after the fever begins should the child be taken for treatment?	Numeric	1 - same day 2 - next day 3 - two days after onset of fever 4 - three or more days after onset of fever 5 - fever is normal in children no treatment necessary 6 - depends on how serious the fever is 77 - other 88 - Don't know 99 - Refused to answer/skipped	as per variable codes	if = 96, specify other	
132	FEVOT	specify other	String				
133	MALCSA	In your opinion, what causes malaria? PROBE: ANYTHING ELSE? RECORD ALL MENTIONED	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
134	MALCSB	...Mosquito bites ...Eating maize	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
135	MALCSC	...Eating mangoes	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
136	MALCSD	...Eating dirty food	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
137	MALCSE	...Drinking unboiled water	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		

Ques. No.	Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
138	MALCSF	...Getting soaked with rain	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
139	MALCSG	...Cold/changing weather	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
140	MALCSH	...Witchcraft	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
141	MALCSI	...Contact with infected person	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
142	MALCSJ	...Dirty environment or poor hygiene	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
143	MALCSK	...Bushes around the home	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
144	MALCSL	...Stagnant Water	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
145	MALCSM	...Poor feeding	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
146	MALCSN	...Eating too much	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
147	MALCSO	...Domestic Animals(e.g Cows) around home	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
148	MALCSP	...Bedbugs	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
149	MALCSQ	...Wounds	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
150	MALCSR	...Not sleeping under a net	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
151	MALCSS	...Other things cause malaria	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes	if = 1 must answer MLOTHR	
152	MALCST	...Don't Know	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
153	MLOTHR	Specify other causes of malaria	String				
154	AVDMAL	Are there ways to avoid getting malaria?	Numeric	1 - Yes 2 - No 9 - Refused to answer/skipped	as per variable codes	if = 2 or 9 skip to IPTPA	
155	AVMALA	What are the ways to avoid getting malaria? PROBE: ANYTHING ELSE? RECORD ALL MENTIONED ...Sleep under mosquito net	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
156	AVMALB	...Sleep under an insecticide treated net	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
157	AVMALC	...Taking preventive medication	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
158	AVMALD	...Use mosquito repellant	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
159	AVMALE	...Spraying house with insecticide	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
160	AVMALF	...Using mosquito coils	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
161	AVMALG	...Destroy mosquito breeding sites	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
162	AVMALH	...Boiling/clean water	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
163	AVMALI	...Good food preparation	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		

Ques. No.	Variable Name	Question	Variable Type	Variable Codes	Accepted Values	Skip	Comments
164	AVMALJ	...Clean home/good hygiene	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
165	AVMALK	...Cleaning environment around house/clearing bushes	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
166	AVMALL	...Closing windows and/or doors early	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
167	AVMALM	...Don't know	String	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes		
168	AVMALN	...Other	Numeric	1 - Yes 2 - No 99 - Refused to answer/skipped	as per variable codes	if = 1, specify other	
169	SPOTAV	Specify other ways to avoid getting malaria	String				
Interview Details							
170	VSTATUS	Result of Visit	Numeric	1 - Completed 2 - Incomplete/ Pending 3 - Return for visit 9 - Other	as per variable codes	if = 9, specify other ; if=3 specify dates to return	
171	OVSTATUS	Specify other result	String				
172	TOTVISIT	Total number of visits	Numeric		1 - 3		
173	COMMENTS	Interviewer's Comments	String				

APPENDIX W: COHORT STUDY MONTHLY QUESTIONNAIRE (1)

Subcounty ID [][]	Village ID [][]	Compound # [][][][]	Household # [][]	Cluster # [][]
Study ID [][][][]		Date of visit [][]/[][]/[][] day month year		Visit # [][]

PART 1: EXPERIENCE WITH ILLNESS DURING THE PAST MONTH

1. "Has your child been sick since our last visit?" 1 = Yes 88 = Don't know
2 = No 99 = Refused to answer [][]
If yes, go to #2, otherwise skip to end

2. "How many episodes of illness did your child have since our last visit?" Insert number 88 = Don't know
99 = Refused to answer [][]

PART 1: SECTION 1: FIRST ACTION

"Now we would like to get a detailed step by step description of everything you did to care for your child during each illness episode during the past one month. There is no right or wrong answer to these questions. We need you to be as open and honest as possible."

Record illness episode number

[][]

3. "Did your child have fever with this episode of illness?" 1=Yes 88= Don't know
2= No 99= Refused to answer [][]

4a. "What did you do FIRST (including tepid sponging and herbs)?" (choose only one action)

1 = Nothing	5 = Bought medicines from duka	77 = Other _____	[][]
2 = Tepid sponging	6 = Bought medicines at drug shop/pharmacy	88 = Don't know	
3 = Gave herbs kept at home	7 = Took to traditional healer	99 = Refused to answer	<i>If 8, go to #5, otherwise skip to #9</i>
4 = Gave medicines kept at home	8 = Took to public health centre, clinic or hospital		

5a. "If you took your child to public health centre, clinic or hospital, where did you go?" 1 = Public health centre 77 = Other _____
2 = Tororo District Hospital 88 = Don't know [][]
3 = Private hospital/clinic 99 = Refused to answer
If 1 or 2, go to #5b, otherwise skip to #9

5b. "What is the name of the public health center you went to?"

1 = Maundo HC II	11 = Petta HC III	77 = Other _____	
2 = Were HC II	12 = Makawari HC II	88 = Don't know	
3 = Katajula HC II	13 = Mbula HC II	99 = Refused to answer	
4 = Paya HC III	14 = Gwaragwara HC II		
5 = Pusere HC II	15 = Osia HC II		
6 = Nawire HC II	16 = Mwelo HC II		
7 = Kirewa HC III	17 = Lwala HC II		
8 = Chawolo-Kirewa HC II	18 = Panyangasi HC III		
9 = Kisoko HC III	19 = Mudodo HC II		
10 = Morkiswa HC II	20 = Chawolo-Mulanda HC II		[][]

6. "Why did you go to the public health centre or public hospital?"

1 = I heard there were drugs	5 = I always go to the public health centre	77 = Other _____	
2 = Someone told me to go	6 = They were nice to me last time I went	88 = Don't know	
3 = It's closest to my home		99 = Refused to answer	[][]
4 = It's free (no cost)			

7. "How satisfied were you with the health care that your child received at the public health centre?" 1= Very dissatisfied 3= Uncertain 5=Very satisfied
2=Dissatisfied 4=Satisfied 99 = Refused to answer [][]
If 1 or 2 go to # 8, otherwise, skip to #9

8. "If dissatisfied or very dissatisfied what were the reasons for being dissatisfied?" (list all that apply)

1 = Long waiting time	6 = Had to pay for care	[][]	[][]
2 = No trained professionals	7 = Treatment was unsuccessful	[][]	[][]
3 = No drugs were given	77 = Other _____	[][]	[][]
4 = No lab tests done		[][]	[][]
5 = Rude HCW	99 = Refused to answer	[][]	[][]

9. "How long had the child been ill when this FIRST action was taken?" 1 =< 24 hrs 4 => 7 days 88 = Don't know
2 = 1-3 days 77 = Other 99 = Refused to answer [][]
3 = 4-7 days _____ answer

Ask this question only if the answer to question #4 was 6 or 8:

4b. "Was your child tested for malaria (finger or heel prick) when you went to this place?" 1=Yes 88= Don't know
2= No 99= Refused to answer [][]
If 1, go to #4c, otherwise, skip to #10

4c. "If yes, do you know what type of test was done? For example, was the blood placed onto a glass slide or onto a white stick?"

1 = Blood smear	[][]
2 = RDT	[][]
77 = Other _____	[][]
88 = Don't know	[][]

4d. "Were you told the result of the test?" 1 = Yes 2 = No 88 = Don't know 99 = Refused [][]

4e. "If yes, what was the result of the test?" 1 = positive for malaria 2 = negative for malaria 77 = Other 99 = Refused to Answer [][]
88 = Don't Know

COHORT STUDY MONTHLY QUESTIONNAIRE (2)

Study ID [] [] [] [] [] []	Date of visit [] [] / [] [] / [] [] day month year	Visit # [] []
--	---	---------------------------

MEDICINES GIVEN AS FIRST TREATMENT

"If your child took medicine FIRST, what did he/she take?" (Indicate all that were given as a first action)

DRUG	Number of times given per day	Number of days given	How long had the child been ill when the drug was started?
			1 = < 24 hrs 4 => 7 days 88 = Don't know 2 = 1-3 days 77 = Other (list) 99 = Refused to answer 3 = 4-7 days
10. Panadol	[] []	[] []	[] [] [] []
11. Aspirin	[] []	[] []	[] [] [] []
12. Chloroquine	[] []	[] []	[] [] [] []
13. Fansidar(SP)	[] []	[] []	[] [] [] []
14. CQ+SP	[] []	[] []	[] [] [] []
15. Amodiaquine	[] []	[] []	[] [] [] []
16. Quinine	[] []	[] []	[] [] [] []
17. Coartem	[] []	[] []	[] [] [] []
18. Septrin(Bactrim)	[] []	[] []	[] [] [] []
19. Amoxicillin	[] []	[] []	[] [] [] []
20. Other _____	[] []	[] []	[] [] [] []
21. Other _____	[] []	[] []	[] [] [] []
22. Other _____	[] []	[] []	[] [] [] []
23. Unknown	[] []	[] []	[] [] [] []

PART 1: SECTION 2: SECOND ACTION

24a. "What did you do SECOND (including tepid sponging and herbs)?" (choose only one action)

- | | | |
|---------------------------------|---|---|
| 1 = Nothing | 6 = Bought medicines at drug shop/pharmacy | 77 = Other _____ |
| 2 = Tepid sponging | 7 = Took to traditional healer | 88 = Don't know |
| 3 = Gave herbs kept at home | 8 = Took to public health centre clinic or hospital | 99 = Refused to answer |
| 4 = Gave medicines kept at home | | [] [] |
| 5 = Bought medicines from duka | | <i>If 8, go to Qn #25, otherwise skip to Qn #29</i> |

25a. "If you took your child to public health centre, clinic or hospital, where did you go?"

- | | | |
|------------------------------|------------------|--|
| 1 = Public health centre | 77 = Other _____ | |
| 2 = Tororo District Hospital | | 88 = Don't know |
| 3 = Private hospital/clinic | | 99 = Refused to answer |
| | | [] [] |
| | | <i>If 1 or 2, go to #26, otherwise skip to #29</i> |

25b. "What is the name of the public health center you went to?"

- | | | |
|--------------------------|-----------------------|----------------------------|
| 4 = Paya HC III | 11 = Petta HC III | 18 = Panyangasi HC III |
| 5 = Pusere HC II | 12 = Makawari HC II | 19 = Mudodo HC II |
| 6 = Nawire HC II | 13 = Mbula HC II | 20 = Chawolo-Mulanda HC II |
| 7 = Kirewa HC III | 14 = Gwaragwara HC II | 77 = Other _____ |
| 8 = Chawolo-Kirewa HC II | 15 = Osia HC II | 88 = Don't know |
| 9 = Kisoko HC III | 16 = Mwelo HC II | 99 = Refused to answer |
| 10 = Morkiswa HC II | 17 = Lwala HC II | [] [] |
| 1 = Maundo HC II | | |
| 2 = Were HC II | | |
| 3 = Katajula HC II | | |

26. "Why did you go to the public health centre or public hospital?"

- | | | |
|------------------------------|---|------------------------|
| 1 = I heard there were drugs | 5 = I always go to the public health centre | 77 = Other _____ |
| 2 = Someone told me to go | 6 = They were nice to me last time I went | |
| 3 = It's closest to my home | 7 = They told me to come back | 88 = Don't know |
| 4 = It's free (no cost) | 8 = The drug given last time was unsuccessful | 99 = Refused to answer |
| | 9 = There were no drugs at the health centre the last time I went | [] [] |

27. "How satisfied were you with the health care that your child received at the public health centre?"

- | | | |
|-----------------------|---------------|---|
| 1 = Very dissatisfied | 3 = Uncertain | 5 = Very satisfied |
| 2 = Dissatisfied | 4 = Satisfied | 99 = Refused to answer |
| | | [] [] |
| | | <i>If 1 or 2 go to # 28, otherwise, skip to #29</i> |

COHORT STUDY MONTHLY QUESTIONNAIRE (3)

Study ID [] [] [] [] [] []	Date of visit [] [] / [] [] / [] [] day month year	Visit # [] []
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28. "If dissatisfied or very dissatisfied what were the reasons for being dissatisfied?" (list all that apply)	1 = Long waiting time 2 = No trained professionals 3 = No drugs were given 4 = No lab tests done 5 = Rude HCW	6 = Had to pay for care 7 = Treatment was unsuccessful 77 = Other 99 = Refused to answer	[] [] [] [] [] []	[] [] [] [] [] []	
29. "How long had the child been ill when this SECOND action was taken?"	1 =< 24 hrs 2 = 1-3 days	3 = 4-7 days 4 => 7 days	77 = Other _____	88 = Don't know 99 = Refused to answer	[] [] [] []
Ask this question only if the answer to question #24 was 6 or 8:		1 = Yes 2 = No	88 = Don't know 99 = Refused to answer	[] []	If 1, go to #24c, otherwise, skip to #30
24b. "Was your child tested for malaria (finger or heel prick) when you went to this place?"			1 = Blood smear 2 = RDT 77 = Other 88 = Don't know	[] []	
24c. "If yes, do you know what type of test was done? For example, was the blood placed onto a glass slide or onto a white stick?"			1 = Yes 2 = No	88 = Don't know 99 = Refused	[] []
24d. "Were you told the result of the test?"	1 = positive for malaria	2 = negative for malaria	77 = Other 88 = Don't Know	99 = Refused to Answer	[] []

MEDICINES GIVEN AS SECOND TREATMENT

"If your child took medicine SECOND, what did he/she take?" (Indicate all that were given as a first action)

DRUG	Number of times given per day	Number of days given	How long had the child been ill when the drug was started?
			1 =< 24 hrs 3 = 4-7 days 77 = Other (list) 2 = 1-3 days 4 => 7 days 88 = Don't know 99 = Refused to answer
30. Panadol	[] []	[] []	[] [] _____
31. Aspirin	[] []	[] []	[] [] _____
32. Chloroquine	[] []	[] []	[] [] _____
33. Fansidar(SP)	[] []	[] []	[] [] _____
34. CQ+SP	[] []	[] []	[] [] _____
35. Amodiaquine	[] []	[] []	[] [] _____
36. Quinine	[] []	[] []	[] [] _____
37. Coartem	[] []	[] []	[] [] _____
38. Septrin(Bactrim)	[] []	[] []	[] [] _____
39. Amoxicillin	[] []	[] []	[] [] _____
40. Other _____	[] []	[] []	[] [] _____
41. Other _____	[] []	[] []	[] [] _____
42. Other _____	[] []	[] []	[] [] _____
43. Unknown	[] []	[] []	[] [] _____

IF ILLNESS RESOLVED, skip to Part 1: Section 4: Treatment outcome

COHORT STUDY MONTHLY QUESTIONNAIRE (4)

Study ID	Date of visit	Visit #
[] [] [] [] []	[] [] / [] [] / [] [] day month year	[] []

PART 1: SECTION 3: THIRD ACTION

44a. "What did you do THIRD (including tepid sponging and herbs)?" (choose only one action)

1 = Nothing 6 = Bought medicines at drug shop/pharmacy 77 = Other _____
 2 = Tepid sponging 7 = Took to traditional healer 88 = Don't know [] []
 3 = Gave herbs kept at home 8 = Took to public health centre, clinic or hospital 99 = Refused to answer [] []
 4 = Gave medicines kept at home
 5 = Bought medicines from duka
If 8, go to #45, otherwise skip to #49

45a. "If you took your child to public health centre, clinic or hospital, where did you go?"

1 = Public health centre 77 = Other _____
 2 = Tororo District Hospital 88 = Don't know [] []
 3 = Private hospital/clinic 99 = Refused to answer [] []
If 1 or 2, go to #46, otherwise skip to #49

45b. "What is the name of the public health center you went to?"

4 = Paya HC III 11 = Petta HC III 18 = Panyangasi HC III
 5 = Pusere HC II 12 = Makawari HC II 19 = Mudodo HC II
 6 = Nawire HC II 13 = Mbula HC II 20 = Chawolo-Mulanda HC II
 7 = Kirewa HC III 14 = Gwaragwara HC II 77 = Other _____
 8 = Chawolo-Kirewa HC II 15 = Osia HC II 88 = Don't know
 9 = Kisoko HC III 16 = Mwelo HC II 99 = Refused to answer [] []
 10 = Morkiswa HC II 17 = Lwala HC II

1 = Maundo HC II
 2 = Were HC II
 3 = Katajula HC II

46. "Why did you go to the public health centre or public hospital?"

1 = I heard there were drugs 5 = I always go to the public health centre 77 = Other _____
 2 = Someone told me to go 6 = They were nice to me last time 88 = Don't know
 3 = It's closest to my home 7 = They told me to come back 99 = Refused to answer
 4 = It's free (no cost) 8 = The drug given last time was unsuccessful
 9 = There were no drugs at the health centre the last time I went [] []

47. "How satisfied were you with the health care that your child received at the public health centre?"

1= Very dissatisfied 3= Uncertain 5=Very satisfied
 2=Dissatisfied 4=Satisfied 99 = Refused to answer [] []
If 1 or 2 go to #48. Otherwise, skip to #49

48. "If dissatisfied or very dissatisfied what were the reasons for being dissatisfied?" (list all that apply)

1 = Long waiting time 6 = Had to pay for care [] [] [] []
 2 = No trained professionals 7 = Treatment was unsuccessful [] [] [] []
 3 = No drugs were given 77 = Other [] [] [] []
 4 = No lab tests done
 5 = Rude HCW 99 = Refused to answer [] [] [] []

49. "How long had the child been ill when this THIRD action was taken?"

