



Evidence for Malaria Medicines Policy

Household Survey Uganda 2012 Survey Report



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Definitions

Antimalarial	Any medicine recognized by the WHO for the treatment of malaria.
Affordable Medicines Facility – malaria (AMFm)	The AMFm is a financing mechanism designed to increase the provision of affordable ACTs through the public, private not-for-profit (e.g., NGO) and private for-profit sectors. The AMFm is being evaluated in a first phase that includes 9 pilots in 8 countries: Cambodia, Ghana, Kenya, Madagascar, Niger, Nigeria, Republic of Tanzania (mainland and Zanzibar) and Uganda.
Artemisinin-based Combination Therapy (ACT)	An antimalarial that combines artemisinin or one of its derivatives with an antimalarial or antimalarials of a different class. Refer to Combination Therapy (below).
AMFm logo	All AMFm co-paid ACT packaging bears a logo (the "ACTm leaf logo") to facilitate communication campaigns and product identification. The logo is applied to all quality-assured ACTs purchased through the AMFm.
Artemisinin monotherapy	An antimalarial medicine that has a single active compound, where this active compound is artemisinin or one of its derivatives.
Cluster	The primary sampling unit in the multi-stage sample drawn for the household survey. For each <i>ACTwatch</i> country the household survey clusters are the same units as those selected for sampling in the Outlet Survey. In Uganda, they were generally defined as sub-counties. Due to the very large population size of sub-counties in Kampala, an additional level of sampling was conducted and parishes selected as the clusters within Kampala.
Combination therapy	The use of two or more classes of antimalarial drugs/molecules in the treatment of malaria that have independent modes of action.
Dosing/treatment regimen	The posology or timing and number of doses of an antimalarial used to treat malaria. This schedule often varies by patient weight.
Enumeration Area	The penultimate-level sampling unit for the household survey. It is an administrative unit that generally has a population size of 250-500. These units frequently are defined by geographical, health or political boundaries. In Uganda they were defined as villages.
First-line treatment	The government recommended treatment for uncomplicated malaria. Uganda's first-line treatment for malaria is artemether-lumefantrine, 20mg/120mg.
Monotherapy	An antimalarial medicine that has a single mode of action. This may be a medicine with a single active compound or a synergistic combination of two compounds with related mechanisms of action. Antimalarial monotherapies include amodiaquine, quinine, chloroquine, and sulphadoxine-pyrimethamine.

Non-artemisinin therapy	An antimalarial treatment that does not contain artemisinin or any of its derivatives.
Oral artemisinin monotherapy	Artemisinin or one of its derivatives in a dosage form with an oral route of administration. These include tablets, suspensions, and syrups and exclude suppositories and injections, which are used in the treatment of severe malaria.
Private for-profit sector	For reporting purposes ACTwatch classifies sources of advice and treatment into two sectors: <i>private for-profit</i> and <i>public/private not for profit</i> . In Uganda the following outlet types are classified as private for-profit: private for-profit health facility, pharmacy, drug shop and grocery store.
Public/not for profit sector	For reporting purposes ACTwatch classifies sources of advice and treatment into two sectors: <i>private for-profit</i> and <i>public/private not for profit</i> . In Uganda the following outlet types are classified as public/private not for profit: public health facility, community health worker, and NGO/Mission-based health facility.
Rapid Diagnostic Test (RDT) for malaria	Malaria rapid diagnostic tests, sometimes called "dipsticks" or malaria rapid diagnostic devices, assist in the diagnosis of malaria by providing evidence of the presence of malaria parasites in human blood. RDTs do not require laboratory equipment, and can be performed and interpreted by non-clinical staff.
Screened	A household that was administered the screening questions (1.11 and 1.12) of the household survey questionnaire.
Screening criteria	<p>The set of requirements that must be satisfied before the full questionnaire is administered. In this survey a household met the screening criteria if it included a child under five who had experienced fever in the two weeks prior to the interview.</p> <p>In addition, a series of questions to capture awareness of the AMFm was administered to 1) caregivers of children under five in households that did not meet the main screening criteria, and 2) any caregivers of children under five with no reported fever in households that met the screening criteria.</p>
Treatment/dosing regimen	The posology or timing and number of doses of an antimalarial used to treat malaria. This schedule often varies by patient weight.

Abbreviations

ACT	Artemisinin-based Combination Therapy
AL	Artemether-lumefantrine
AMFm	Affordable Medicines Facility – malaria
ASAQ	Artesunate-amodiaquine
CAPSS	Consortium for ACT Private Sector Pilot Subsidy
CHW	Community Health Worker
CI	Confidence Interval
CMDs	Community Medicine Distributors
CQ	Chloroquine
DfID	Department for International Development
DHS	Demographic and Health Survey
GDP	Gross domestic product
Global Fund	Global Fund to Fight AIDS, Tuberculosis, and Malaria
HBMF	Home-based Management of Fever
ICCM	Integrated Community Case Management
IMF	International Monetary Fund
IPTp	Intermittent Preventive Treatment in pregnancy
IRS	Indoor Residual Spraying
ITN	Insecticide Treated Net
LLIN	Long-lasting Insecticidal Net
LRA	Lord’s Resistance Army
LSHTM	London School of Hygiene and Tropical Medicine
MIS	Malaria Indicator Survey
MMV	Medicines for Malaria Venture
MOH	Ministry of Health
nAT	Non-artemisinin Therapy
NDA	National Drug Authority
NGO	Non-governmental organization
NMCP	National Malaria Control Program
NMS	National Medical Stores
PACE	Program for Accessible Health, Communication & Education
PMI	President’s Malaria Initiative