1 =< 24 hrs 4 => 7 days 88 = Don't know
 2 = 1-3 days 77 = Other 99 = Refused to answer [] []
 3 = 4-7 days

Ask this question only if the answer to question #44 was 6 or 8:

44b. "Was your child tested for malaria (finger or heel prick) when you went to this place?"

1 = Yes 88 = Don't know
 2 = No 99 = Refused to answer [] []
If 1, go to #44c, otherwise, skip to #50

44c. "If yes, do you know what type of test was done? For example, was the blood placed onto a glass slide or onto a white stick?"

1 = Blood smear
 2 = RDT
 77 = Other
 88 = Don't know [] []

44d. "Were you told the result of the test?"

1 = Yes 2 = No 88 = Don't know 99 = Refused [] []

44e. "If yes, what was the result of the test?"

1 = positive for malaria 2 = negative for malaria 77 = Other 99 = Refused to Answer [] []
 88 = Don't Know

MEDICINES GIVEN AS THIRD TREATMENT

"If your child took medicine THIRD, what did he/she take?" (Indicate all that were given as a third action)

DRUG	Number of times given per day	Number of days given	How long had the child been ill when the drug was started? 1 =< 24 hrs 3 = 4-7 days 77 = Other (list) 2 = 1-3 days 4 => 7 days 88 = Don't know 99 = Refused to answer
50. Panadol	[] []	[] []	[] []
51. Aspirin	[] []	[] []	[] []
52. Chloroquine	[] []	[] []	[] []
53. Fansidar(SP)	[] []	[] []	[] []

COHORT STUDY MONTHLY QUESTIONNAIRE (5)

Study ID [][] [][] [][] [][]	Date of visit [][]/[][]/[][] day month year	Visit # [][]
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54. CQ+SP	[][]	[][]	[][]	
55. Amodiaquine	[][]	[][]	[][]	
56. Quinine	[][]	[][]	[][]	
57. Coartem	[][]	[][]	[][]	
58. Septrin(<i>Bactrim</i>)	[][]	[][]	[][]	
59. Amoxicillin	[][]	[][]	[][]	
60. Other _____	[][]	[][]	[][]	
61. Other _____	[][]	[][]	[][]	
62. Other _____	[][]	[][]	[][]	
63. Unknown	[][]	[][]	[][]	

IF ILLNESS RESOLVED, go to Part 1: Section 4: Treatment outcome, otherwise go to Extra Action form.

PART 1: SECTION 4: TREATMENT OUTCOME

64. "How long did the child's illness last?"	1 = < 24 hrs 2 = 1-3 days 3 = 4-7 days 4 = >7 days	5 = Ongoing at time of interview 77 = Other _____ 88 = Don't know 99 = Refused to answer	[][]
65. "Did you experience any delays in treating your child's illness?"	1 = Yes 2 = No	77 = Other _____ 88 = Don't know 99 = Refused to answer	[][]
66. "What were the reasons for the delays?" (list all that apply)	1 = No transport available 2 = Not enough money available 3 = Needed to find coverage for work	4 = Needed to arrange for child care 5 = Waiting at the health facility 6 = Was not at home 77 = Other _____ 88 = Don't know 99 = Refused to answer	[][] [][] [][] [][] [][] [][]
67. "How much did you spend on management of this illness?"	Cost of drugs [][][][][][][][] Ush Fees (clinic, hospital, lab) [][][][][][][][] Ush TOTAL [][][][][][][][] Ush	Transport [][][][][][][][] Ush Other [][][][][][][][] Ush	
68. "Did caring for your child and managing his/her illness prevent you from doing your usual activities this month?"	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer	[][]
69. "If yes, how much time did you miss?"	If < 1 day, indicate number of hours otherwise, record 00	[][][][] hours [][][][] days	

PART 1: SECTION 5: ADVERSE EVENTS

70. "Did your child have any problems after receiving treatment for this illness?" <i>If yes, go to Qn #71, otherwise skip to end</i>	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer	[][]
71. "Did your child receive treatment with Coartem (artemether-lumefantrine) for this illness?"	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer	[][]
<i>* If any problems occurred after treatment with Coartem, complete an Adverse Drug Reaction Form (Appendix GG) and notify the medical officer and study coordinator</i>			
72. "Did any of the following outcomes occur?" † <i>(list all that apply)</i>	1 = Death 2 = Life-threatening condition 3 = Admitted overnight to clinic or hospital	4 = Required surgery 88 = Don't know 99 = Refused to answer	[][] [][] [][] [][]
<i>† If any of the outcomes occurred, complete an Adverse Drug Reaction Form (Appendix GG) and notify the medical officer and study coordinator</i>			
Field worker ID [][][][]	IDs of other team members present at interview [][][][] [][][][] [][][][]		

If the child experienced an additional episode of illness, go to Part 2 and complete the information for additional episodes.

COHORT STUDY MONTHLY QUESTIONNAIRE (6)

Study ID	Date of visit	Visit #
[] [] [] [] []	[] [] / [] [] / [] [] day month year	[] []

PART 2: EXPERIENCE WITH ILLNESS DURING THE PAST MONTH – Extra illness episodes

PART 2: SECTION 1: FIRST ACTION

“Now we would like to get a detailed step by step description of everything you did to care for your child during each illness episode during the past one month. There is no right or wrong answer to these questions. We need you to be as open and honest as possible.”

Record illness episode number

[] []

73. "Did your child have fever with this episode of illness?"	1=Yes 2= No	88= Don't know 99= Refused to answer		[] []	
74a. "What did you do FIRST (including tepid sponging and herbs)?" (choose only one action)	1 = Nothing 2 = Tepid sponging 3 = Gave herbs kept at home 4 = Gave medicines kept at home	5 = Bought medicines from duka 6 = Bought medicines at drug shop/pharmacy 7 = Took to traditional healer 8 = Took to public health centre, clinic or hospital	77 = Other _____ 88 = Don't know 99 = Refused to answer	[] []	<i>If 8, go to #75, otherwise skip to #79</i>
75a. "If you took your child to public health centre, clinic or hospital, where did you go?"	1 = Public health centre 2 = Tororo District Hospital 3 = Private hospital/clinic	77 = Other _____ 88 = Don't know 99 = Refused to answer		[] []	<i>If 1 or 2, go to #76, otherwise skip to #79</i>
75b. "What is the name of the public health center you went to?"	4 = Paya HC III 5 = Pusere HC II 6 = Nawire HC II 7 = Kirewa HC III 8 = Chawolo-Kirewa HC II 9 = Kisoko HC III 10 = Morkiswa HC II	11 = Petta HC III 12 = Makawari HC II 13 = Mbula HC II 14 = Gwaragwara HC II 15 = Osia HC II 16 = Mwelo HC II 17 = Lwala HC II	18 = Panyangasi HC III 19 = Mudodo HC II 20 = Chawolo-Mulanda HC II 77 = Other _____ 88 = Don't know 99 = Refused to answer	[] []	
76. "Why did you go to the public health centre or public hospital?"	1 = I heard there were drugs 2 = Someone told me to go 3 = It's closest to my home 4 = It's free (no cost)	5 = I always go to the public health centre 6 = They were nice to me last time I went	77 = Other _____ 88 = Don't know 99 = Refused to answer	[] []	
77. "How satisfied were you with the health care that your child received at the public health centre?"	1= Very dissatisfied 2=Dissatisfied	3= Uncertain 4=Satisfied	5=Very satisfied 99 = Refused to answer	[] []	<i>If 1 or 2 go to # 78, otherwise, skip to #79</i>
78. "If dissatisfied or very dissatisfied what were the reasons for being dissatisfied?" (list all that apply)	1 = Long waiting time 2 = No trained professionals 3 = No drugs were given 4 = No lab tests done 5 = Rude HCW	6 = Had to pay for care 7 = Treatment was unsuccessful 77 = Other _____ 99 = Refused to answer		[] []	[] []
79. "How long had the child been ill when this FIRST action was taken?"	1 =< 24 hrs 2 = 1-3 days 3 = 4-7 days	4 => 7 days 77 = Other _____	88 = Don't know 99 = Refused to answer	[] []	
<i>Ask this question only if the answer to question #74 was 6 or 8:</i> 74b. "Was your child tested for malaria (finger or heel prick) when you went to this place?"	1 =Yes 2 = No	88 = Don't know 99 = Refused to answer		[] []	<i>If 1, go to #74c, otherwise, skip to #80</i>
74c. "If yes, do you know what type of test was done? For example, was the blood placed onto a glass slide or onto a white stick?"		1 = Blood smear 2 = RDT 77 = Other _____ 88 = Don't know		[] []	
74d. "Were you told the result of the test?"	1 = Yes 2 = No	88 = Don't know 99 = Refused		[] []	
74e. "If yes, what was the result of the test?"	1 = positive for malaria 2 = negative for malaria	77 = Other _____ 88 = Don't Know	99 = Refused to Answer	[] []	

MEDICINES GIVEN AS FIRST TREATMENT

“If your child took medicine FIRST, what did he/she take?” (Indicate all that were given as a first action)

DRUG	Number of times given per day	Number of days given	How long had the child been ill when the drug was started?
			1 = < 24 hrs 2 = 1-3 days 3 = 4-7 days
			4 => 7 days 77 = Other (list)
			88 = Don't know 99 = Refused to answer
80. Panadol	[] []	[] []	[] []
81. Aspirin	[] []	[] []	[] []
82. Chloroquine	[] []	[] []	[] []

COHORT STUDY MONTHLY QUESTIONNAIRE (7)

Study ID	Date of visit	Visit #
[] [] [] [] []	[] [] / [] [] / [] [] day month year	[] []

83. Fansidar(SP)	[] []	[] []	[] []	_____
84. CQ+SP	[] []	[] []	[] []	_____
85. Amodiaquine	[] []	[] []	[] []	_____
86. Quinine	[] []	[] []	[] []	_____
87. Coartem	[] []	[] []	[] []	_____
88. Septrin(Bactrim)	[] []	[] []	[] []	_____
89. Amoxicillin	[] []	[] []	[] []	_____
90. Other _____	[] []	[] []	[] []	_____
91. Other _____	[] []	[] []	[] []	_____
92. Other _____	[] []	[] []	[] []	_____
93. Unknown	[] []	[] []	[] []	_____

IF ILLNESS RESOLVED, skip to Part 2: Section 4: Treatment outcome

PART 2: SECTION 2: SECOND ACTION

94a. "What did you do SECOND (including tepid sponging and herbs)?" (choose only one action)

1 = Nothing
2 = Tepid sponging
3 = Gave herbs kept at home
4 = Gave medicines kept at home
5 = Bought medicines from duka
6 = Bought medicines at drug shop/pharmacy
7 = Took to traditional healer
8 = Took to public health centre, clinic or hospital
77 = Other _____
88 = Don't know
99 = Refused to answer

[] []
If 8, go to Qn #95, otherwise skip to #99

95a. "If you took your child to public health centre, clinic or hospital, where did you go?"

1 = Public health centre
2 = Tororo District Hospital
3 = Private hospital/clinic
77 = Other _____
88 = Don't know
99 = Refused to answer

[] []
If 1 or 2, go to #96, otherwise skip to #99

95b. "What is the name of the public health center you went to?"

1 = Maundo HC II
2 = Were HC II
3 = Katajula HC II
4 = Paya HC III
5 = Pusere HC II
6 = Nawire HC II
7 = Kirewa HC III
8 = Chawolo-Kirewa HC II
9 = Kisoko HC III
10 = Morkiswa HC II
11 = Petta HC III
12 = Makawari HC II
13 = Mbula HC II
14 = Gwaragwara HC II
15 = Osia HC II
16 = Mwelo HC II
17 = Lwala HC II
18 = Panyangasi HC III
19 = Mudodo HC II
20 = Chawolo-Mulanda HC II
77 = Other _____
88 = Don't know
99 = Refused to answer

[] []

96. "Why did you go to the public health centre or public hospital?"

1 = I heard there were drugs
2 = Someone told me to go
3 = It's closest to my home
4 = It's free (no cost)
5 = I always go to the public health centre
6 = They were nice to me last time I went
7 = They told me to come back
8 = The drug given last time was unsuccessful
9 = There were no drugs at the health centre the last time I went
77 = Other _____
88 = Don't know
99 = Refused to answer

[] []

97. "How satisfied were you with the health care that your child received at the public health centre?"

1= Very dissatisfied
2=Dissatisfied
3= Uncertain
4=Satisfied
5=Very satisfied
99 = Refused to answer

[] []
If 1 or 2 go to #98, otherwise, skip to #99

98. "If dissatisfied or very dissatisfied what were the reasons for being dissatisfied?" (list all that apply)

1 = Long waiting time
2 = No trained professionals
3 = No drugs were given
4 = No lab tests done
5 = Rude HCW
6 = Had to pay for care
7 = Treatment was unsuccessful
77 = Other _____
99 = Refused to answer

[] [] [] []
[] [] [] []
[] [] [] []

99. "How long had the child been ill when this SECOND action was taken?"

1 =< 24 hrs
2 = 1-3 days
3 = 4-7 days
4 => 7 days
77 = Other _____
88 = Don't know
99 = Refused to answer

[] []

Ask this question only if the answer to question #94 was 6 or 8:

94b. "Was your child tested for malaria (finger or heel prick) when you went to this place?"

1 = Yes
2 = No
88 = Don't know
99 = Refused to answer

[] []
If 1, go to #94c, otherwise, skip to #100

94c. "If yes, do you know what type of test was done? For example, was the blood placed onto a glass slide or onto a white stick?"

1 = Blood smear
2 = RDT
77 = Other _____
88 = Don't know

[] []

COHORT STUDY MONTHLY QUESTIONNAIRE (8)

Study ID	Date of visit	Visit #
[] [] [] [] []	[] [] / [] [] / [] [] day month year	[] []

94d. "Were you told the result of the test?"	1 = Yes	2 = No	88 = Don't know	99 = Refused	[] []
94e. "If yes, what was the result of the test?"	1 = positive for malaria	2 = negative for malaria	77 = Other 88 = Don't Know	99 = Refused to Answer	[] []

MEDICINES GIVEN AS SECOND TREATMENT

"If your child took medicine SECOND, what did he/she take?" (Indicate all that were given as a first action)

DRUG	Number of times given per day	Number of days given	How long had the child been ill when the drug was started?		
			1 =< 24 hrs 2 = 1-3 days	3 = 4-7 days 4 => 7 days	77 = Other (list) 88 = Don't know 99 = Refused to answer
100. Panadol	[] []	[] []	[] []	[] []	[] []
101. Aspirin	[] []	[] []	[] []	[] []	[] []
102. Chloroquine	[] []	[] []	[] []	[] []	[] []
103. Fansidar(SP)	[] []	[] []	[] []	[] []	[] []
104. CQ+SP	[] []	[] []	[] []	[] []	[] []
105. Amodiaquine	[] []	[] []	[] []	[] []	[] []
106. Quinine	[] []	[] []	[] []	[] []	[] []
107. Coartem	[] []	[] []	[] []	[] []	[] []
108. Septrin(Bactrim)	[] []	[] []	[] []	[] []	[] []
109. Amoxicillin	[] []	[] []	[] []	[] []	[] []
110. Other_____	[] []	[] []	[] []	[] []	[] []
111. Other_____	[] []	[] []	[] []	[] []	[] []
112. Other_____	[] []	[] []	[] []	[] []	[] []
113. Unknown	[] []	[] []	[] []	[] []	[] []

IF ILLNESS RESOLVED, skip to Part 2: Section 4: Treatment outcome

PART 2: SECTION 3: THIRD ACTION

114a. "What did you do THIRD (including tepid sponging and herbs)?" (choose only one action)			
1 = Nothing	6 = Bought medicines at drug shop/pharmacy	77 = Other _____	[] []
2 = Tepid sponging	7 = Took to traditional healer	88 = Don't know	[] []
3 = Gave herbs kept at home	8 = Took to public health centre, clinic or hospital	99 = Refused to answer	[] []
4 = Gave medicines kept at home			
5 = Bought medicines from duka			<i>If 8, go to #115, otherwise skip to #119</i>
115a. "If you took your child to public health centre, clinic or hospital, where did you go?"			
1 = Public health centre	2 = Tororo District Hospital	77 = Other _____	[] []
3 = Private hospital/clinic		88 = Don't know	[] []
		99 = Refused to answer	[] []
			<i>If 1 or 2, go to #116, otherwise skip to #119</i>
115b. "What is the name of the public health center you went to?"			
1 = Maundo HC II	4 = Paya HC III	11 = Petta HC III	18 = Panyangasi HC III
2 = Were HC II	5 = Pusere HC II	12 = Makawari HC II	19 = Mudodo HC II
3 = Katajula HC II	6 = Nawire HC II	13 = Mbula HC II	20 = Chawolo-Mulanda HC II
	7 = Kirewa HC III	14 = Gwaragwara HC II	77 = Other _____
	8 = Chawolo-Kirewa HC II	15 = Osia HC II	88 = Don't know
	9 = Kisoko HC III	16 = Mwelo HC II	99 = Refused to answer
	10 = Morkiswa HC II	17 = Lwala HC II	[] []

COHORT STUDY MONTHLY QUESTIONNAIRE (9)