PPS	Probability proportional to size
PSI	Population Services International
RDT	Rapid Diagnostic Test
SFH	Society for Family Health
SP	Sulfadoxine-pyrimethamine
UN	United Nations
UNICEF	United Nations Children’s Fund
USAID	US Agency for International Development
USD	United States Dollar
VHTs	Village Health Teams
WHO	World Health Organization

Executive Summary

Overview of ACTwatch

The ACTwatch Household Survey is a population-based survey conducted in each of the seven ACTwatch countries (Benin, Cambodia, the Democratic Republic of Congo [DRC], Madagascar, Nigeria, Uganda and Zambia). The survey is one of three ACTwatch research components, and is led by Population Services International (PSI). The other elements of ACTwatch research are outlet surveys led by PSI and supply chain research led by the London School of Hygiene & Tropical Medicine (LSHTM) (Shewchuk et al., 2011).

The objective of the household survey component is to monitor consumer treatment-seeking behavior for fever in children under five, including types of medicines (specifically, antimalarials) and diagnoses obtained, sources visited for advice, treatment and diagnosis, the price paid for antimalarials, and caregiver knowledge and awareness of fever symptoms and antimalarials (Littrell et al., 2011).

Baseline and endline household surveys have now been conducted in each of the seven ACTwatch countries. This report covers the endline household survey in Uganda, which was conducted in April and May 2012.

Endline Household Survey Methods

This study uses data from a cross-sectional household survey of children's caregivers. A nationally-representative sample of households in Uganda was drawn using three-stage cluster sampling, with separate samples drawn for urban and rural areas. This allows the estimation of indicators at the national level, and for robust comparisons to be made between urban and rural areas.

All caregivers with a child under five who had experienced fever in the two weeks prior to interview were eligible for inclusion and were asked questions about their treatment of the recent fever episode. In addition all caregivers of children under five, irrespective of a child's fever status, were eligible for a subset of questions regarding exposure to the Affordable Medicines Facility – malaria (AMFm).

The household survey was designed to monitor all key malaria treatment indicators, as well as additional indicators addressing sources of treatment for fever, antimalarials and diagnostics.

Validation and data checking steps occurred during and after data collection. Double data entry was conducted using Microsoft Access (Microsoft Corporation, Seattle, WA, USA). Stata 11 (Stata Corp, College Station, TX, USA) was used for all analyses. To obtain the national estimates provided in this report, data were weighted.

Key findings from the household survey

Data collection ran from the 10th of April until the 11th of May 2012. This period fell within the rainy season in Uganda.

A total of 5,306 households were selected for inclusion in the study. 239 households were not screened for various reasons: 19 refused to participate in screening; 30 dwellings were abandoned; in 25 households an eligible respondent was not available; no one was present in 162 households at the time of the survey visits (up to three visits were attempted); and 3 households were not screened for other reasons. Overall, 5,067 households agreed to participate in the survey and were screened. Of the 3,106 households that met the screening criteria and were eligible for interview, 4 refused to continue, no one was present in one of the dwellings, and in one household an eligible respondent wasn't available or the time wasn't convenient for the full interview. In the 1,826 households that completed interviews: 1,854 caregivers were interviewed regarding 2,273 children under five with fever in the previous two weeks. In total 3,193 caregivers of children under five were administered the subset of questions regarding the AMFm.

Figure 1: Treatment of children with fever

Among children under five with fever in the two weeks preceding the survey the percentage who took any antimalarial medicines/ACTs and any antimalarial medicines/ACTs the same or next day following the onset of fever, and percentage who had blood taken from a finger or heel for testing (n=2,273)

Just over half of children under five with fever received an antimalarial (54%). This proportion was similar in urban (44%) and rural (56%) areas (see Table 3.2.1). 44% of children with fever received an ACT and 36% received an ACT the same or next day. Children in rural areas were more likely to receive an ACT (47%) than those in urban areas (33%) (Table 3.4.1). Fewer than 1 in 5 children reported receiving a diagnostic test (18%).

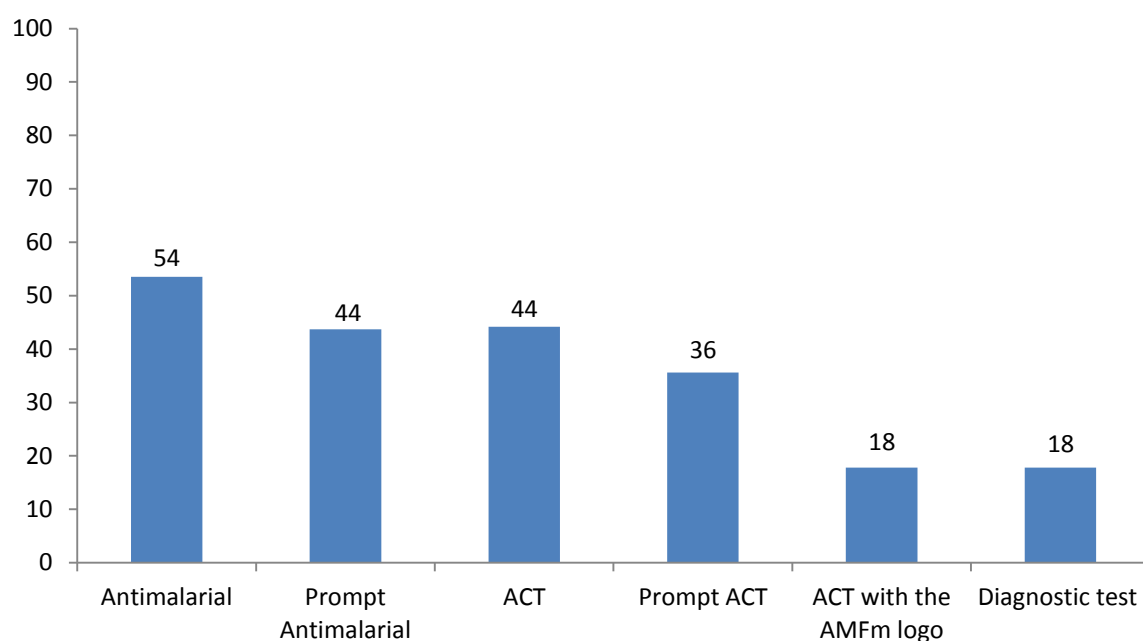


Figure 2: Use of antimalarials among children who received an antimalarial

Among children under five with fever in the two weeks preceding the survey who received an antimalarial, the percentage who took specific antimalarial medicines (n=1,177).

Of the children who received antimalarials, the overwhelming majority (83%) received ACT, and almost all of these were some brand of the first-line treatment, artemether-lumefantrine (AL). 1 in 3 children received an AMFm-branded ACT. 27% of children received a non-artemisinin therapy (nAT), most commonly quinine (used by 21% of children). In Uganda a minority of children took more than one antimalarial during their fever episode, as can be seen from the figures for any nAT and any ACT.

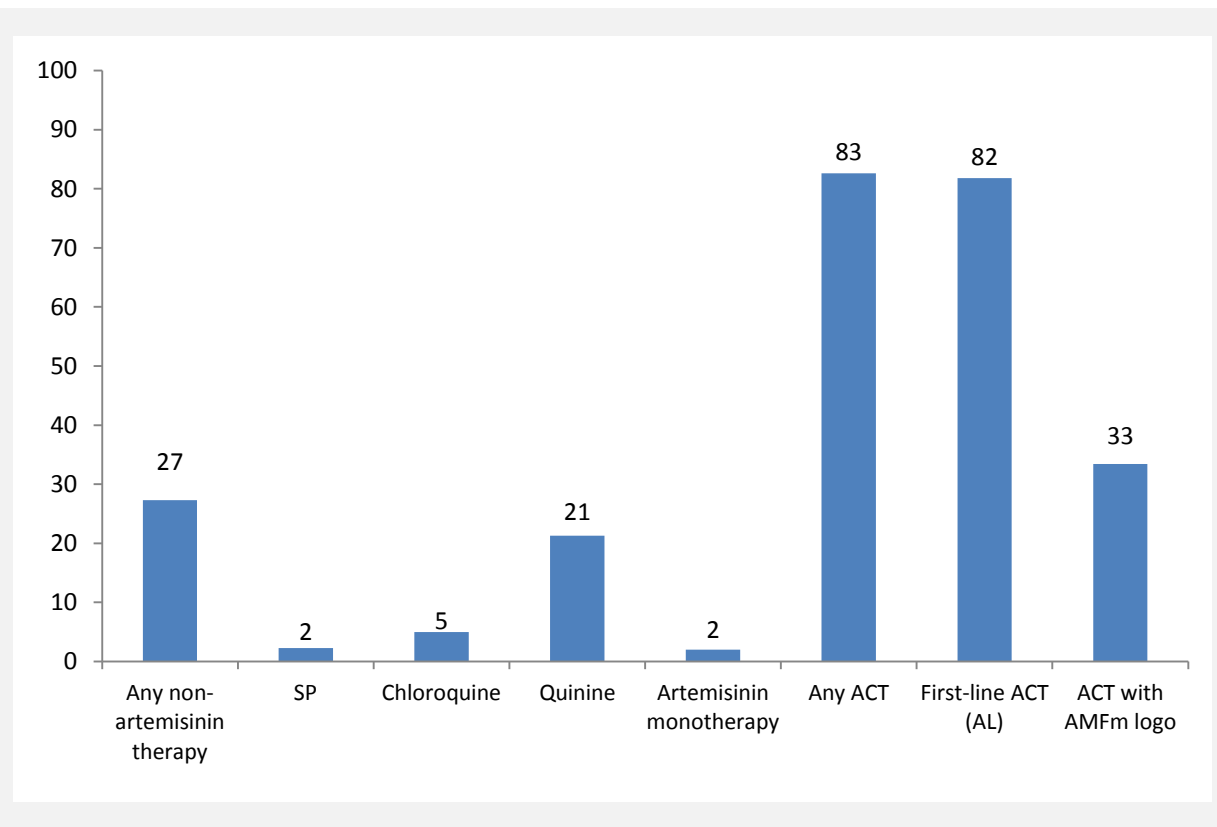


Figure 3: Use of antimalarials among children who received an antimalarial by urban/rural strata

Among children under five with fever in the two weeks preceding the survey who received an antimalarial, the percentage who took specific antimalarial medicines by strata (n=1,177).

Children in rural areas were more likely to receive any ACT (84% versus 75%), first-line ACT (83% versus 73%) and ACT with the AMFm logo (35% versus 26%) compared to those in urban areas. However, treatment with quinine was higher in urban areas (31%) compared to rural (20%). The proportion of children receiving an ACT was higher among the poorest households (84%) compared to the least poor (69%) (Table 3.4.1).