Study ID [] [] [] [] [] []	Date of visit [] [] / [] [] / [] [] day month year	Visit # [] []
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116. "Why did you go to the public health centre or public hospital?"	1 = I heard there were drugs 2 = Someone told me to go 3 = It's closest to my home 4 = It's free (no cost)	5 = I always go to the public health centre 6 = They were nice to me last time 7 = They told me to come back 8 = The drug given last time was unsuccessful 9 = There were no drugs at the health centre the last time I went	77 = Other _____ 88 = Don't know 99 = Refused to answer
117. "How satisfied were you with the health care that your child received at the public health centre?"	1= Very dissatisfied 2=Dissatisfied	3= Uncertain 4=Satisfied	5=Very satisfied 99 = Refused to answer
118. "If dissatisfied or very dissatisfied what were the reasons for being dissatisfied?" (list all that apply)	1 = Long waiting time 2 = No trained professionals 3 = No drugs were given 4 = No lab tests done 5 = Rude HCW	6 = Had to pay for care 7 = Treatment was unsuccessful 77 = Other _____ 99 = Refused to answer	[] [] [] [] [] [] [] []
119. "How long had the child been ill when this THIRD action was taken?"	1 =< 24 hrs 2 = 1-3 days 3 = 4-7 days	4 => 7 days 77 = Other _____	88 = Don't know 99 = Refused to answer
Ask this question only if the answer to question #114 was 6 or 8: 114b. "Was your child tested for malaria (finger or heel prick) when you went to this place?"	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer	[] [] [] []
114c. "If yes, do you know what type of test was done? For example, was the blood placed onto a glass slide or onto a white stick?"	1 = Blood smear 2 = RDT 77 = Other _____ 88 = Don't know	[] [] [] []	[] [] [] []
114d. "Were you told the result of the test?"	1 = Yes 2 = No	88 = Don't know 99 = Refused	[] [] [] []
114e. "If yes, what was the result of the test?"	1 = positive for malaria 2 = negative for malaria	77 = Other _____ 88 = Don't Know 99 = Refused to Answer	[] [] [] []

MEDICINES GIVEN AS THIRD TREATMENT

"If your child took medicine THIRD, what did he/she take?" (Indicate all that were given as a third action)

DRUG	Number of times given per day	Number of days given	How long had the child been ill when the drug was started? 1 =< 24 hrs 3 = 4-7 days 77 = Other (list) 2 = 1-3 days 4 => 7 days 88 = Don't know 99 = Refused to answer
120. Panadol	[] []	[] []	[] [] [] []
121. Aspirin	[] []	[] []	[] [] [] []
122. Chloroquine	[] []	[] []	[] [] [] []
123. Fansidar(SP)	[] []	[] []	[] [] [] []
124. CQ+SP	[] []	[] []	[] [] [] []
125. Amodiaquine	[] []	[] []	[] [] [] []
126. Quinine	[] []	[] []	[] [] [] []
127. Coartem	[] []	[] []	[] [] [] []
128. Septrin(Bactrim)	[] []	[] []	[] [] [] []
129. Amoxicillin	[] []	[] []	[] [] [] []
130. Other _____	[] []	[] []	[] [] [] []
131. Other _____	[] []	[] []	[] [] [] []
132. Other _____	[] []	[] []	[] [] [] []
133. Unknown	[] []	[] []	[] [] [] []

IF ILLNESS RESOLVED, go to Part 1: Section 4: Treatment outcome, otherwise go to Extra Action form.

COHORT STUDY MONTHLY QUESTIONNAIRE (10)

Study ID	Date of visit	Visit #
[] [] [] []	[] [] / [] [] / [] [] day month year	[] []

PART 2: SECTION 4: TREATMENT OUTCOME

134. "How long did the child's illness last?"	1 = < 24 hrs 2 = 1-3 days 3 = 4-7 days 4 =>7 days	5 = Ongoing at time of interview 77 = Other _____ 88 = Don't know 99 = Refused to answer	[] []
135. "Did you experience any delays in treating your child's illness?"	1 = Yes 2 = No	77 = Other _____ 88 = Don't know 99 = Refused to answer	[] []
136. "What were the reasons for the delays?" (list all that apply)	1 = No transport available 2 = Not enough money available 3 = Needed to find coverage for work	4 = Needed to arrange for child care 5 = Waiting at the health facility 6 = Was not at home 77 = Other _____ 88 = Don't know 99 = Refused to answer	[] [] [] [] [] [] [] [] [] [] [] []
137. "How much did you spend on management of this illness?"	Cost of drugs [] [] [] [] [] Ush Fees (clinic, hospital, lab) [] [] [] [] [] Ush	Transport [] [] [] [] [] [] Ush Other [] [] [] [] [] [] Ush	TOTAL [] [] [] [] [] [] Ush
138. "Did caring for your child and managing his/her illness prevent you from doing your usual activities this month?"	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer	[] []
139. "If yes, how much time did you miss?"	If < 1 day, indicate number of hours otherwise, record 00		[] [] hours [] [] days

PART 2: SECTION 5: ADVERSE EVENTS

140. "Did your child have any problems after receiving treatment for this illness?" <i>If yes, go to Qn #141, otherwise skip to end</i>	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer	[] []
141. "Did your child receive treatment with Coartem (artemether-lumefantrine) for this illness?"	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer	[] []
<i>* If any problems occurred after treatment with Coartem, complete an Adverse Drug Reaction Form (Appendix GG) and notify the medical officer and study coordinator</i>			
142. "Did any of the following outcomes occur?" [†] <i>(list all that apply)</i>	1 = Death 2 = Life-threatening condition 3 = Admitted overnight to clinic or hospital	4 = Required surgery 88 = Don't know 99 = Refused to answer	[] [] [] [] [] [] [] []
<i>† If any of the outcomes occurred, complete an Adverse Drug Reaction Form (Appendix GG) and notify the medical officer and study coordinator</i>			

Field worker ID [] []	IDs of other team members present at interview [] [] [] [] [] []
-------------------------	--

APPENDIX W: COHORT STUDY MONTHLY QUESTIONNAIRE (11)

Subcounty ID	Village ID	Compound ID	Household ID	Cluster #	Date of visit
[]	[]	[]	[]	[]	[]/[]/[] day month year

SECTION 8 cont'd: EXTRA ACTION []

(Record number of action)

64a. "What did you do NEXT(including tepid sponging and herbs)?" (choose only one action)

1 = Nothing
2 = Tepid sponging
3 = Gave herbs kept at home
4 = Gave medicines kept at home
5 = Bought medicines from duka
6 = Bought medicines at drug shop/pharmacy
7 = Took to traditional healer
8 = Took to public health centre, clinic or hospital
99 = Refused to answer
77 = Other _____
88 = Don't know

[] []
If 8, go to #65, otherwise skip to #69

65a. "If you took your child to public health centre, clinic or hospital, where did you go?"

1 = Public health centre
2 = Tororo District Hospital
3 = Private hospital/clinic
77 = Other _____
88 = Don't know
99 = Refused to answer

[] []
If 1 or 2, go to #66, otherwise skip to #69

65b. "What is the name of the public health center you went to?"

1 = Maundo HC II
2 = Were HC II
3 = Katajula HC II
4 = Paya HC III
5 = Pusere HC II
6 = Nawire HC II
7 = Kirewa HC III
8 = Chawolo-Kirewa HC II
9 = Kisoko HC III
10 = Morkiswa HC II
11 = Petta HC III
12 = Makawari HC II
13 = Mbula HC II
14 = Gwaragwara HC II
15 = Osia HC II
16 = Mwelo HC II
17 = Lwala HC II
18 = Panyangasi HC III
19 = Mudodo HC II
20 = Chawolo-Mulanda HC II
77 = Other _____
88 = Don't know
99 = Refused to answer

[] []

66. "Why did you go to the public health centre or public hospital?"

1 = I heard there were drugs
2 = Someone told me to go
3 = It's closest to my home
4 = It's free (no cost)
5 = I always go to the public health centre
6 = They were nice to me last time
7 = They told me to come back
8 = The drug given last time was unsuccessful
9 = There were no drugs at the health centre the last time I went
77 = Other _____
88 = Don't know
99 = Refused to answer

[] []

67. "How satisfied were you with the health care that your child received at the public health centre?"

1 = Very dissatisfied
2 = Dissatisfied
3 = Uncertain
4 = Satisfied
5 = Very satisfied
99 = Refused to answer

[] []
If 1 or 2 go to #68. Otherwise, skip to #69

68. "If dissatisfied or very dissatisfied what were the reasons for being dissatisfied?" (list all that apply)

1 = Long waiting time
2 = No trained professionals
3 = No drugs were given
4 = No lab tests done
5 = Rude HCW
6 = Had to pay for care
7 = Treatment was unsuccessful
77 = Other _____
99 = Refused to answer

[] [] [] []
[] [] [] []
[] [] [] []

69. "How long had the child been ill when this NEXT action was taken?"

1 = < 24 hrs
2 = 1-3 days
3 = 4-7 days
4 = > 7 days
77 = Other _____
88 = Don't know
99 = Refused to answer

[] []

Ask this question on if the answer to question #64 was 6 or 8:

64b. "Was your child tested for malaria (finger or heel prick) when you went to this place?"

1 = Yes
2 = No
88 = Don't know
99 = Refused to answer

[] []
If 1, go to #24c, otherwise, skip to #30

64c. "If yes, do you know what type of test was done? For example, was the blood placed onto a glass slide or onto a white stick?"

1 = Blood smear
2 = RDT
77 = Other _____
88 = Don't know

[] []

64d. "Were you told the result of the test?"

1 = Yes
2 = No
88 = Don't know
99 = Refused

[] []

64e. "If yes, what was the result?"

1 = positive for malaria
2 = negative for malaria
77 = Other
88 = Don't Know
99 = Refused to Answer

[] []

MEDICINES GIVEN AS NEXT TREATMENT

"If your child took medicine THIRD, what did he/she take?" (Indicate all that were given as a third action)

DRUG	Number of times given per day	Number of days given	How long had the child been ill when the drug was started?		
			1 = < 24 hrs 2 = 1-3 days	3 = 4-7 days 4 = > 7 days	77 = Other (list) 88 = Don't know 99 = Refused to answer
70. Panadol	[] []	[] []	[] []	[] []	[] []
71. Aspirin	[] []	[] []	[] []	[] []	[] []
72. Chloroquine	[] []	[] []	[] []	[] []	[] []
73. Fansidar (SP)	[] []	[] []	[] []	[] []	[] []

COHORT STUDY MONTHLY QUESTIONNAIRE (12)

Study ID	Date of visit	Visit #
[] [] [] []	[] [] / [] [] / [] [] day month year	[] []

74. CQ+SP	[] []	[] []	[] []	_____
75. Amodiaquine	[] []	[] []	[] []	_____
76. Quinine	[] []	[] []	[] []	_____
77. Coartem	[] []	[] []	[] []	_____
78. Septrin(<i>Bactrim</i>)	[] []	[] []	[] []	_____
79. Amoxicillin	[] []	[] []	[] []	_____
80. Other _____	[] []	[] []	[] []	_____
81. Other _____	[] []	[] []	[] []	_____
82. Other _____	[] []	[] []	[] []	_____
83. Unknown	[] []	[] []	[] []	_____

IF ILLNESS RESOLVED, , go to Part 1/2: Section 4: Treatment outcome, otherwise go to Extra Actions Form

APPENDIX X: EXIT INTERVIEW SCREENING FORM
PART 1: PARTICIPANT INFORMATION

Screening Date		Screening ID	
[]/[]/[] <small>day month year</small>		[] [] [] []	
Village name _____		Sub-county ID	Village ID
		[]	[] []
Child's age	[]/[]	If child is less than 1 year, complete months, otherwise leave blank	
	<small>years months</small>		
Gender	[]	1 = Male 2 = Female	
Was your child referred to another health centre today?	[]	1 = Yes 2 = No 88 = Don't know	
If the caregiver is not answering your questions, indicate why		1 = Refused to talk 2 = Refused to wait 77 = Other: list _____	
		[] []	

SCREENING STAGE 1 – Appropriate age			
Selection criteria	Include	Exclude	
Is the child the appropriate age —Under five (aged 0 to less than 5 years)	1 = Yes	2 = No	[]
<i>If the answer is '2' from the EXCLUDE column, exclude from the study. If not, proceed to the next section.</i>			

INFORMATION ON STUDY			
Read the following to the caregiver:	My name is _____. I work with the Uganda Malaria Surveillance Project which is part of the Infectious Disease Research Collaboration. We would like to ask you some questions about your experience today at this health centre and briefly examine your child. This should take about 30 minutes. Would you be able participate now?		
Does the caregiver agree to continue?	Continue	End interview	
	1 = Yes	2 = No	[]
If No, indicate reason	1 = Refused to talk 2 = Refused to wait 77 = Other: list _____		[] []
Proceed with obtaining informed consent			

SCREENING STAGE 2 – Informed consent			
Selection criteria	Include	Exclude	
Is the parent(s)/guardian(s) willing to provide informed consent?	1 = Yes	2 = No	[]
<i>If the answer is '2' from the EXCLUDE column, exclude from the study. If not, proceed to the next section.</i>			

ASSIGN STUDY NUMBER	[] [] [] []
----------------------------	-----------------

All criteria for study inclusion met?		Date of enrollment
1 = Yes 2 = No <i>If no, exclude from the study</i>	[]	[]/[]/[] <small>day month year</small>

Staff ID: [] []

Data entrant (1st): [] []

Data entrant (2nd): [] []



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[] []

Health Facility ID

[] [] [] []

Study ID

APPENDIX Y. PATIENT EXIT INTERVIEWS Research participant informed consent form

Protocol Title:	ACT PRIME Study: Evaluating the impact of enhanced health facility-based care for malaria and febrile illnesses in children
Site of Research:	Tororo, Uganda
Principal Investigators:	Dr. Sarah Staedke
Date:	15 May 2012

Introduction

Dr. Sarah Staedke and colleagues from the Uganda Malaria Surveillance Project / Infectious Diseases Research Collaboration are investigating delivery of healthcare services in Tororo District. We are doing a research study to see if we can improve the health of children in this area by improving services at government-run health facilities.

Why is this survey being done?

Certain health centers in Tororo district will be selected to either take part in the intervention to improve services, or to continue with their current services. Assignment to the two groups has been determined by a lottery. The chance of being placed into either of the groups is the same. To find out how well the intervention is working, we would like to review the health of children under five who go to the health centers for care. We would like to know if caregivers of children are satisfied with their visit to the health centers. We would also like to hear any suggestions on how to improve visits to these health centers. We would like to interview the caregivers of children under five who have visited the health centers. In the final survey, we will interview 50 caregivers from each participating health center, 1000 in total.

What will happen if my child takes part in this survey?

If you agree to let your child participate in this survey, the following will happen today:

- a) We will ask you some questions about your visit to the health center today including the purpose of the visit, your child's symptoms, whether a test for malaria was done, and what treatment was given. We will also ask questions about whether you were satisfied with your visit or not.
- b) We will collect information on your child's general health.
- c) We will briefly examine your child.
- d) If your child has had a fever in the last 48 hours (2 days) or has a high temperature, we will do a rapid diagnostic test for malaria.



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- e) If your child has a positive test for malaria, and appropriate treatment for malaria has not been given, we will provide treatment with artemether-lumefantrine (including Coartem or Lumartem), which is the recommended treatment for simple malaria in Uganda.
- f) If your child has any signs of severe malaria or another significant illness, we will refer you and your child back to the health center or to the hospital for further care.
- g) The data we collect will be used by project investigators and may be shared with other researchers and policy-makers to answer questions about how best to deliver health services.

After today, we will not ask you to do anything further.

How long will this survey last?

Today, the interview will last about 30 minutes.

Can I stop my child from being in the survey?

You can decide to stop participating at any time. Just tell the project researcher right away if you wish to stop the activities.

What risks can I expect if my child participates in the survey?

We will obtain one blood sample by fingerprick from your child. The risks of drawing blood from a fingerprick include temporary discomfort from the needle stick, bruising, and skin infection. The amount of blood removed will be too small to affect your child's health.

Participation in any research study may involve a loss of privacy. Information you provide about your health center will be recorded, but your name will not be used in any reports of the information provided. The information obtained from these study activities will be locked at our project offices. We will do our best to make sure that any personal information is kept private.

Are there benefits if my child takes part in the survey?

If we find that your child has malaria and has not been given appropriate treatment at the health center, we will give you medications and instructions on how to treat your child. Otherwise, there will be no direct benefit to you from participating in this study. However, the information that you provide will help researchers and policy-makers understand who best to improve health services in this area.

What other choices do I have if my child does not take part in the survey?

You are free to choose not to participate in the study. If you decide not to let your child take part, there will be no penalty to you.



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What are the costs of taking part in the survey? Will my child be paid for taking part in the survey?

There are no costs to you for taking part in this study. You and your child will not be paid for taking part in this study.

What are my rights if I allow my child to take part in the survey?

Taking part in this survey is your choice. You may choose either to take part or not to take part. If you decide to take part in this survey, you may change your mind at any time. If you decide to withdraw your child from the survey; your child will still be eligible for care at the local health facility and at Tororo District Hospital and at other local clinics. No matter what decision you take, there will be no penalty to you in any way.

What if my child is injured as result of being in this survey?

If your child is injured, or if you have questions about injuries as a result of being in the survey, please contact Dr. Sarah Staedke or other members of the Uganda Malaria Surveillance Project / Infectious Disease Research Collaboration on telephone number 0414-530692. The sponsoring organizations do not have a program to cover your costs if your child is hurt or has other bad results.

Who can answer my questions about the survey?

You can talk to the researchers about any questions or concerns you have about these survey activities. Contact Dr. Sarah Staedke or other members of the Uganda Malaria Surveillance Project / Infectious Disease Research Collaboration on telephone number 0414-530692. If you have any questions, comments or concerns about taking part in these activities, first talk to the researchers. If for any reason you do not wish to do this, or you still have concerns about doing so, you may contact Professor James Tumwine, Makerere University School of Medicine Research and Ethical Committee at telephone number 0414-530020.