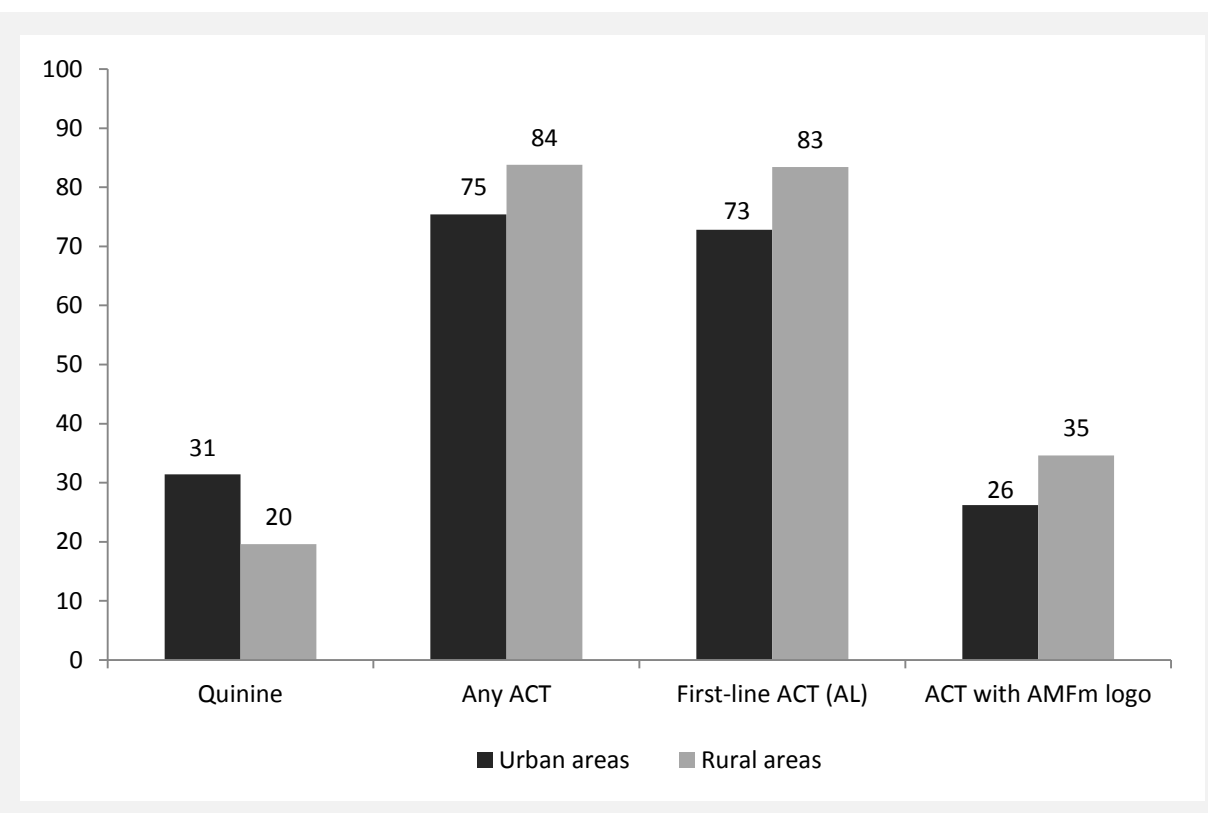


Figure 4: Care seeking behavior: first place caregivers seek advice or treatment for fever

Among children under five with fever in the two weeks preceding the survey for whom advice or treatment was sought, percentage for whom advice or treatment was first sought at a given source (n=2,212).

The most common first source of advice or treatment was at home (61% of children), followed by the private for-profit sector (26%) and the public/not for profit sector (13%). Advice or treatment was first sought for 15% of children from private health facilities, while pharmacies/drug stores and public health facilities were each the first point of call for around 10% of children.