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WHAT YOUR SIGNATURE OR THUMBPRINT MEANS

Your signature or thumbprint below means that you understand the information given to you in this consent form about your child's participation in the survey and agree with the following statements:

1. "I have read the consent form concerning this survey (or have understood the verbal explanation of the consent form) and I understand what will be required of me and what will happen to me and my child if we take part in it."
2. "My questions concerning this survey have been answered by Dr. Staedke or the person who signed below."
3. "I understand that at any time, I may withdraw my child from this survey without giving a reason and without affecting my child's normal health care and management."
4. "I agree that the child under my care will take part in this survey."

You will also be asked to sign another informed consent form for the use of stored specimens. If you wish your child to participate in this survey, you should sign or place your thumbprint below.



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WE WILL GIVE YOU A COPY OF THIS SIGNED AND DATED CONSENT FORM

Name of Participant (printed)

Name of Parent/Guardian

Signature or Fingerprint * of Parent/Guardian

Date/Time

Name of Investigator Administering Consent (printed)

Position/Title

Signature of Investigator Administering Consent

Date/Time

*If the parent or guardian is unable to read and/or write, an impartial witness should be present during the informed consent discussion. After the written informed consent form is read and explained to the participant and parent or guardian, and after they have orally consented to their child’s participation in the trial, and have either signed the consent form or provided their fingerprint, the witness should sign and personally date the consent form. By signing the consent form, the witness attests that the information in the consent form and any other written information was accurately explained to, and apparently understood by the parent or guardian, and that informed consent was freely given by the patient and parent or guardian.

Name of Person Witnessing Consent (printed)

Signature of Person Witnessing Consent

Date/Time

APPENDIX Z: PATIENT EXIT INTERVIEW QUESTIONNAIRE (1)

Section 1: Patient/Caregiver information

Health facility ID [] []	Study ID [] [] [] []	Date of interview [] [] / [] [] / [] [] date month year
Sub-county ID []	Village name _____	Village ID [] [] []
CHILD	Age <i>If child is less than 1 year, complete months, otherwise leave blank</i> [] [] / [] [] years months	Gender [] 1 = Male 2 = Female
CAREGIVER	Age [] [] years	Gender [] 1 = Male 2 = Female

SECTION 2: CLINICAL HISTORY

1. What is the reason for your visit to the health center today? (Describe below)			
2. Did child have fever in the last 48 hours (2 days)?	1 = Yes 2 = No	88 = Don't know 99 = Refused	[] []
3. What other problems did the child have? (Describe below, and list all appropriate codes at right)	1 = Cough 2 = Flu 3 = Not eating 4 = Vomiting 5 = Diarrhea	6 = Weak (not playing) 7 = Convulsions 8 = Other 77 = None	[] [] [] [] [] []
4. Did your child have a diagnostic test for malaria done today? <i>If no, skip to question 6.</i>	1 = Yes 2 = No	88 = Don't know 99 = Refused	[] []
5. If yes, what was the result of the test?	1 = Positive 2 = Negative	88 = Don't know 99 = Refused	[] []
6. Were you told what is causing your child's illness? <i>If no, skip to question 8.</i>	1 = Yes 2 = No	88 = Don't know 99 = Refused	[] []
7. What diagnoses was your child given?	1 = Malaria 2 = Ear infection 3 = Throat infection 4 = Pneumonia 5 = Gastroenteritis 6 = Dysentery	7 = Measles 8 = Urine infection 9 = Other 88 = Don't know 99 = Refused	[] [] [] []
8. What treatment was prescribed for your child?	1 = Panadol 2 = AL (Coartem, Lumartem) 3 = DP (Duocotecxin) 4 = Quinine 5 = Chloroquine only 6 = SP only (Fansidar) 7 = CQ+SP combination 8 = Amodiaquine (Camoquin)	11 = Amoxicillin 12 = Septrin 13 = Iron (Ferrous) 14 = ORS 15 = Vitamin A 20 = Other 88 = Don't know 99 = Refused	[] [] [] [] [] [] [] []
9. Did you receive the medications that were prescribed? <i>If yes, skip to next section.</i>	1 = Yes 2 = No 3 = Received some	88 = Don't know 99 = Refused	[] []
10. If no, why?	1 = Drug out of stock 2 = Couldn't pay for drug 3 = Other	88 = Don't know 99 = Refused	[] []

PATIENT EXIT INTERVIEW QUESTIONNAIRE (2)

Health facility ID [] []	Study ID [] [] [] []	Date of interview [] [] / [] [] / [] [] <small>date month year</small>
--------------------------------------	------------------------------------	---

SECTION 3: SATISFACTION WITH HEALTH CARE

1 = very dissatisfied, 2 = dissatisfied, 3 = uncertain, 4 = satisfied, 5 = very satisfied

1. How satisfied are you with the length of time you had to wait today?	1	2	3	4	5
2. How satisfied are you with the waiting space available?	1	2	3	4	5
3. How satisfied are you with the health center buildings and the consultation rooms?	1	2	3	4	5
4. How satisfied are you with the directions provided at the health center?	1	2	3	4	5
5. How satisfied are you with the attitude of health workers toward you?	1	2	3	4	5
6. How satisfied are you with the consultation and examination of your child?	1	2	3	4	5
7. How satisfied are you with the laboratory tests done?	1	2	3	4	5
8. How satisfied are you with the treatment prescribed?	1	2	3	4	5
9. How satisfied are you with the medications provided?	1	2	3	4	5
10. How satisfied are you with the explanation of why your child is sick?	1	2	3	4	5

SECTION 4: SUGGESTIONS

What do you think can be done to improve services at this health center?

Time of ARRIVAL to health center

[] [] : [] []
hours minutes

Time of DEPARTURE from health center

[] [] : [] []
hours minutes

PATIENT EXIT INTERVIEW QUESTIONNAIRE (3)

Health facility ID [] []	Study ID [] [] [] []	Date of interview [] [] / [] [] / [] [] date month year
--------------------------------------	------------------------------------	--

SECTION 3: FEVER EPISODE

Complete ONLY if there is a history of fever or documented temperature ($\geq 38.0^{\circ}\text{C}$)

1. Clinical Notes – History of present illness	
2. Physical examination findings	
3. Temperature ($^{\circ}\text{C}$) [] [] • []	
4. PRIME RDT result	<i>If negative, skip to Qn 6.</i> 0 = Negative 1 = Positive (Pf only)
2 = Positive (Pan only) 3 = Positive (Pf + Pan)	4 = Invalid 77 = Other [] []
5. If the RDT is positive, was the child prescribed appropriate treatment for malaria at the health center?	
1 = Yes 2 = No []	
6. Diagnosis made by PRIME	
1 = Uncomplicated malaria 2 = Severe malaria 3 = Otitis media 4 = Pharyngitis 5 = Upper respiratory tract infection 6 = Pneumonia 7 = Gastroenteritis 8 = Diarrhea	9 = Dysentery 10 = Urinary tract infection 11 = Skin infection 12 = Viral illness 77 = Other 88 = Unknown [] []
7. Medications prescribed by PRIME	
1 = Panadol 2 = Coartem (artemether-lumefantrine)	12 = Other (list) _____ _____ _____
	Drug 1 [] [] Drug 2 [] [] Drug 3 [] [] Drug 4 [] [] Drug 5 [] []
8. Was the child referred for additional care by PRIME staff?	
1 = Yes 2 = No []	
9. If yes, where? (specify)	

Staff ID: [] []

Data entrant (1st): [] []

Data entrant (2nd): [] []



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APPENDIX AA. INFORMATION SHEET – Health facility surveillance ACT PRIME Study

Introduction

Dr. Sarah Staedke and colleagues from the Uganda Malaria Surveillance Project / Infectious Diseases Research Collaboration are investigating delivery of health care services in Tororo District. We are doing a research study to see if we can improve the health of children in this area by improving services at government-run health facilities. Certain health centers in Tororo district will be selected to participate in the intervention to improve services, or to continue with their current services. Assignment to the two groups has been determined by a lottery. The chance of being placed into either of the groups is the same.

Why is this surveillance being done?

As part of this study, we would like to know more about the types of patients seen, and the treatment provided, at lower-level health centers (HC IIs and HC IIIs) in this area. We would also like to know more about drug supplies, staffing and costs at HC IIs and IIIs.

What will happen if I take part in this surveillance?

We will visit your health center regularly, approximately every 1-3 months. We will ask you, or another available health worker, to provide us with your registers, including the patient, drug, and laboratory (if applicable) registers, drug stock cards, and drug stock book. We will review the registers and stock cards and will record the data. Depending on the frequency of our visits, we estimate that it will take 1-3 days to enter the data. We will also ask you some questions about any situation that had an impact on patient care at your health center this month, which should last about 15 minutes. During one visit we will also ask you questions about routine costs at this health center, which should last about 30-60 minutes. The data we collect will be used by project investigators and may be shared with other researchers and policy-makers to answer questions about how best to deliver health services.

How long will this surveillance last?

We plan to conduct the surveillance over 2 years. We will visit your health facility about once every 1-3 months for a total of about 2 years.

Can I stop being in the surveillance?

You can decide to stop participating at any time. Just tell our study personnel right away if you wish to stop the activities.

What risks can I expect from participating in the surveillance?

Participation in any research study may involve a loss of privacy. Information you provide about your health center will be recorded, but your name will not be used in any reports of the information provided. No



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quotes or other results arising from your participation in this study will be included in any reports, even anonymously, without your agreement. The information obtained from these surveillance activities will be locked at our project offices. We will do our best to make sure that any personal information is kept private.

Are there benefits to taking part in the surveillance?

There will be no direct benefit to you from participating in this study. However, the information that you provide will help researchers and policy-makers understand who best to improve health services in this area.

What other choices do I have if I do not take part in the surveillance?

You are free to choose not to participate in the study. If you decide not to take part, there will be no penalty to you.

What are the costs of taking part in the surveillance? Will I be paid for taking part in the surveillance?

There are no costs to you for taking part in this study. You will not be paid for taking part in this study. To recognize your role in supporting our surveillance activities, we will periodically provide tea, coffee, sugar, milk, soap, or pens to this health facility.

What are my rights if I take part in the surveillance?

Taking part in this study is your choice. You may choose either to take part or not to take part. If you decide to take part in this study, you may change your mind at any time. No matter what decision you take, there will be no penalty to you in any way.

Who can answer my questions about the surveillance?

You can talk to the researchers about any questions or concerns you have about these surveillance activities. Contact Dr. Sarah Staedke or other members of the Uganda Malaria Surveillance Project / Infectious Disease Research Collaboration on telephone number 0414-530692. If you have any questions, comments or concerns about taking part in these activities, first talk to the researchers. If for any reason you do not wish to do this, or you still have concerns about doing so, you may contact Dr James Tumwine, Makerere University Faculty of Medicine Research and Ethical Committee at telephone number 0414-530020.

Giving verbal consent to participate in the surveillance:

You may keep this information sheet if you wish. Participation in these activities is voluntary. You have the right to decline to participate in the activities, or to withdraw from them at any point without penalty. If you do not wish to participate in the activities, you should inform the researcher now. If you do wish to participate in these activities, you should tell the researcher now, and the interview will begin shortly. If you do not agree to quotes or other results arising from your participation in the study being included, even anonymously, in any reports about the study, please tell the researcher now.

APPENDIX BB: HEALTH FACILITY SURVEILLANCE FORM (1)

PART 1: Section 1: Health Center Information

Health centre code [] []	Health worker ID [] []	Date Report Completed [] [] / [] [] / [] [] day month year
START date of report (this should be the STOP date from the previous months' report) [] [] / [] [] / [] [] day month year		STOP date of report [] [] / [] [] / [] [] day month year

Section 2: Review of Record Books

Assign each patient in the Patient Register a Patient Number and record into the PDA as much information as possible on each patient who attended the health facility since the date of the last visit using the Patient Register, Laboratory Log Book, Drug Stock Cards, and Dispensing Record or Drug Stock Book.

From Patient Register	From Laboratory Log Book (if health facility has a laboratory)	From Dispensing Record
1. Date of visit 2. Age of patient 3. Gender of patient 4. Village of residence 5. Fever or history of fever 6. Diagnosis 7. Treatment prescribed 8. RDT performed 9. Result of RDT	1. RDT performed 2. Result of RDT 3. Laboratory tests performed 4. Result of test	1. Drug dispensed 2. Amount

Section 3: Drug Stock Report

Complete using Drug Stock Cards, Dispensing Record, and/or Drug Stock Book.

1. Was AL from NMS out-of-stock this month? 1 = Yes 88 = Don't know 2 = No 99 = Refused to answer [] [] <p style="text-align: right;"><i>If No, skip to question 9</i></p>				
2. List date when stock-out of AL began:	3. Was AL re-stocked after this stock-out? 1 = Yes 2 = No 88 = Don't know 99 = Refused to answer <i>If No, skip to question 9</i>	4. If yes, who re-stocked your drugs? 1 = NMS 2 = ACT PRIME study (us) 3 = Used PHC or HF funds. List amount 77 = Other: list 88 = Don't know 99 = Refused to answer	5. What date was AL re-stocked?	
1st	2a. [] / [] / [] day month year	3a. [] []	4a. [] [] amount: UGX _____ Other: list: _____	5a. [] / [] / [] day month year
2nd	2b. [] / [] / [] day month year	3b. [] []	4b. [] [] amount: UGX _____ Other: list: _____	5b. [] / [] / [] day month year
3rd	2c. [] / [] / [] day month year	3c. [] []	4c. [] [] amount: UGX _____ Other: list: _____	5c. [] / [] / [] day month year
9. If your supply of AL ran low, did you ration or keep some drugs aside? [] 1 = Yes <i>If no, skip to next section</i> 2 = No		10. If yes, for what reasons did you ration or keep some drugs aside? List all that apply [] [] [] [] [] [] [] [] 1 = To have drugs to treat children 3 = To have drugs available if a politician visits 2 = To have drugs to treat severe cases of malaria 77 = Other, _____		

HEALTH FACILITY SURVEILLANCE FORM (2)

<p>Health centre code</p> <p>[] [] [] []</p>	<p>Health worker ID</p> <p>[] [] [] []</p>	<p>Date Report Completed</p> <p>[] [] [] [] / [] [] [] [] / [] [] [] []</p> <p>day month year</p>
<p>START date of report (this should be the STOP date from the previous months' report)</p> <p>[] [] [] [] / [] [] [] [] / [] [] [] []</p> <p>day month year</p>		<p>STOP date of report</p> <p>[] [] [] [] / [] [] [] [] / [] [] [] []</p> <p>day month year</p>

Section 5: Extra comments

Describe any situation that had an impact on patient care at your health center this month, such as drug stock-outs, staff shortages, or political instability.

HEALTH FACILITY SURVEILLANCE FORM – HEALTH CENTRE INDICATOR REPORTS (3)

PART 2: Section 1: Health Center Information

Health centre code <div style="border: 1px solid black; width: 100%; height: 20px; margin-top: 5px;"></div>	Health worker ID <div style="border: 1px solid black; width: 100%; height: 20px; margin-top: 5px;"></div>	Date Report Completed <div style="border: 1px solid black; width: 100%; height: 20px; margin-top: 5px; display: flex; justify-content: space-between;"> day month year </div>
START date of report <small>(this should be the STOP date from the previous months' report)</small> <div style="border: 1px solid black; width: 100%; height: 20px; margin-top: 5px; display: flex; justify-content: space-between;"> day month year </div>		STOP date of report <div style="border: 1px solid black; width: 100%; height: 20px; margin-top: 5px; display: flex; justify-content: space-between;"> day month year </div>

Section 2: Indicator report – ALL PATIENTS

Total number of patients visiting the clinic this month	<div style="border: 1px solid black; width: 100%; height: 20px;"></div>
Number (proportion) of patients who had fever	<div style="border: 1px solid black; width: 100%; height: 20px; display: flex; justify-content: space-between;">%</div>
Number (proportion) of febrile patients who had a RDT done	<div style="border: 1px solid black; width: 100%; height: 20px; display: flex; justify-content: space-between;">%</div>
Number (proportion) of patients who had a positive RDT result	<div style="border: 1px solid black; width: 100%; height: 20px; display: flex; justify-content: space-between;">%</div>
Number (proportion) of patients who had a negative RDT result	<div style="border: 1px solid black; width: 100%; height: 20px; display: flex; justify-content: space-between;">%</div>
Total number of patients who were diagnosed with malaria	<div style="border: 1px solid black; width: 100%; height: 20px;"></div>
Number (proportion) of patients diagnosed with malaria who had a positive RDT	<div style="border: 1px solid black; width: 100%; height: 20px; display: flex; justify-content: space-between;">%</div>
Number (proportion) of patients diagnosed with malaria who had a negative RDT	<div style="border: 1px solid black; width: 100%; height: 20px; display: flex; justify-content: space-between;">%</div>
Total number of patients who were prescribed an ACT* to treat malaria	<div style="border: 1px solid black; width: 100%; height: 20px;"></div>
Number (proportion) of patients who had a positive RDT result who were prescribed an ACT*	<div style="border: 1px solid black; width: 100%; height: 20px; display: flex; justify-content: space-between;">%</div>
Number (proportion) of patients who had a negative RDT result who were prescribed an ACT*	<div style="border: 1px solid black; width: 100%; height: 20px; display: flex; justify-content: space-between;">%</div>
Number (proportion) of patients without an RDT done who were prescribed an ACT*	<div style="border: 1px solid black; width: 100%; height: 20px; display: flex; justify-content: space-between;">%</div>
* ACT = artemisinin-based combination therapy for malaria. Examples include Coartem, Lumartem, Duocotexcin	

HEALTH FACILITY SURVEILLANCE FORM – INDICATOR REPORTS (4)		
Health centre code [] [] [] []	Health worker ID [] [] [] []	Date Report Completed [] [] [] / [] [] [] / [] [] [] day month year
START date of report [] [] [] / [] [] [] / [] [] [] day month year		STOP date of report [] [] [] / [] [] [] / [] [] [] day month year

Section 3: Indicator report – CHILDREN UNDER FIVE		
Total number of children under five visiting the clinic this month	[] [] [] []	
Number (proportion) of children under five who had fever	[] [] [] []	[] [] [] %
Number (proportion) of febrile children under five who had a RDT done	[] [] [] []	[] [] [] %
Number (proportion) of children under five who had a positive RDT result	[] [] [] []	[] [] [] %
Number (proportion) of children under five who had a negative RDT result	[] [] [] []	[] [] [] %
Total number of children under five who were diagnosed with malaria	[] [] [] []	
Number (proportion) of children under five diagnosed with malaria who had a positive RDT	[] [] [] []	[] [] [] %
Number (proportion) of children under five diagnosed with malaria who had a negative RDT	[] [] [] []	[] [] [] %
Total number of children under five who were prescribed an ACT* to treat malaria	[] [] [] []	
Number (proportion) of children under five who had a positive RDT result who were prescribed an ACT*	[] [] [] []	[] [] [] %
Number (proportion) of children under five who had a negative RDT result who were prescribed an ACT*	[] [] [] []	[] [] [] %
Number (proportion) of children under five without an RDT done who were prescribed an ACT*	[] [] [] []	[] [] [] %
* ACT = artemisinin-based combination therapy for malaria. Examples include Coartem, Lumartem, Duocotexcin		

HEALTH FACILITY SURVEILLANCE FORM – COST COLLECTION (1)

PART 3: Section 1: Health Center Information

This section to be completed in all health facilities at baseline and then annually (3 surveys in total)

Health centre code [] []	Health worker ID [] []	Date Report Completed [] [] / [] [] / [] [] <small>day month year</small>
--	--	--

Section 2: DRUGS & SUPPLIES

#	Drugs	Ever stocked? 1 = Yes 2 = No 88 = Don't know 99 = Refused to answer	Total number of units available on day of survey	If 0 units available, how many days has this item been out of stock?	Source of payment for item 1 = Us, ACT PRIME study 2 = NGO/project 3 = PHC Fund 4 = Government 77 = Other, list 88 = Don't know 99 = Refused to answer
1.	Artemether-Lumefantrine – Coartem	[] []		days	[] [] _____
2.	Artemether-Lumefantrine – Lumartem	[] []		days	[] [] _____
3.	Amodiaquine-Artesunate	[] []		days	[] [] _____
4.	Sulfadoxine-Pyrimethamine (Fansidar)	[] []		days	[] [] _____
5.	Chloroquine 150 base tab	[] []		days	[] [] _____
6.	Chloroquine 50mg base/5 Bottle 1000ml Syrup	[] []		days	[] [] _____
7.	Chloroquine 50mg base/5 Bottle 1000ml Syrup	[] []		days	[] [] _____
8.	Chloroquine inj 40 mg/ml; 39ml	[] []		days	[] [] _____
9.	Acetylsalicylic acid 300mg tab	[] []		days	[] [] _____
10.	Diazepam inj 5mg/ml	[] []		days	[] [] _____
11.	Ferrous sulphate tab. 200 + 0.25mg	[] []		days	[] [] _____
12.	Folic Acid 5mg	[] []		days	[] [] _____

HEALTH FACILITY SURVEILLANCE FORM – COST COLLECTION (2)

Health centre code [] []	Health worker ID [] []	Date Report Completed [] [] / [] [] / [] [] <small>day month year</small>
--	--	--

#	DRUGS	Ever stocked? 1 = Yes 2 = No 88 = Don't know 99 = Refused to answer	Total number of units available on day of survey	If 0 units available, how many days has this item been out of stock?	Source of payment for item 1 = Us, ACT PRIME study 2 = NGO/project 3 = PHC Fund 4 = Government 77 = Other, list 88 = Don't know 99 = Refused to answer
13.	Oral Rehydration Salts	[] []		days	[] [] _____
14.	Paracetamol 120/5ml syrup	[] []		days	[] [] _____
15.	Paracetamol tab 500 mg	[] []		days	[] [] _____
16.	Quinine inj 300mg/ml	[] []		days	[] [] _____
17.	Quinine tab 300mg	[] []		days	[] [] _____
18.	Dextrose 5%	[] []		days	[] [] _____
19.	Dextrose 50%	[] []		days	[] [] _____
20.	Water for injection 10m	[] []		days	[] [] _____
21.	Other _____	[] []		days	[] [] _____
22.	Other _____	[] []		days	[] [] _____
23.	Other _____	[] []		days	[] [] _____
24.	Other _____	[] []		days	[] [] _____
25.	Other _____	[] []		days	[] [] _____

HEALTH FACILITY SURVEILLANCE FORM – COST COLLECTION (3)

Health centre code [] []	Health worker ID [] []	Date Report Completed [] [] / [] [] / [] [] <small>day month year</small>
--	--	--

#	SUPPLIES	Ever stocked? 1 = Yes 2 = No 88 = Don't know 99 = Refused to answer	Total number of units available on day of survey	If 0 units available, how many days has this item been out of stock?	Source of payment for item 1 = Us, ACT PRIME study 2 = NGO/project 3 = PHC Fund 4 = Government 77 = Other, list 88 = Don't know 99 = Refused to answer
26.	Syringe for needles	[] []		days	[] [] _____
27.	Cotton Wool	[] []		days	[] [] _____
28.	Plaster wound adhesive	[] []		days	[] [] _____
29.	Surgical gloves	[] []		days	[] [] _____
30.	Giving set	[] []		days	[] [] _____
31.	Cannula	[] []		days	[] [] _____
32.	Needle half circle 16 triangular	[] []		days	[] [] _____
33.	Other _____	[] []		days	[] [] _____
34.	Other _____	[] []		days	[] [] _____
35.	Other _____	[] []		days	[] [] _____
36.	Other _____	[] []		days	[] [] _____
37.	Other _____	[] []		days	[] [] _____
38.	Other _____	[] []		days	[] [] _____
39.	Other _____	[] []		days	[] [] _____
40.	Other _____	[] []		days	[] [] _____

HEALTH FACILITY SURVEILLANCE FORM – COST COLLECTION (4)

Health centre code [] []	Health worker ID [] []	Date Report Completed [] [] / [] [] / [] [] day month year
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Section 3: OVERHEADS

	UTILITIES	Does this health facility have this utility? 1 = Yes 2 = No 88 = Don't know 99 = Refused to answer	Was this utility paid for this year? 1 = Yes 2 = No 88 = Don't know 99 = Refused to answer	Average price per month, in UGX	Average total price per year, in UGX	Source of payment for utility	
						1 = NGO 2 = PHC Fund 3 = Government	77 = Other, list 88 = Don't know 99 = Refused to answer
41.	Gas	[] []	[] []	UGX	UGX	[] []	_____
42.	Electricity	[] []	[] []	UGX	UGX	[] []	_____
43.	Water	[] []	[] []	UGX	UGX	[] []	_____
44.	Other _____	[] []	[] []	UGX	UGX	[] []	_____
45.	Other _____	[] []	[] []	UGX	UGX	[] []	_____

HEALTH FACILITY SURVEILLANCE FORM – COST COLLECTION (5)

Health centre code [] []	Health worker ID [] []	Date Report Completed [] [] / [] [] / [] [] <small>day month year</small>
--------------------------------------	------------------------------------	--

	CAPITAL EQUIPMENT Vehicles, furniture, generator,	Description Make/model	# of units available	Date purchased [Day/month/year]	Cost, in UGX	Source of payment for item 1 = NGO 2 = PHC Fund 3 = Government, list department 77 = Other, list 88 = Don't know 99 = Refused to answer	If this item is used in the treatment of malaria, indicate the % of time in a week the item is used to treat malaria.
46.				[]/[]/[]	UGX	[] [] _____	%
47.				[]/[]/[]	UGX	[] [] _____	%
48.				[]/[]/[]	UGX	[] [] _____	%
49.				[]/[]/[]	UGX	[] [] _____	%
50.				[]/[]/[]	UGX	[] [] _____	%
51.				[]/[]/[]	UGX	[] [] _____	%
52.				[]/[]/[]	UGX	[] [] _____	%
53.				[]/[]/[]	UGX	[] [] _____	%
54.				[]/[]/[]	UGX	[] [] _____	%
55.				[]/[]/[]	UGX	[] [] _____	%
56.				[]/[]/[]	UGX	[] [] _____	%
57.				[]/[]/[]	UGX	[] [] _____	%
58.				[]/[]/[]	UGX	[] [] _____	%
59.				[]/[]/[]	UGX	[] [] _____	%
60.				[]/[]/[]	UGX	[] [] _____	%

HEALTH FACILITY SURVEILLANCE FORM – COST COLLECTION (6)

Health centre code [] []	Health worker ID [] []	Date Report Completed [] [] / [] [] / [] [] day month year
-----------------------------------	---------------------------------	--

	SPACE - Description	Size, in square meters	Price per square meter, in UGX	Source of payment for space	If this space is used in the treatment of malaria, indicate the % of time in a week this space is used to treat malaria.
	1 = waiting area 5 = laboratory 9 = storage 2 = registration 6 = kitchen 10 = corridor 3 = examination room 7 = laundry 11 = not in use 4 = dispensing room 8 = pharmacy 77 = other, list			1 = NGO 2 = PHC Fund 3 = Government, list department 77 = Other, list 88 = Don't know 99 = Refused to answer	
61.	[] [] _____	m ²	UGX/m ²	[] [] _____	%
62.	[] [] _____	m ²	UGX/m ²	[] [] _____	%
63.	[] [] _____	m ²	UGX/m ²	[] [] _____	%
64.	[] [] _____	m ²	UGX/m ²	[] [] _____	%
65.	[] [] _____	m ²	UGX/m ²	[] [] _____	%
66.	[] [] _____	m ²	UGX/m ²	[] [] _____	%
67.	[] [] _____	m ²	UGX/m ²	[] [] _____	%
68.	[] [] _____	m ²	UGX/m ²	[] [] _____	%
69.	[] [] _____	m ²	UGX/m ²	[] [] _____	%
70.	[] [] _____	m ²	UGX/m ²	[] [] _____	%



APPENDIX CC. INFORMATION SHEET

Health worker knowledge questionnaire

ACT PRIME Study

Introduction

Dr. Sarah Staedke and colleagues from the Uganda Malaria Surveillance Project / Infectious Diseases Research Collaboration are investigating the delivery of health care services in Tororo District. We are doing a research study to see if we can improve the health of children in this area by improving services at government-run health facilities. Certain health centers in Tororo district will be selected to either take part in the intervention to improve services, or to continue with their current services. Assignment to the two groups has been determined by a lottery. The chance of being placed into either of the groups is the same.

Why is this study being done?

As part of this study, we would like to assess health workers' understanding of febrile illnesses, particularly malaria, including how it is transmitted, common symptoms, and approaches to management, diagnosis and treatment. We plan to carry out these surveys once a year for 3 years. As part of the final survey, we would also like to assess how well health workers have been trained to use rapid diagnostic tests (RDTs) for malaria.

What will happen if I take part in this study?

Today, we would like to ask you about training you have received and some questions about fever and malaria using a questionnaire. We will also watch you perform a RDT for malaria, interpret the result, and manage a child with fever. We will take notes while we watch you. All information gathered will be treated as confidential by the study personnel, and records of the assessment will be kept securely in locked filing cabinets and offices. No personal identification information such as names will be used in any reports arising out of this research. The data we collect will be used by project investigators and may be shared with other researchers and policy-makers to answer questions about how best to train health workers in fever case management and diagnosis of malaria, and how to improve delivery of health services.

How long will the assessment last?

Today, the assessment will last about 45 minutes.

Can I stop being in the study?

You can decide to stop participating at any time. Just tell our study personnel right away if you wish to stop the activities.

What risks can I expect from participating in the study?

Participation in any research study may involve a loss of privacy. Information you provide will be recorded, but your name will not be used in any reports of the information provided. No quotes or other results arising from your participation in this study will be included in any reports, even anonymously, without your agreement. The information



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obtained from these study activities will be locked at our project offices. We will do our best to make sure that any personal information is kept private.

Are there benefits to taking part in the study?

There will be no direct benefit to you from participating in this study. However, the information that you provide will help researchers and policy-makers understand how best to train health workers in fever case management and diagnosis of malaria, and how to improve delivery of health services in this area.

What other choices do I have if I do not take part in the study?

You are free to choose not to take part in the study. If you decide not to take part, there will be no penalty to you.

What are the costs of taking part in the study? Will I be paid for taking part in the study?

There are no costs to you for taking part in this study. You will not be paid for taking part in this study.

What are my rights if I take part in the study?

Taking part in this study is your choice. You may choose either to take part or not to take part. If you decide to take part in this study, you may change your mind at any time. No matter what decision you take, there will be no penalty to you in any way.

Who can answer my questions about the study?

You can talk to the researchers about any questions or concerns you have about these study activities. Contact Dr. Sarah Staedke or other members of the Uganda Malaria Surveillance Project / Infectious Disease Research Collaboration on telephone number 0414-530692. If you have any questions, comments or concerns about taking part in these activities, first talk to the researchers. If for any reason you do not wish to do this, or you still have concerns about doing so, you may contact Professor James Tumwine, Makerere University School of Medicine Research and Ethical Committee at telephone number 0414-533541.

Giving verbal consent to take part in the study:

You may keep this information sheet if you wish. Participation in these activities is voluntary. You have the right to decline to take part in the activities, or to withdraw from them at any point without penalty. If you do not wish to take part in the activities, you should inform the researcher now. If you do wish to take part in these activities, you should tell the researcher now, and the assessment will begin shortly. If you do not agree to quotes or other results arising from your participation in the study being included, even anonymously, in any reports about the study, please tell the researcher now.

HEALTH WORKER KNOWLEDGE QUESTIONNAIRE (2)

Date: []/[]/[]
day month year

Health facility ID: [] []

HW Study ID: [] []

<p align="center">SECTION 1</p> <p>Administer questionnaire by asking the questions below, without prompting for answers. Record all of the health worker's answers below during the interview.</p>	<p align="center">SECTION 2</p> <p>After the interview is finished, complete the questions in section 2</p>	<p align="center">SECTION 3</p> <p>Finally, score the questionnaire here in section 3</p>	
<p>4. "What are danger signs of severe malaria in children?" Record answer</p>	<p>Did the respondent's answer include: 1 = Yes 2 = No</p> <p><input type="checkbox"/> Convulsions</p> <p><input type="checkbox"/> Altered consciousness (confusion, coma)</p> <p><input type="checkbox"/> Lethargy (prostration or extreme weakness)</p> <p><input type="checkbox"/> Unable to drink or breastfeed</p> <p><input type="checkbox"/> Vomiting everything</p> <p><input type="checkbox"/> Unable to sit/stand due to weakness</p> <p><input type="checkbox"/> Severe anemia</p> <p><input type="checkbox"/> Respiratory distress (labored breathing)</p> <p><input type="checkbox"/> Jaundice (yellow coloring of eyes)</p>	<p>Give 2 points for each Yes answer in SECTION 2.</p>	<p align="center">[] []</p>
<p>5. "When you examine a child that you suspect has uncomplicated malaria, what signs do you look out for?" Record answer</p>	<p>Did the respondent's answer include: 1 = Yes 2 = No</p> <p><input type="checkbox"/> Fever or high temperature or hot body</p> <p><input type="checkbox"/> Evidence of anemia (pallor)</p> <p><input type="checkbox"/> Enlargement of spleen</p>	<p>Give 5 points for each Yes answer in SECTION 2.</p>	<p align="center">[] []</p>
<p>6. "When you examine a child that you suspect has severe malaria, what signs do you look out for?" Record answer</p>	<p>Did the respondent's answer include: 1 = Yes 2 = No</p> <p><input type="checkbox"/> Mental status or level of consciousness</p> <p><input type="checkbox"/> Evidence of severe anemia (pallor)</p> <p><input type="checkbox"/> Dehydration</p>	<p>Give 5 points for each Yes answer in SECTION 2.</p>	<p align="center">[] []</p>

APPENDIX DD: HEALTH WORKER KNOWLEDGE QUESTIONNAIRE

Health centre code [] []	Health Worker ID [] [] [] []	Date [] [] / [] [] / [] [] day month year
Position:		
1 = In-charge	5 = Clinical officer	9 = Public health nurse
2 = Senior medical officer	6 = Nursing officer	10 = Nursing aide/assistant
3 = Medical officer	7 = Enrolled nurse	11 = Laboratory technician
4 = Senior clinical officer	8 = Midwife	12 = Laboratory assistant
		13 = Health assistant
		14 = Health educator
		15 = Volunteer
		15 = Other _____ [] []

PART 1: DEMOGRAPHIC INFORMATION

1. Age Years [] []	5. Highest level of education or qualification achieved 0 = None 1 = Primary (P1 — P7) 2 = Secondary (S1 — S6) 3 = Certificate 77 = Other _____
2. Gender 1 = Male [] 2 = Female []	4 = Diploma 5 = Bachelor's degree 88 = Don't know 99 = Refused to answer [] []
3. 'Are you originally from this area?' 1 = Yes [] 2 = No []	
4. 'How long have you worked at this health centre?' [] [] years [] [] months	6. What year did you graduate from your course? [] [] [] []

PART 2: INSTRUCTIONS

Welcome to the Health Worker Knowledge questionnaire on RDTs and Fever Case Management. Please take a moment to answer the following questions; there are 16 questions in the questionnaire. You may/may not have done this questionnaire in the past; however, you do not need to worry if you don't know every answer.