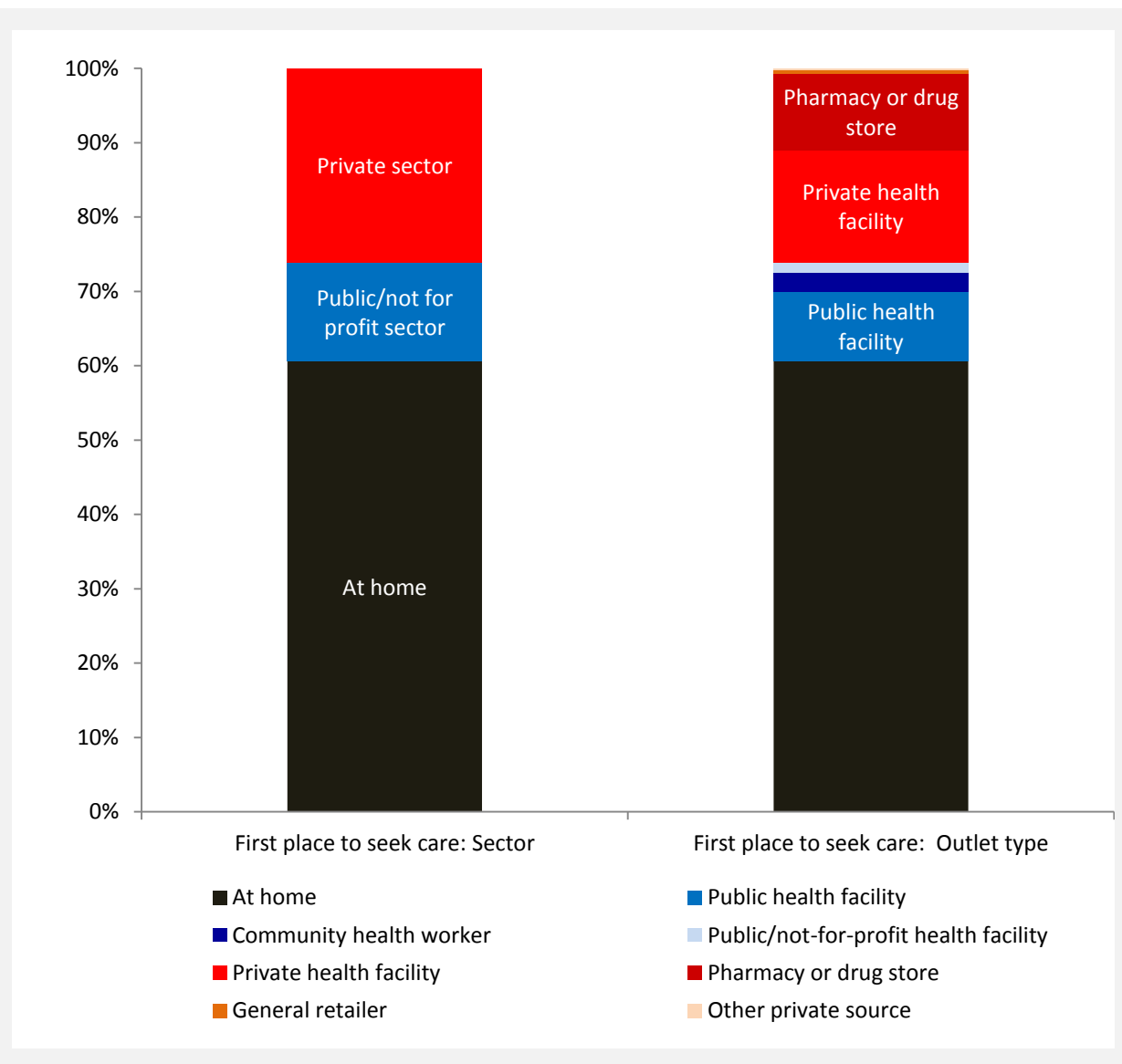


Figure 5: Source of antimalarials, ACTs and ACTs with the AMFm logo

Among children under five with fever in the two weeks preceding the survey who received an antimalarial, and ACT or an ACT with the AMFm logo, the percentage who sought treatment at a given source.

47% of the children received antimalarials from the private sector (private health facility 28% and pharmacy/drug store 19%; Table 3.4.4) and 36% received them from the public-not-for profit sector. For 23% of children who received any antimalarial, the product was already present in the home when the fever started, either as a partial treatment leftover from a previous illness episode or as a complete treatment bought in anticipation of illness. A similar scenario was observed for the children who received an ACT, although the difference between the sectors was much reduced. The situation appeared to be reversed when considering sources of ACT with the AMFm logo: 41% of children received branded ACTs from the public/not-for-profit sector while 33% received them from the private sector.

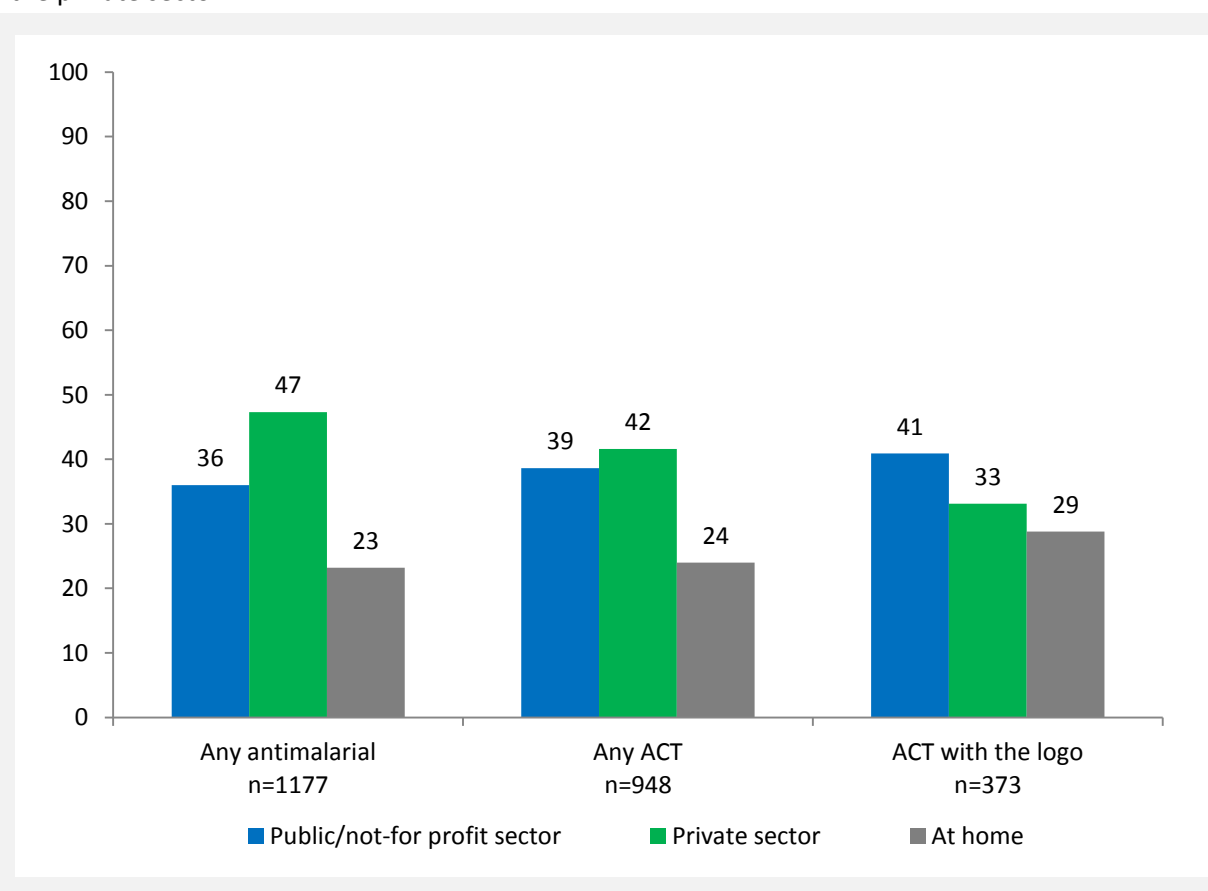


Figure 6: Caregiver awareness of and exposure to the AMFm logo and initiative

Among caregivers of all children under five (regardless of fever status), the percentage who have seen or heard of the AMFm logo, or heard of the initiative to reduce the price of ACTs.

39% of the all caregivers had seen or heard of the AMFm logo, 18% had heard of the initiative to reduce the price of ACTs, and together almost half (48%) had either seen/heard of the logo or the initiative. Caregiver responses were strikingly similar in both urban and rural areas.

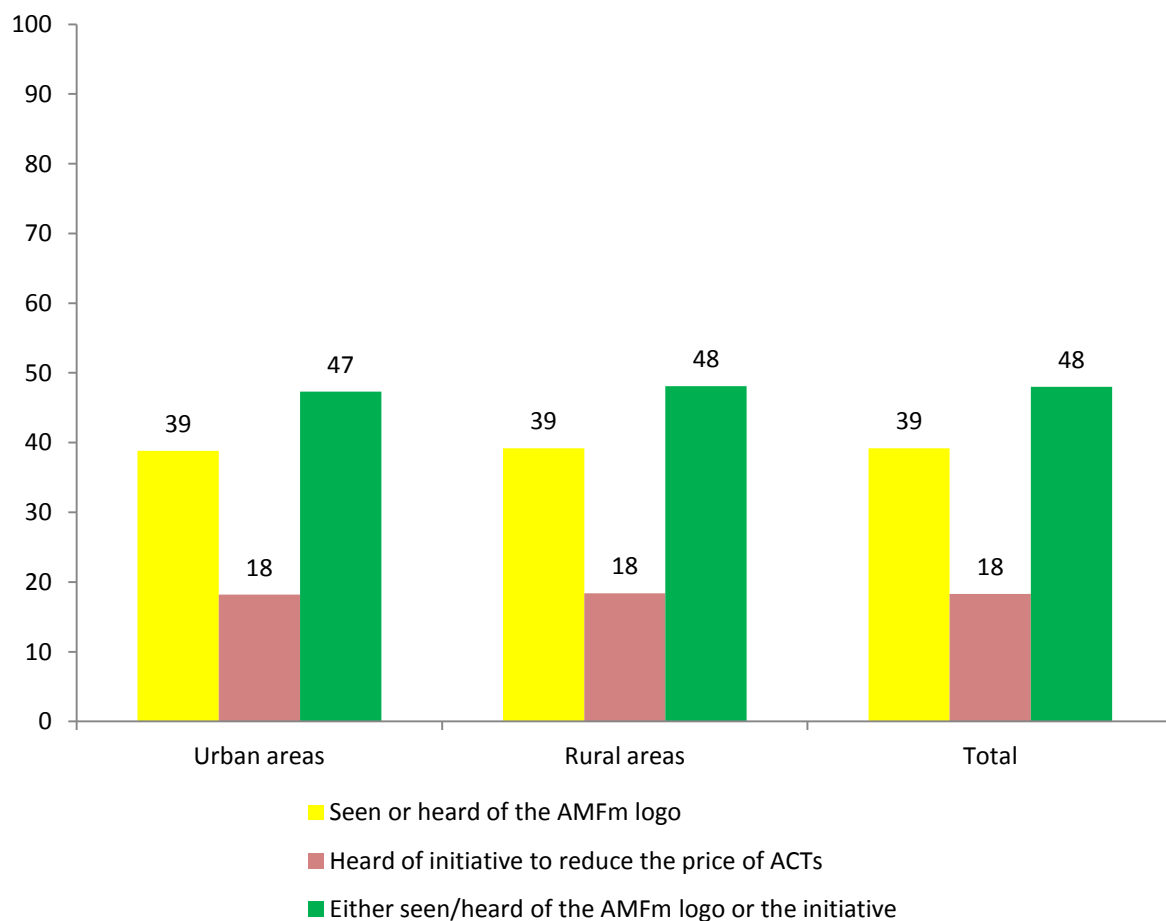


Figure 7: Common sources of exposure to the AMFm logo and initiative

Among caregivers of children under five who have seen or heard of the AMFm logo, or heard of the initiative to reduce the price of ACTs, the percentage citing a given source of exposure.

The most commonly cited sources of exposure to the AMFm logo were from public health facilities (39%), medicine packaging (37%) and radio broadcasts (31%). The radio was overwhelmingly the most commonly cited source of exposure to information on initiative to reduce price of ACTs (75%), followed by public health facilities (20%). Caregivers could cite multiple sources and other responses (such as leaflets, general retailers, and community events) were each mentioned by fewer than 10% of respondents.