This is **NOT A TEST** that will affect your role or responsibilities and **WE VALUE THE TIME YOU TAKE** to complete this quiz. There is no need to write your name on this questionnaire.

All responses will be kept strictly confidential. Thank you!

GENERAL INSTRUCTIONS TO COMPLETE THIS QUESTIONNAIRE

- Please use a dark coloured pen to fill out the questionnaire*
- The health worker identity (ID) number is the unique number that was given to you at the start of this PRIME project. When we request you to give your ID number, please fill the boxes as below:*

[0 | 5 | 1 | 0]

You are asked to enter your ID number like this at the top of each page of your questionnaire.

- In this questionnaire, we ask you to read each question carefully at the questions and decide which response you believe is correct. When you have decided, please circle the letter in the column beside that response. For example:*

1. Today is Monday	a) True b) False
---------------------------	---------------------

- If you change your mind and would like to circle a different response, please cross out your original choice and circle the choice that you believe is correct. For example, if you change your mind and you decide that your answer is 'false', cross through the original and circle the new response as below:*

1. Today is Monday	a) True b) False
---------------------------	--------------------------------

HEALTH WORKER KNOWLEDGE QUESTIONNAIRE (2)

Health centre code [] []	Health Worker ID [] [] [] []	Date [] [] / [] [] / [] [] day month year
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PART 3: QUESTIONNAIRE

1	All cases of fever in Uganda are caused by malaria.	a) True b) False
2	RDT stands for Rapid Diagnostic Test for malaria. Which of the following is NOT true about RDTs?	a) If performed correctly, they are very accurate in diagnosing which patients have malaria and which do not. b) They can be performed in health centres that do not have power or laboratory equipment. c) They can detect typhoid fever and pneumonia as well as malaria.
3	In order to perform an RDT, you will need to use finger prick blood. After you prick a patient's finger with a lancet, what should you do with the lancet?	a) Save it to wash and use again later. b) Carefully put it immediately in the sharps container. c) Put it on the table beside you, to use for the next patient.
4	We have provided an RDT labelled A. Look carefully at it and read the result.	a) Positive b) Negative c) Invalid
5	Here is another RDT labelled B. Look carefully at it and read the result.	a) Positive b) Negative c) Invalid
6	RDTs should be stored in a cool, dry place.	a) True b) False
7	You can use the same RDT for two different patients.	a) True b) False
8	You should always check the expiry date on the package of an RDT before using it.	a) True b) False
9	For which of the following patients should you perform an RDT for malaria?	a) A 4-year-old boy with fever and mild cough b) An 8-month-old child with fever who refuses to breastfeed, is breathing rapidly and has very pale palms and sunken eyes c) A 20-year-old woman who is pregnant and has fever a) A 32-year-old man who is HIV-positive and has fever b) A 45-year-old man with fever and joint pains c) All of the above

HEALTH WORKER KNOWLEDGE QUESTIONNAIRE (3)

Health centre code [] [] []	Health Worker ID [] [] [] [] [] []	Date [] [] / [] [] / [] [] day month year
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10	<p>A patient comes to your health centre with fever. She has taken chloroquine for two days but the fever has persisted. You perform an RDT and the result is positive. What should you do?</p>	<p>a) Tell the patient to complete the course of chloroquine. b) Prescribe a full course of Coartem.</p>
11	<p>A patient comes to your health centre with fever. She took a complete, correct course of Co-artem last week. She did not vomit any of the doses. You perform an RDT and the result is positive. What should you do?</p>	<p>a) Prescribe a full course of quinine. b) Prescribe a second full course of Coartem. c) Advise her to take Panadol and fluids only.</p>
12	<p>Which of the following is a symptom or sign of severe illness in a patient with fever?</p>	<p>a) Convulsions currently or within the past 2 days b) Extreme weakness – patient is unable to sit or stand without support c) Severe anaemia – patient’s palms and conjunctivae are very pale d) Unable to drink or breastfeed e) All of the above</p>
13	<p>A 35-year-old man comes to your health centre. He tells you that he has fever and muscle aches. What should you do FIRST?</p>	<p>a) Prescribe Coartem immediately. b) Prescribe chloroquine immediately – this regimen is best for adults. c) Prescribe Panadol only and tell the patient to go home and rest. d) Ask the patient how long he has had these symptoms, and ask if he has taken any drugs at home before coming to the health centre.</p>
14	<p>A mother brings her 8-year-old daughter to your health centre. Beginning yesterday, the girl has had fever and no appetite. Her mother has given Panadol and fluids, but the symptoms continue. There are no signs or symptoms of severe illness. On physical examination, you find no obvious cause of her fever. You perform an RDT, and the result is negative. Which of the following is TRUE?</p>	<p>a) This patient has a mild febrile illness, but the cause is not clear. The mother should continue to provide fluids and Panadol. You should advise her to bring the girl back to the health centre if the symptoms do not get better within 2 to 3 more days. b) You should prescribe a course of chloroquine. Even though the RDT is negative, the girl may still have malaria, and chloroquine is appropriate for mild cases of malaria. c) You should prescribe Coartem. Even though the RDT is negative, the girl may have malaria, and Coartem is the first-line regimen for malaria in Uganda.</p>

HEALTH WORKER KNOWLEDGE QUESTIONNAIRE (2)

Health centre code [] [] []	Health Worker ID [] [] [] [] [] []	Date [] [] / [] [] / [] [] day month year
--	--	--

15	<p>A 10-year-old boy comes to your health centre with fever and joint pains. He looks weak, but is able to sit up easily by himself. After you take a history and do a physical examination, you perform an RDT. The RDT is positive, and you plan to treat for uncomplicated malaria. According to the Uganda Ministry of Health guidelines, which of the following is the BEST (first-line) treatment for this patient?</p>	<ul style="list-style-type: none"> a) Chloroquine b) Oral quinine c) Injectable quinine d) Coartem (artemether-lumefantrine) e) Chloroquine + Fansidar (Homapak)
16	<p>A mother brings her 1-year-old son to your health centre. She tells you he has not been feeding well. The child's body is hot to touch. He is weak and cannot sit up by himself, and he is breathing very rapidly. What should you do? Be sure to read all the statements below before answering.</p>	<ul style="list-style-type: none"> a) Undress the child, and ask the mother to sponge him to help reduce the fever. b) Immediately prepare and inject a dose of quinine AND antibiotic. c) Perform an RDT and write the result on the referral note. d) Write a referral note and ensure that the child is referred to a Health Centre IV or Hospital as soon as possible. e) All of the above.

Thank you!

WHO Toxicity Grading Scale for Determining The Severity of Adverse Events

HEMATOLOGY				
ITEM	Grade 1 Toxicity	Grade 2 Toxicity	Grade 3 Toxicity	Grade 4 Toxicity
Hemoglobin	9.5 - 10.5 gm/dl	8.0 - 9.4 gm/dl	6.5 - 7.9 gm/dl	< 6.5 gm/dl
Absolute Neutrophil Count	1000-1500/mm ³	750-999/mm ³	500-749/mm ³	<500/mm ³
Platelets	75000-99000/mm ³	50000-74999/mm ³	20000-49000/mm ³	<20000/mm ³
Prothrombin Time (PT)	1.01 - 1.25 x ULN	1.26-1.5 x ULN	1.51 -3.0 x ULN	>3 x ULN
Activated Partial Thromboplastin (APPT)	1.01 -1.66 x ULN	1.67 - 2.33 x ULN	2.34 - 3 x ULN	> 3 x ULN
Fibrinogen	0.75 - 0.99 X LLN	0.50 - 0.74 x LLN	0.25 - 0.49 x LLN	< 0.25 x LLN
Fibrin Split Product	20-40 mcg/ml	41-50 mcg/ml	51-60 mcg/ml	> 60 mcg/ml
Methemoglobin	5 - 9.9 %	10.0 - 14.9 %	15.0 - 19.9%	> 20 %
LIVER ENZYMES				
AST (SGOT)	1.25 - 2.5 x ULN	2.6 - 5 x ULN	5.1 - 10 x ULN	> 10 x ULN
ALT (SGPT)	1.25 - 2.5 x ULN	2.6 - 5 x ULN	5.1 - 10 x ULN	> 10 x ULN
GGT	1.25 -2.5 x ULN	1.6 - 5 x ULN	5.1 - 10 x ULN	> 10 x ULN
Alkaline Phosphatase	1.25 - 2. 5 x ULN	1.6 - 5 x ULN	5.1 - 10 x ULN	> 10 x ULN
Amylase	1.1 - 1.5 x ULN	1.6 - 2.0 x ULN	2.1 - 5.0 x ULN	> 5.1 x ULN
CHEMISTRIES				
Hyponatremia	130-135 mEq/L	123-129 mEq/L	116-122 mEq/L	< 116 or mental status changes or seizures
Hypernatremia	146-150 mEq/L	151-157 mEq/L	158-165 mEq/L	> 165 mEq/L or mental status changes or seizures
Hypokalemia	3.0 - 3.4 mEq/L	2.5 - 2.9 mEq/L	2.0 - 2.4 mEq/L or intensive replacement Rx required or hospitalization required.	< 2.0 mEq/L or paresis or ileus or life-threatening arrhythmia
Hyperkalemia	5.6 - 6.0 mEq/L	6.1 - 6.5 mEq/L	6.6 - 7.0 mEq/l	> 7.0 mEq/L or life-threatening arrhythmia
Hypoglycemia	55-64 mg/dL	40-54 mg/dL	30-39 mg/dL	<30 mg/dL or mental status changes or coma

CHEMISTRIES (continued)				
Hyperglycemia (note if fasting)	116 - 160 mg/dL	161- 250 mg/dL	251 - 500 mg/dL	> 500 mg/dL or ketoacidosis or seizures
Hypocalcemia (corrected for albumin)	8.4 - 7.8 mg/dL	7.7 - 7.0 mg/dL	6.9 - 6.1 mg/dL	< 6.1 mg/dL or life threatening arrhythmia or tetany
Hypercalcemia (correct for albumin)	10.6 - 11.5 mg/dL	11.6 - 12.5 mg/dL	12.6 - 13.5 mg/dL	> 13.5 mg/dL life-threatening arrhythmia
Hypomagnesemia	1.4 - 1.2 mEq/L	1.1 - 0.9 mEq/L	0.8 - 0.6 mEq/L	< 0.6 mEq/L or life- threatening arrhythmia
Hypophosphatemia	2.0 - 2.4 mg/dL	1.5 -1.9 mg/dL or replacement Rx required	1.0 -1.4 mg/dL intensive Rx or hospitalization required	< 1.0 mg/dL or life- threatening arrhythmia
Hyperbilirubinemia	1.1 - 1.5 x ULN	1.6 - 2.5 x ULN	2.6 - 5 x ULN	> 5 x ULN
BUN	1.25 - 2.5 x ULN	2.6 - 5 x ULN	5.1 - 10 x ULN	> 10 x ULN
Creatinine	1.1 x 1.5 x ULN	1.6 - 3.0 x ULN	3.1 - 6 x ULN	> 6 x ULN or required dialysis
URINALYSIS				
Proteinuria	1+ or < 0.3% or <3g/L or 200 mg - 1 gm loss/day	2 -3 + or 0.3 - 1.0% or 3-10 g/L 1- 2 gm loss/day	4+ or > 1.0% or > 10 g/L 2-3.5 gm loss/day	nephrotic syndrome or > 3.5 gm loss/day
Hematuria	microscopic only	gross, no clots	gross+ clots	obstructive or required transfusion
CARDIAC DYSFUNCTION				
Cardiac Rhythm		asymptomatic, transient signs, no Rx required	recurrent/persistent; No Rx required	requires treatment
Hypertension	transient inc. > 20 mm; no Rx	recurrent, chronic, > 20 mm, Rx required	requires acute Rx; No hospitalization	requires hospitalization
Hypotension	transient orthostatic hypotension, No Rx	symptoms correctable with oral fluids Rx	requires IV fluids; no hospitalization required	requires hospitalization
Pericarditis	minimal effusion	mild/moderate asymptomatic effusion, no Rx	symptomatic effusion; pain; EKG changes	tamponade; pericardiocentesis or surgery required
Hemorrhage, Blood Loss	microscopic/occult	mild, no transfusion	gross blood loss; 1-2 units transfused	massive blood loss; > 3 units transfused

RESPIRATORY				
Cough	transient- no Rx	treatment associated cough local Rx	uncontrolled	
Bronchospasm, Acute	transient; no Rx < 80% - 70% FEV ₁ (or peak flow)	requires Rx normalizes with bronchodilator; FEV ₁ 50% - 70% (or peak Flow)	no normalization with bronchodilator; FEV ₁ 25% - 50% (or peak flow retractions)	cyanosis: FEV ₁ < 25% (or peak flow) or intubated
GASTROINTESTINAL				
Stomatitis	mild discomfort; no limits on activity	some limits on eating/drinking	eating/talking very limited	requires IV fluids
Nausea	mild discomfort; maintains reasonable intake	moderate discomfort; intake decreased significantly; some activity limited	severe discomfort; no significant intake; activities limited	minimal fluid intake
Vomiting	transient emesis	occasional/moderate vomiting	orthostatic hypotension or IV fluids required	hypotensive shock or hospitalization required for IV fluid therapy
Constipation	mild	moderate	severe	distensions w/vomiting
Diarrhea	transient 3-4 loose stools/day	5-7 loose stools/day	orthostatic hypotension or > 7 loose stools/day or required IV fluids	hypotensive shock or hospitalization for IV fluid therapy required
NEURO & NEUROMUSCULAR				
Neuro-Cerebellar	slight incoordination dysdiadochokinesis	intention tremor, dysmetria, slurred speech; nystagmus	locomotor ataxia	incapacitated
Mood	mild anxiety or depression	moderate anxiety or depression and therapy required	severe anxiety or depression or mania; needs assistance	acute psychosis; incapacitated, requires hospitalization
Neuro Control (ADL = activities of daily living)	mild difficulty concentrating; no Rx; mild confusion/agitation; ADL unaffected	moderate confusion/agitation some limitation of ADL; minimal Rx	severe confusion/agitation needs assistance for ADL; therapy required	toxic psychosis; hospitalization
Muscle Strength	subjective weakness no objective symptoms/ signs	mild objective signs/symptoms no decrease in function	objective weakness function limited	paralysis

OTHER PARAMETERS				
Fever: oral, > 12 hours	37.7 - 38.5 C or 100.0 - 101.5 F	38.6 - 39.5 C or 101.6 - 102.9 F	39.6 - 40.5 C or 103 - 105 F	> 40 C or > 105 F
Headache	mild, no Rx therapy	transient, moderate; Rx required	severe; responds to initial narcotic therapy	intractable; required repeated narcotic therapy
Fatigue	no decrease in ADL	normal activity decreased 25- 50%	normal activity decreased > 50% can't work	unable to care for self
Allergic Reaction	pruritus without rash	localized urticaria	generalized urticaria; angioedema	anaphylaxis
Local Reaction	tenderness or erythema	induration < 10 cm or phlebitis or inflammation	induration > 10 cm or ulceration	necrosis
Mucocutaneous	erythema; pruritus	diffuse, maculo papular rash, dry desquamation	vesiculation, moist desquamation, or ulceration	exfoliative dermatitis, mucous membrane involvement or erythema, multiforme or suspected Stevens- Johnson or necrosis requiring surgery

APPENDIX FF. Guidelines for grading symptoms, signs and laboratory findings

Table A. Guidelines for grading patient symptoms

	Grade 1 MILD	Grade 2 MODERATE	Grade 3 SEVERE	Grade 4 LIFE THREATENING
Subjective fever in the past 24 h	N/A	Present (Yes)	N/A	N/A
Weakness	Mild decrease in activity; For children – weak, but still playing	Moderate decrease in activity; For children – weak, and playing limited	Not participating in usual activities; For children – not playing	Prostration
Muscle and/or joint aches*	Mild and/or localized complaints	Diffuse complaints	Objective weakness; function limited	N/A
Headache*	Mild, no treatment required	Transient, moderate; treatment required	Severe, constant; requires narcotic therapy	Intractable; requires repeated narcotic therapy
Anorexia	Decreased appetite, but still taking solid food	Decreased appetite, avoiding solid food but taking liquids	Appetite very decreased; Refusing to breast feed, no solids or liquids taken (< 2 years ≤ 12 hr; > 2 years ≤ 24 hr)	Appetite very decreased; Refusing to breast feed, no solids or liquids taken (< 2 years > 12 hr; > 2 years > 24 hr)
Nausea*	Mild, transient feeling of impending vomiting; maintains reasonable intake	Moderate and/or constant feeling of impending vomiting; intake decreased	Severe, constant feeling of impending emesis; intake decreased significantly	N/A
Vomiting	1 episode per day	2-3 episodes per day	Orthostatic hypotension or IV fluids required	Hypotensive shock or 1nrolment1ation required for IV fluid therapy
Abdominal pain*	Mild (1-3 on a scale of 1 to 10)	Moderate (4-6 on a scale of 1 to 10)	Moderate to severe (≥ 7 on a scale of 1 to 10)	Severe – 1nrolment1at for treatment
Diarrhea	Transient 3-4 loose stools/day	5-7 loose stools/day	Orthostatic hypotension or > 7 loose stools/day or IV fluids required	Hypotensive shock or 1nrolment1ation for IV fluid therapy required
Cough	Transient / intermittent	Persistent / constant	Uncontrolled	Cyanosis, stridor, severe shortness of breath
Pruritis	Transient pruritis	Pruritis that disturbs sleep	Severe, constant pruritis, sleep disturbed	N/A
Tinnitus*	Mild, transient ringing or roaring sound	Moderate, persistent ringing or roaring sound	Severe ringing or roaring sound with associated hearing loss	N/A
Behavioural changes	Mild difficulty concentrating; mild confusion or agitation; activities of daily living unaffected; no treatment	Moderate confusion or agitation; some limitation of activities of daily living; minimal treatment	Severe confusion or agitation; Needs assistance for activities of daily living; therapy required	Toxic psychosis; 1nrolment1ation required
“Flu” (viral URI)	Mild nasal congestion, mild rhinorrhea	Moderate nasal congestion, moderate rhinorrhea	N/A	N/A
Allergic reaction	N/A	N/A	Urticaria	Severe urticaria anaphylaxis, angioedema
Convulsion	N/A	N/A	Localized or generalized seizure	Status epilepticus

* Assess only in children ≥ 3 years of age. Answer N/A for younger children and those unable to answer.

Table B. Guidelines for physical examination

Dehydration	Assess skin touch and turgor, mucous membranes, eyes, crying, fontanelle, pulse, urine output
Jaundice	Assess for yellowing of the sclera. Also evaluate the palpebral conjunctiva, lips, and skin.
Chest	<p>Observe the rate, rhythm, depth, and effort of breathing. Check the patient's colour for cyanosis.</p> <p>The maximum acceptable respiratory rate by age: < 2 months = 60, 2-12 months = 50, 1-5 years = 40, above 5 years = 30.</p> <p>Inspect the neck for the position of the trachea, for supraclavicular retractions, and for contraction of the sternomastoid or other accessory muscles during inspiration.</p> <p>Auscultate the anterior and posterior chest for normal breath sounds and any adventitious sounds (crackles or rales, wheezes, and rhonchi). <i>Crackles are intermittent, non-musical, fine or coarse sounds that may be due to abnormalities of the lungs (pneumonia, fibrosis, early congestive heart failure) or airways (bronchitis or bronchiectasis). Wheezes are high-pitched and result from narrowed airways. Rhonchi are relatively low-pitched and suggest secretions in large airways.</i></p> <p>If abnormalities are identified, evaluate for transmitted voice sounds. In addition, palpate the chest to assess for tactile fremitus, and percuss the chest to assess for areas of dullness. <i>Normal, air-filled lungs emit predominantly vesicular breath sounds, transmit voice sounds poorly with "ee" = "ee", and have no tactile fremitus. Airless lung, as in lobar pneumonia, emits bronchial breath sounds, transmits spoken words clearly with "ee" = "aay" (egophany), and has an increase in tactile fremitus.</i></p>
Abdomen	Inspect and auscultate the abdomen. Listen for bowel sounds in the abdomen before palpating it. Palpate the abdomen in all 4 quadrants lightly and then deeply. Assess the size of the liver and spleen. To assess for peritoneal inflammation, look for localised and rebound tenderness, and voluntary or involuntary rigidity.
Skin	Inspect the skin for colour, turgor, moisture, and lesions. If lesions are present, note their location and distribution (diffuse or localised), arrangement (linear, clustered, annular, dermatomal), type (macules, papules, vesicles) and colour.
Tablet test	For children ≥ 9 months of age, ask the patient to pick a tablet (or equivalent object) up off a flat surface using the thumb and index finger of their dominant hand. <i>This tests for co-ordination of the upper extremity assessing the function of the motor system, cerebellar system, vestibular system (for coordinating eye and body movements) and the sensory system, for position sense. When testing small children, be aware that they will likely attempt to put the object into their mouth.</i>

Table C. Grading physical examination findings

	Grade 1 MILD	Grade 2 MODERATE	Grade 3 SEVERE	Grade 4 LIFE-THREATENING
Temperature* (axillary)	37.5-37.9°C	38.0-39.5°C	> 39.5°C	Sustained fever, equal or greater than 40.0°C for longer than 5 days
Dehydration	Less than 2 of the following: Restless, irritable Sunken eyes Drinks eagerly, thirsty Skin pinch goes back slowly	2 of the following: Restless, irritable Sunken eyes Drinks eagerly, thirsty Skin pinch goes back slowly	Two of the following: Lethargic or unconscious Sunken eyes Not able to drink or drinking poorly Skin pinch goes back very poorly	Two of the following + shock: Lethargic or unconscious Sunken eyes Not able to drink or drinking poorly Skin pinch goes back very poorly
Jaundice	Slight yellowing of sclera and conjunctiva	Moderate yellowing of sclera and conjunctiva, yellowing of mucous membranes	Severe yellowing of sclera and conjunctiva, yellowing of skin	N/A
Chest	Mildly increased RR (for age, temperature), transient or localised adventitious sounds	Moderately increased RR, diffuse or persistent adventitious sounds	Rapid RR (< 2 months > 60, 2-12 months > 50, 1-5 years > 40, adults > 30)* nasal flaring, retractions	Cyanosis
Abdomen	Normal bowel sounds, mild localised tenderness, and/or liver palpable 2-4 cm below the right costal margin (RCM), and/or spleen palpable, and/or umbilical hernia present	Normal or mildly abnormal bowel sounds, moderate or diffuse tenderness; and/or mild to moderately enlarged liver (4-6 cm below the RCM) and/or spleen palpable up to half-way between umbilicus and symphysis pubis	Severely abnormal bowel sounds, severe tenderness to palpation. Evidence of peritoneal irritation and/or significant enlargement of liver (> 6 cm below the RCM) and/or spleen palpable beyond half-way between umbilicus and symphysis pubis	Absent bowel sounds. Involuntary rigidity
Skin†	Localised rash, erythema, or pruritis	Diffuse, maculopapular rash, dry desquamation	Vesiculation, moist desquamation, or ulceration	Exfoliative dermatitis, mucous membrane involvement or erythema multiforme or suspected Stevens-Johnson or necrosis requiring surgery
Hearing	< 4 years: N/A ≥ 4 years: Decreased hearing in one ear	< 4 years: N/A ≥ 4 years: Decreased hearing in both ears or severe impairment in one ear	< 4 years: Any evidence of hearing impairment ≥ 4 years: Severe impairment in both ears	N/A
Tablet test	Difficulty grasping tablet but able to pick up	Unable to pick up tablet without dropping	Unable to grasp tablet	N/A
Clinical symptoms / sign (not otherwise specified)	No treatment required; monitor condition	Treatment required	Requires treatment and possible hospitalisation	Requires active medical intervention, hospitalisation, or hospice care

Reference – The Harriet Lane Handbook, 15th edition, 2000

† Reference – WHO Toxicity Grading Scale for Determining the Severity of Adverse Events

TABLE D. Guidelines for grading of laboratory abnormalities

	Grade 1 MILD	Grade 2 MODERATE	Grade 3 SEVERE	Grade 4 LIFE-THREATENING
Haemoglobin (g/dL)	9.0 – 9.9	7.0 – 8.9	5.0 – 6.9	< 5.0

Reference – The Harriet Lane Handbook, 15th edition, 2000†

Reference – WHO Toxicity Grading Scale for Determining the Severity of Adverse Events

APPENDIX GG: ADVERSE EVENT REPORT FORM

Study ID		Date of Event Onset			Date of Event Report		
[] [] [] []		[] [] / [] [] / [] [] day month year			[] [] / [] [] / [] [] day month year		
Cluster number	AE number	Gender	Age		Weight		
[] []	[] []	[] 1 = Male 2 = Female	[] []	[] []	[] [] kg		
			years	months (only if < 1 year)			

SECTION 1: EVENT INFORMATION

To be completed by field team

1. Event description: _____			
2. Did this event occur after treatment with Coartem (artemether-lumefantrine)?		1 = Yes 2 = No	88 = Don't know [] []
3. Was the AL obtained from the PRIME Study?		1 = Yes 2 = No	88 = Don't know [] []
4. If no, from where was the AL obtained?	1 = Coartem was kept at home 2 = Bought Coartem from Duka 3 = Bought Coartem from drug shop/pharmacy 4 = From Public Health center	5 = From Government Hospital 6 = From Private clinic/Hospital 7 = From ACT PRIME Study Clinic 8 = From Community Health Worker	77=Other _____ 88=Don't know 99=Refused to answer [] []
5. Was this a serious adverse event?		1 = Yes 2 = No 88 = Don't know [] []	
6. Indicate reason for serious adverse event:		1 = Death 2 = Life threatening condition 3 = Resulted in hospitalization (overnight stay at hospital or clinic) 4 = Prolonged hospitalization	5 = Required medical or surgical intervention to prevent serious outcome 6 = Resulted in significant or persistent disability 77 = Other [] [] [] []
7. EVENT SUMMARY (include details of event, associated signs and symptoms, and medical management):			

SECTION 2: TREATMENT INFORMATION

To be completed by medical officer

8. Medication*	10. Start date	12. Daily dose
	[] [] / [] [] / [] [] day month year	
9. Indication	11. Stop date	13. Duration
	[] [] / [] [] / [] [] day month year	

* List medication that is suspected to be associated with the adverse event. Note that there is space to record all concomitant medications on page 2.

AE REPORT FORM (2)	Cluster number	Study ID	Date of Event Report
	[] []	[] [] [] []	[] [] / [] [] / [] [] day month year

RELEVANT LABORATORY TESTS *(Complete if available)*

14. Test	15. Collection date [dd/mm/yy]	16. Results/Comments
a)	[/ /]	a)
b)	[/ /]	b)
c)	[/ /]	c)

RELEVANT DIAGNOSTIC TESTS *(Complete if available)*

17. Test	18. Collection date [dd/mm/yy]	19. Results/Comments
a)	[/ /]	a)
b)	[/ /]	b)
c)	[/ /]	c)

CONCOMITANT MEDICATIONS
(List all medications that the child was taking up to 1 month prior to event onset)

20. Medication	21. Start date [dd/mm/yy]	22. Stop date [dd/mm/yy]	23. Total dose	24. Indication
a)	[/ /]	[/ /]	a)	a)
b)	[/ /]	[/ /]	b)	b)
c)	[/ /]	[/ /]	c)	c)
d)	[/ /]	[/ /]	d)	d)

SECTION 3: GRADING & OUTCOME
To be completed by study coordinator

25. Maximum severity (WHO scale)	1 = Mild 2 = Moderate 3 = Severe 4 = Life-threatening	[] []
26. Suspected relationship:	0 = None 1 = Unlikely 2 = Possible 3 = Probable 4 = Definite	[] []
27. Expected <i>(If the event occurred in association with Coartem, was the event listed on Coartem package insert?)</i>	1 = Yes 2 = No 3 = N/A	[]
28. Outcome of event 1 = Ongoing 2 = Resolved without sequelae 3 = Resolved with sequelae 4 = Death	[]	29. If resolved or died, indicate date: [] [] / [] [] / [] [] day month year
Completed by <i>(printed name):</i>	Investigator <i>(printed name):</i>	
Signature:	Signature:	
Date: [] [] / [] [] / [] [] day month year	Date: [] [] / [] [] / [] [] day month year	



APPENDIX HH. COHORT STUDY

Information Sheet for Termination of Study Activities

Introduction

Dr. Sarah Staedke and colleagues from the Uganda Malaria Surveillance Project / Infectious Diseases Research Collaboration are investigating delivery of healthcare services in Tororo District. We are doing a research study to see if we can improve the health of children in this area by improving services at government-run health facilities. Your child(ren) have been taking part in the ACT PRIME cohort study. The purpose of this information sheet is to tell you about our plans to end the cohort study.

Why are parts of the study ending?

ACT PRIME is a research study. Since May 2011, certain health centers in Tororo district have been selected to either take part in the intervention to improve services, or to continue with their current services. To find out how well the intervention is working, we have been reviewing the health of children living near the health centers including your children. We plan to end the cohort study by September 2012.

What parts of the study are ending?

Since your household was enrolled, we have been asking you to take part in different study activities. We have asked members of your household to record information about the health of your children and how much you spend on their treatment using a diary with pictures. We have visited your household once a month to collect the diaries and ask questions about the health of your children. We have also asked you take part in two household surveys so that we could learn more about your household and how you manage illnesses in children. We have asked you to bring your children to our clinic about every 6 months so that we could examine your child(ren) and do blood tests. All of these activities will be ending by September 2012. This means that your household and children enrolled in the study will no longer be required to take part in any of these activities.

When will my child stop participating in the study activities?

All children from your household that are taking part in the study will stop on the same day. We will schedule an appointment for you to bring your child(ren) to the study clinic. This may be at their scheduled clinical follow-up visit, or at a separate appointment. When you come to the clinic, we will tell you more about the plans to end the study and how this will affect your child(ren). We will also answer any questions.

How does the end of the study activities affect me and my child?

After the last clinic visit, your child(ren) will no longer take part in the cohort study activities. You will no longer need to complete the monthly diary, no one will come to your household to collect the diaries and ask questions about the health of your children, there will be no more household surveys, and there will be



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no more clinic visits. Because these activities are ending, you will also stop receiving the soap, sugar, and salt that you have been receiving at the monthly visits to your household. At the end of the study, we will give each household an insecticide-treated bednet and each child a small token of appreciation for taking part in the study.

What happens to my child after the study activities have ended?

There is no future risk or benefit to your child(ren) or household after the study activities end. You will continue to be responsible for your child(ren)'s health care.

Can I stop my child from being in the study now?

We would like to make an appointment for you to bring your child(ren) to the study clinic so that we can talk to you more about our plans to end the study. But, you can decide to stop taking part at any time. Just tell our study personnel right away if you wish to stop taking part in the study now.

Who can answer my questions about the study?

You can talk to the researchers about any questions or concerns you have about these study activities. Contact Dr. Sarah Staedke or other members of the Uganda Malaria Surveillance Project / Infectious Disease Research Collaboration on telephone number 0414-530692. If you have any questions, comments or concerns about taking part in these activities, first talk to the researchers. If for any reason you do not wish to do this, or you still have concerns about doing so, you may contact Professor James Tumwine, Makerere University School of Medicine Research and Ethical Committee at telephone number 0414-530020.



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APPENDIX HH. COHORT STUDY Signature Form for Termination of Study Activities

Protocol Title: ACT PRIME Study: Evaluating the impact of enhanced health facility-based care for malaria and febrile illnesses in children

Site of Research: Tororo, Uganda

Principal Investigators: Dr. Sarah Staedke

Date: 15 May 2012

I understand that the ACT PRIME cohort study is ending and that as of today my child(ren) will no longer take part in the study. I understand that after today, I no longer need to fill in the monthly diary, no one will come to my household to collect the diaries and ask questions about the health of my children, there will be no more household surveys, and there will be no more clinic visits. I also understand that I will no longer receive soap, sugar, and salt each month. I understand that this applies to all of my children that have been enrolled in the cohort study.

Mark the box with **X**:

I UNDERSTAND that the cohort study is ending and that as of today my child(ren) will no longer take part in study activities:

Parent/Guardian's name:			
Parent/Guardian's Signature or Mark:			Date:
Cluster [][]	HH ID	[][]-[][][]-[][][][][]-[][][]	
Study ID for each child enrolled in the Cohort	[][][][][]	[][][][][]	
	[][][][][]	[][][][][]	
	[][][][][]	[][][][][]	

Name of person explaining information sheet:			
Signature:		Date:	



APPENDIX II. INFORMATION SHEET

Caregivers participating in the health worker knowledge assessment ACT PRIME Study

Introduction

Dr. Sarah Staedke and colleagues from the Uganda Malaria Surveillance Project/Infectious Diseases Research Collaboration are doing a study to evaluate activities that have been introduced at government-run health facilities in this area aiming to improve the health of children. We would like to understand the impact of these activities and why they are working, or not. This study involves several parts, including an assessment of the knowledge and skills of health workers for treating children with fever.

Why is this study being done?

As part of this study, we would like to know more about how well health workers know how to manage and treat children with fever. To do this we will ask health workers question about malaria, and ways to manage, diagnose and treat malaria. We would also like to know how well health workers have been trained to use rapid diagnostic tests (RDTs) for malaria.

What will happen today if I take part in this study?

If you agree to take part, we will watch the health worker as they interact with your child, including watching them test your child for malaria, decide the test result, and provide treatment for your child. The health worker has already agreed to be watched while they see your child. We would like you to interact with the health worker as you would normally; you are not expected to do anything differently while we are watching. After the visit with the health worker is over, we will not ask you to do anything further. The information we collect will be used by project investigators, and may be shared with other researchers and policy-makers to answer questions about how best to deliver health worker training and improve health services.

How long will the study last?

If you take part in the study, it will involve a one-time observation of your interaction with the health worker today. This should take about 30-45 minutes.

Can I stop my child from being in the study?

You can decide to stop participating at any time. Just tell our study personnel right away if you wish to stop the activities.

What risks can I expect from my child being in the study?

Participation in any research study may involve a loss of privacy. Information you provide will be recorded and we will observe the health worker testing your child's blood for malaria parasites but your name, and your child's name will not be used in any reports of the information provided. No quotes or other results arising from your child's consultation or your interaction with the health worker will be included in any reports, even anonymously, without your agreement.



The information obtained from these observations will be locked at our project offices. We will do our best to make sure that the personal information gathered for this study is kept private.

Are there benefits to taking part in the study?

There will be no direct benefit to you or your child from participating in this study. However, the information that we obtain will help researchers and policy-makers understand how best to deliver health worker training and improve health services in this area.

What other choices do I have if I do not take part in this study?

You are free to choose not to participate in the study. If you decide not to take part in this study, there will be no penalty to you. If you decide not to participate in the study your child will still be eligible to receive the best health care available at this or any other health facility today and in the future.

What are the costs of taking part in this study? Will I be paid for taking part in this study?

There are no costs to you for taking part in this study. You will not be paid for taking part in this study.

What are my rights if I take part in this study?

Taking part in this study is your choice. You may choose either to take part or not to take part in the study. If you decide to take part in this study, you may change your mind at any time. No matter what decision you take, there will be no penalty to you or to your child in any way.