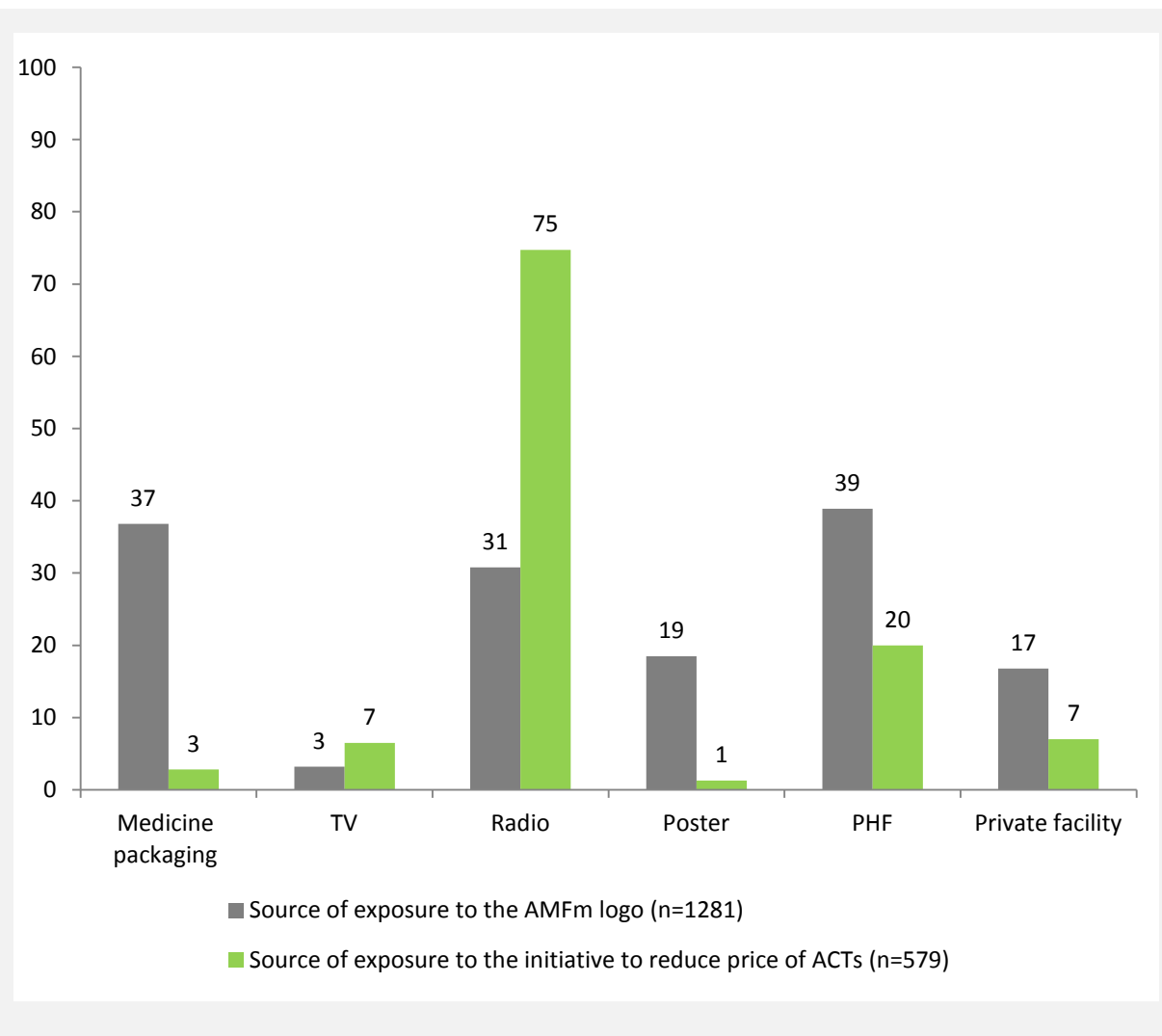
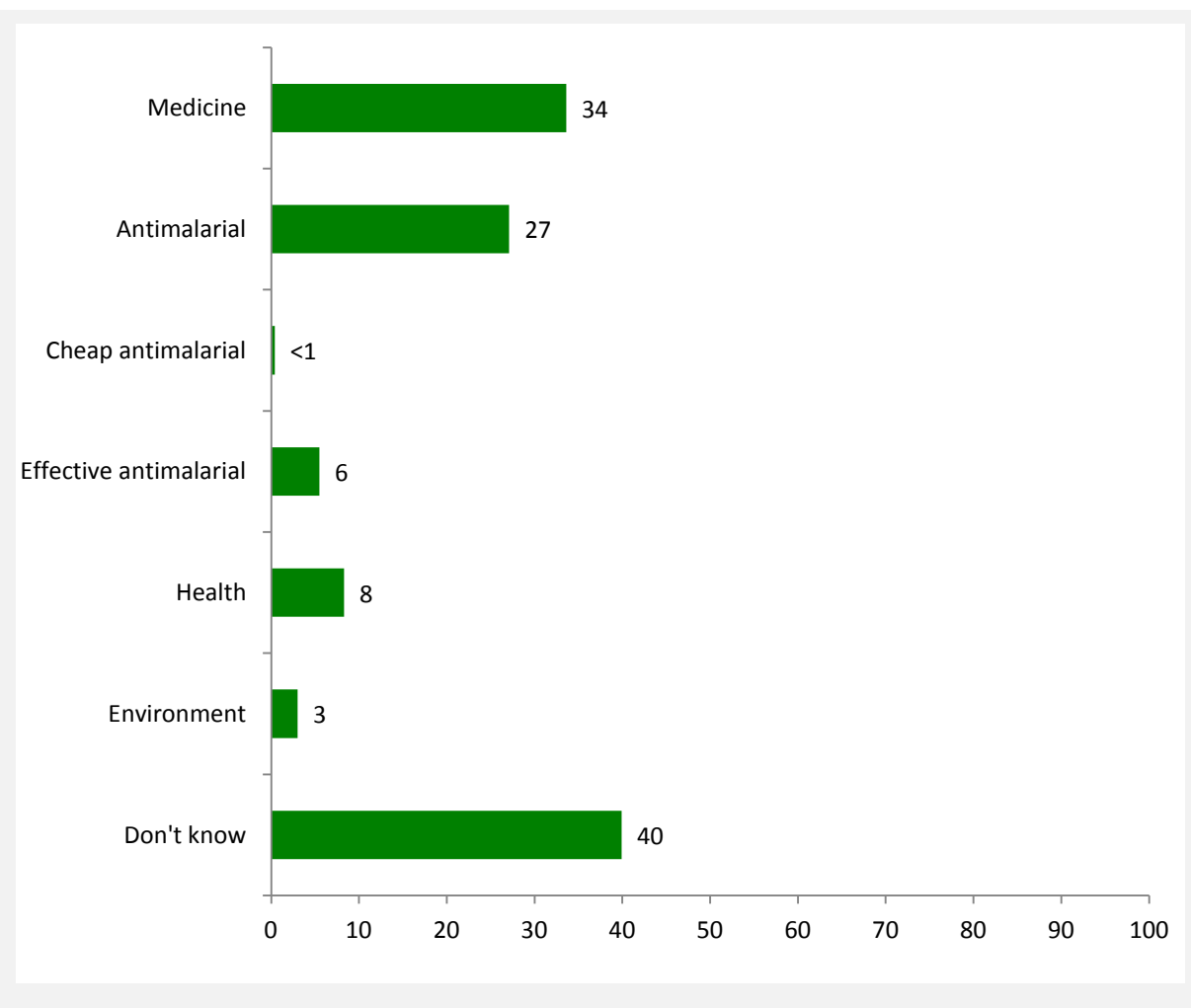