Who can answer my questions about the study?

You can talk to the researchers about any questions or concerns you have about these study activities. Contact Dr. Sarah Staedke or other members of the Uganda Malaria Surveillance Project / Infectious Disease Research Collaboration on telephone number 0414-530692. If you have any questions, comments or concerns about taking part in these activities, first talk to the researchers. If for any reason you do not wish to do this, or you still have concerns about doing so, you may contact Professor James Tumwine, Makerere University Faculty of Medicine Research and Ethical Committee at telephone number 0414-533541.

Giving verbal consent to take part in the study:

You may keep this information sheet if you wish. Participation in these activities is voluntary. You have the right to decline to take part in the activities, or to withdraw from them at any point without penalty. If you do not wish to take part in the activities, you should inform the researcher now. If you do wish to take part in these activities, you should tell the researcher now, and the health worker knowledge assessment will begin shortly. If you do not agree to observations or other results arising from your participation in the study being included, even anonymously, in any reports about the study, please tell the researcher now.

APPENDIX E: USE OF RDTs FOR MALARIA IN FEVER CASE MANAGEMENT IN UGANDA - JUMP TRAINING TEST

Health centre code [][]	Health Worker ID [][][][]	Date [][] / [][] / [][] day month year
Position:		
1 = In-charge 2 = Senior medical officer 3 = Medical officer 4 = Senior clinical officer	5 = Clinical officer 6 = Nursing officer 7 = Enrolled nurse 8 = Midwife	9 = Public health nurse 10 = Nursing aide/assistant 11 = Laboratory technician 12 = Laboratory assistant
13 = Health assistant 14 = Health educator 15 = Volunteer 16 =vaccinator	17=other... [][]	

PART 1 A: DEMOGRAPHIC INFORMATION

1. Age years [][]	5. What is the highest level of education or qualification achieved?
2. Gender 1=Male 2=Female []	0 = None 1 = Primary (P1 — P7) 2 = Secondary (S1 — S6)
3. Are you originally from this area? 1=Yes 2=No []	3 = Certificate 4 = Diploma 5 = Bachelor's degree 77=Other _____ 88 = Don't know 99 = Refused to answer
4. How long have you worked at this health centre? [][] years [][] months	6. What year did you graduate from your course? [][][][]

PART 1 B: TRAINING INFORMATION

7. Did you attend the ACT PRIME Training in use of RDTs for malaria in fever case management delivered by the JUMP team?	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer	[][]
8. Have you attended any other training in fever/malaria case management in the last 5 years?	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer	[][]
9. If yes, were any of the training sessions about use of RDTs for diagnosis of malaria?	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer	[][]
10. If yes, how many RDT trainings did you attend?			[][]
11. For training #1, who organized the training? (Repeat Qns 11-17 for any other trainings #2,3....)	1=MOH/District/HSD 2=IDRC/ACT PRIME 3=Malaria Consortium 4=PLAN 5=Heidi Hopkins	6=JUMP 77=Other _____ 88=Don't know 99=Refused to answer	[][]
12. When was this training conducted (year)?	1 = 2008 2 = 2009 3 = 2010 4 = 2011	5 = 2012 6 = 2013 77=Other _____ 88=Don't know/can't remember	[][]
13. How long was this training?	1 =< 1 day 2 = 1-3 days 3 = 4-7 days 4 => 7 days	77=Other _____ 88 = Don't know 99 = Refused to answer	[][]
14. What materials were provided during and after the training?	1 = MoH user's manual 2 = Job aide 3=Other user's manual	77=Other _____ 88 = Don't know 99 = Refused to answer	[][]
15. Did you receive any supervision following this training?	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer	[][]
16. If yes, how many times were you supervised?			[][]
17. Who came for the supervision?	1=MOH/District/HSD 2=IDRC/ACT PRIME 3=Malaria Consortium 4=PLAN	5=Dr. Heidi's team 6=JUMP 77=Other _____ 88=Don't know 99=Refused to answer	[][]

18. What was done during the supervision? Select all that apply	1=I was observed performing an RDT for malaria	5=we discussed how to organize the working area	
	2=I was re-taught the steps of performing an RDT	6=We discussed patient care in general	<input type="checkbox"/> <input type="checkbox"/>
	3=I was given feedback on areas I need to improve	77=Other	<input type="checkbox"/> <input type="checkbox"/>
	4=OPD records were checked	88=Don't know	<input type="checkbox"/> <input type="checkbox"/>
		99=Refused to answer	<input type="checkbox"/> <input type="checkbox"/>
19. Did you have access to RDTs at your health center after the RDT training?	1=Yes		
	2=No		
	77=Other		
	88=Don't know/Can't remember		<input type="checkbox"/> <input type="checkbox"/>
	99=Refused to answer		

PART 2 A : QUESTIONNAIRE INSTRUCTIONS

It is now time to take the written test

Please take a moment to answer the following questions. You may/may not have done this test in the past; however, you do not need to worry if you don't know every answer.

This **TEST** will not affect your role or responsibilities and **WE VALUE THE TIME YOU TAKE** to complete this test. There is no need to write your name on this test. **All responses will be kept strictly confidential.**

GENERAL INSTRUCTIONS TO COMPLETE THE JUMP TRAINING TEST

- Please use a dark coloured pen to fill out the test.
- The health worker identity (ID) number is the unique number that was given to you at the start of this PRIME project. You are asked to enter your ID number like this at the top of each page of your questionnaire; you may refer to the top of page 1 for your Health worker ID. Please fill the boxes like this:
- In this questionnaire, we ask you to read each question carefully at the questions and decide which response you believe is correct. When you have decided, please circle the letter in the column beside that response. For example:

1. Today is Monday	<input checked="" type="radio"/> a) True	<input type="radio"/> b) False
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- If you change your mind and would like to circle a different response, please cross out your original choice and circle the choice that you believe is correct. For example, if you change your mind and you decide that your answer is 'false', cross through the original and circle the new response as below:

1. Today is Monday	<input type="radio"/> a) True	<input checked="" type="radio"/> b) False
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PART 2B: QUESTIONS

1	All cases of fever in Uganda are caused by malaria.	a) True b) False
2	RDT stands for Rapid Diagnostic Test for malaria. Which of the following is NOT true about RDTs?	a) If performed correctly, they are very accurate in diagnosing which patients have malaria and which do not. b) They can be performed in health centres that do not have power or laboratory equipment. c) They can detect typhoid fever and pneumonia as well as malaria.
3	In order to perform an RDT, you will need to use finger prick blood. After you prick a patient's finger with a lancet, what should you do with the lancet?	a) Save it to wash and use again later. b) Carefully put it immediately in the sharps container. c) Put it on the table, to use for the next patient.

4	We have provided pictures of RDTs on a computer labelled 1-10, look at each picture and interpret the result. For each test kit, choose from the options below; a) Positive b) Negative c) Positive – Pf/Pan d) Invalid	Test no.	Result (choose option a-d)
		1	
		2	
		3	
		4	
		5	
		6	
		7	
		8	
		9	
10			
5	RDTs should be stored in a cool, dry place.	a) True b) False	
6	You can use the same RDT for two different patients.	a) True b) False	
7	You should always check the expiry date on the package of an RDT before using it.	a) True b) False	
8	For which of the following patients should you perform an RDT for malaria?	a) A 4-year-old boy with fever and mild cough b) An 8-month-old child with fever who refuses to breastfeed, is breathing rapidly and has very pale palms and sunken eyes c) A 20-year-old woman who is pregnant and has fever a) A 32-year-old man who is HIV-positive and has fever b) A 45-year-old man with fever and joint pains c) All of the above	
9	A patient comes to your health centre with fever. She has taken chloroquine for two days but the fever has persisted. You perform an RDT and the result is positive. What should you do?	a) Tell the patient to complete the course of chloroquine. b) Prescribe a full course of Coartem.	
10	A patient comes to your health centre with fever. She took a complete, correct course of Co-artem last week. She did not vomit any of the doses. You perform an RDT and the result is positive. What should you do?	a) Prescribe a full course of quinine. b) Prescribe a second full course of Coartem. c) Advise her to take Panadol and fluids only.	

<p>11</p>	<p>Which of the following is a symptom or sign of severe illness in a patient with fever?</p>	<ul style="list-style-type: none"> a) Convulsions currently or within the past 2 days b) Extreme weakness – patient is unable to sit or stand without support c) Severe anaemia – patient’s palms and conjunctivae are very pale d) Unable to drink or breastfeed e) All of the above
<p>12</p>	<p>A 35-year-old man comes to your health centre. He tells you that he has fever and muscle aches. What should you do FIRST?</p>	<ul style="list-style-type: none"> a) Prescribe Coartem immediately. b) Prescribe chloroquine immediately – this regimen is best for adults. c) Prescribe Panadol only and tell the patient to go home and rest. d) Ask the patient how long he has had these symptoms, and ask if he has taken any drugs at home before coming to the health centre.
<p>13</p>	<p>A mother brings her 8-year-old daughter to your health centre. Beginning yesterday, the girl has had fever and no appetite. Her mother has given Panadol and fluids, but the symptoms continue. There are no signs or symptoms of severe illness. On physical examination, you find no obvious cause of her fever. You perform an RDT, and the result is negative. Which of the following is TRUE?</p>	<ul style="list-style-type: none"> a) This patient has a mild febrile illness, but the cause is not clear. The mother should continue to provide fluids and Panadol. You should advise her to bring the girl back to the health centre if the symptoms do not get better within 2 to 3 more days. b) You should prescribe a course of chloroquine. Even though the RDT is negative, the girl may still have malaria, and chloroquine is appropriate for mild cases of malaria. c) You should prescribe Coartem. Even though the RDT is negative, the girl may have malaria, and Coartem is the first-line regimen for malaria in Uganda.
<p>14</p>	<p>A 10-year-old boy comes to your health centre with fever and joint pains. He looks weak, but is able to sit up easily by himself. After you take a history and do a physical examination, you perform an RDT. The RDT is positive, and you plan to treat for uncomplicated malaria. According to the Uganda Ministry of Health guidelines, which of the following is the BEST (first-line) treatment for this patient?</p>	<ul style="list-style-type: none"> a) Chloroquine b) Oral quinine c) Injectable quinine d) Coartem (artemether-lumefantrine) e) Chloroquine + Fansidar (Homapak)
<p>15</p>	<p>A mother brings her 1-year-old son to your health centre. She tells you he has not been feeding well. The child’s body is hot to touch. He is weak and cannot sit up by himself, and he is breathing very rapidly. What should you do? Be sure to read all the statements below before answering.</p>	<ul style="list-style-type: none"> a) Undress the child, and ask the mother to sponge him to help reduce the fever. b) Immediately prepare and inject a dose of quinine AND antibiotic. c) Perform an RDT and write the result on the referral note. d) Write a referral note and ensure that the child is referred to a Health Centre IV or Hospital as soon as possible. e) All of the above.

PART 3: SKILLS ASSESSMENT

Explain to the health worker that you would like to observe them performing a RDT to test for malaria

- Ask if there is a child with suspected malaria that the health worker plans to test for malaria with a RDT
- If no child is available, ask the health worker to contact you by telephone when they next plan to test a child using an RDT
- Reassure the health worker that the information gathered during the assessment will be used to help improve training in use of RDTs
- Reassure the health worker that their individual performance will not negatively affect their employment or entitlement to benefits
- Use the checklist below to record the health worker's performance

RDT USER CHECKLIST

1. What type of RDT is used?	1=SD Bioline (Pf only) 2=SD Bioline (Pf and Pan)	3=Pf only (specify) _____ 4=Pf/pan (specify) _____ 77=other (specify) _____	[] []
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Preparation phase: Does the health worker...?

2. Prepare all supplies before starting the procedure?	1 = Yes, prepares all supplies 2 = Yes, but some supplies are missing 3 = No, doesn't prepare supplies	66 = Not observed 77 = Other (specify) _____	[] []
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3. Check the expiry date of the RDT?	1 = Yes 2 = No	88 = Don't know 99 = Refused to answer	[] []
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4. Read or consult the instructions prior to or while performing the RDT?	1 = Yes, from the paper in the box 2 = Yes, from the poster on the wall 3 = Yes, from training material	4 = No, does not read instructions 66 = Not observed 77 = Other (specify) _____	[] []
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5. Check desiccant sachet for colour change?	1 = Yes 2 = No	66 = Not observed 77 = Other (specify) _____	[] []
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6. Write down information to identify the patient on the RDT?	1 = Yes, patient's name or initials 2 = Yes, patient's ID number 3 = No, no information recorded	66 = Not observed 77 = Other (specify) _____	[] []
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7. Wear gloves?	1= Yes, new glove on one hand 2= Yes, new gloves on both hands 3= Yes, same glove(s) from previous patient	4 = No, does not wear any gloves 66 = Not observed 77 = Other (specify) _____	[] []
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8. Which finger does the health worker choose to prick?	1 = Middle finger/Ring finger 2 = Index Finger 3 = Little finger/Thumb	66 = Not observed 77 = Other (specify) _____	[] []
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9. Clean the fingertip?	1 = Yes, with alcohol swab 2 = Yes, with other disinfectant 3 = Yes, but with no disinfectant	4 = Did not clean at all 66 = Not observed 77 = Other (specify) _____	[] []
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Finger prick

10. Does the health worker use a good finger prick technique to obtain adequate blood drop?	1 = Yes 2 = No	66 = Not observed 77 = Other (specify) _____	[] []
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11. What does the health worker use to perform a finger prick?	1 = lancet 2 = needle	66 = Not observed 77 = Other (specify) _____	[] []
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12. What does the health worker do with the item she/he uses for pricking?	1 = Put it into special sharps box 2 = Put it into a plastic bottle 3 = Put it into the RDT package and into the rubbish bin/bag	4=Put it directly into the rubbish bin/bag without packaging 66=Not observed 77=Other(specify) _____	[] []
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13. When does the health worker dispose of the item used to perform the finger prick?	1=Immediately after stabbing the finger 2=After obtaining blood but before adding the buffer 3=After adding the buffer, as he/she waits for the results	4=Disposes after recording the results 66=Not observed 77=Other(specify) _____	[] []
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Finger prick (continued)			
14. How does the health worker transfer blood from the patient to the RDT?	1=Using a pipette from RDT kit 2=Using a loop from the RDT kit 3=Using a cupped loop from the RDT kit 4=Drops blood directly from the finger onto the RDT	5=Using a syringe 66 = Not observed 77 = Other (specify) _____	[][]
15. How much blood is transferred to the RDT?	1 = Appropriate amount of blood 2 = Less blood 3 = Too much blood 4 = Cannot quantify	66 = Not observed 77 = Other (specify) _____	[][]
Using the RDT			
16. How many drops of buffer solution does the health worker add?	Record number of drops	66 = Not observed	[][]
17. Does the health worker place the RDT flat on the table and hold bottle vertically to dispense the buffer?	1 = Yes 2 = No	66 = Not observed 77 = Other (specify) _____	[][]
18. Does the health worker use a clock or watch to time the duration of the RDT?	1 = Yes 2 = No	66 = Not observed 77 = Other (specify) _____	[][]
19. How many minutes does the health worker wait before reading the test and determining the result?	Record number of minutes	66 = Not observed	[][]
20. How many RDTs does the health worker use on one patient?	Record number of RDT test kits used		[][]
Interpreting the test results			
21. What does the health worker tell the patient/caregiver about the result of the test? (Record exactly what was said below, then categorize the response using the options to the right – there can be more than one response.)	1=Positive, falciparum malaria 2=Positive, species not specified 3=Positive, non-falciparum malaria 4=Positive, mixed species (more than one type of malaria) 5=Negative, no malaria	6=Little/scanty malaria present 7=Too much malaria 8=Did not tell the patient the result of the RDT 9=Test was invalid 66 = Not observed 77 = Other (specify) _____	[][] [][] [][]
Health worker's statement:			

Information given

22. What information or advice does the health worker give to the patient/caregiver? (Choose all that apply)

- | | | |
|--|--|---------|
| 1 = complete the prescribed drugs | 6 = repeat the dose if child vomits within 30 minutes of giving the medication | [] [] |
| 2 = do not share the prescribed medication with another patient | 7 = Return for another dose if child vomits any of the doses | [] [] |
| 3 = take AL with milk or eat a fatty meal before taking the medication | 8 = No advice given | [] [] |
| 4 = Sleep under an ITN | 66 = Not observed | [] [] |
| 5 = Bring the child back for review if there is no improvement | 77 = Other (specify) _____ | [] [] |

Treatment

23. Review the prescription and record medications prescribed (Record all that are written)

- | | | |
|----------------------------|--|---------|
| 1 = Panadol | 10 = Amoxicillin | [] [] |
| 2 = AL (Coartem, Lumartem) | 11 = Septrin | [] [] |
| 3 = DP (Duocotecxin) | 12 = Iron (Ferrous) | [] [] |
| 4 = Quinine | 13 = ORS | [] [] |
| 5 = Chloroquine | 14 = Vitamin A | [] [] |
| 6 = SP (Fansidar) | 15 = none | [] [] |
| 7 = CQ+SP combination | 16 = Metronidazole | [] [] |
| 8 = Amodiaquine (Camoquin) | 17 = Procaine Penicillin Fortified (PPF) | [] [] |
| | 66 = Not observed | [] [] |
| | 77 = Other (specify) _____ | [] [] |
| | 88 = Don't know | [] [] |

HMIS – Recording information

24. Does the health worker write down any information in the OPD or other HMIS register?

- | | | |
|---------|----------------------------|---------|
| 1 = Yes | 66 = Not observed | [] [] |
| 2 = No | 77 = Other (specify) _____ | [] [] |

Thank you!

Staff ID: [] []