Figure 8: Meaning of the AMFm logo

Among caregivers of children under five who have seen or heard of the AMFm logo, the percentage citing a given meaning of the logo.

40% of the caregivers did not know the meaning of the AMFm logo. Caregivers could cite multiple responses, and for those who did know a meaning the most common responses were *medicine* (34%) and *antimalarial* (27%). Fewer than 10% of caregivers reported that the logo signified a cheap or effective antimalarial, one of the key messages of the supporting communication campaign for AMFm.



1. Background

1.1 Overview of the ACTwatch Research Project

In 2008, Population Services International (PSI) in partnership with the London School of Hygiene and Tropical Medicine (LSHTM) launched a five-year multi-country research project called *ACTwatch* (Shewchuk et al., 2011). The project is designed to provide a comprehensive picture of the antimalarial market to inform national and international antimalarial drug policy evolution. The research is designed to detect changes in the availability, price and use of antimalarials over time and between sectors, and to monitor the effects of policy or intervention developments at country level.

ACTwatch addresses both the supply and demand side of the market. The supply side is evaluated by collecting level and trend data on antimalarials and rapid diagnostic tests (RDTs) in public and private sector outlets and wholesalers of antimalarial drugs (O’Connell et al., 2011). To evaluate demand, data are collected at the household level on consumer treatment-seeking behaviour and knowledge. In combination, the research components thread together the antimalarial market and consumer behaviour (Littrell et al., 2011). Findings can help determine where and to what extent interventions may positively impact access to and use of quality-assured ACTs and RDTs as well as resistance containment efforts.

The project was conducted in seven malaria-endemic countries between 2008 and 2012: Benin, Cambodia, the Democratic Republic of Congo, Madagascar, Nigeria, Uganda and Zambia. Countries were selected with the aim of studying a diverse range of markets from which comparisons and contrasts could be made. The research in Uganda was conducted as follows: four outlet surveys (2008, 2009, 2010, 2011), supply chain research (2009) and two household surveys (2009 and 2012).

Information on other *ACTwatch* studies can be found at www.ACTwatch.info.

1.2 Affordable Medicines Facility for Malaria

The success of malaria control efforts depends on a high level of coverage in the use of effective antimalarials such as artemisinin-based combination therapies (ACTs). Although these antimalarials have been procured in large amounts by countries, evidence suggests that ACT use still remains far below target levels. Reasons suggested for the low uptake of ACTs include interruptions in public sector supply; limited availability outside major urban centres; the high prices of the drugs, particularly in the private sector; lack of provider adherence to new recommendations; and patient self-treatment with other more common and cheaper antimalarials (Sabot et al., 2009). Lowering the cost of ACTs to the end user through a subsidy mechanism could be an effective way to increase their uptake (Arrow et al., 2004).

In response to this issue, the Affordable Medicines Facility – malaria (AMFm) was established, hosted by The Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund). As described by Adeyi and Atun (2010), AMFm is a financing mechanism designed to incorporate three elements: (1) price reductions through negotiations with manufacturers of ACTs; (2) a buyer subsidy, via a co-payment at the top of the global supply chain by AMFm on behalf of eligible buyers from the public, private for-profit and private not-for-profit sectors; and (3) support of interventions to promote appropriate use of ACTs. Examples of these “supporting interventions” include training providers

and outreach to communities to promote ACT utilization. AMFm was tested in a first phase that included nine pilots in eight countries: Cambodia, Ghana, Kenya, Madagascar, Niger, Nigeria, Republic of Tanzania (mainland and Zanzibar) and Uganda.

The AMFm pilot was evaluated on the outcome of four components related to the availability, affordability, market share and use of ACTs. These questions are formulated as follows:

1. Has the AMFm mechanism helped increase the availability of quality-assured ACTs to patients across public, private for-profit and not-for-profit sectors, in rural/urban areas?
2. Has the AMFm mechanism helped to reduce the cost of quality-assured ACTs to patients at public, private for-profit and not-for-profit outlets in rural/urban areas to a price comparable to the price of most popular antimalarials?
3. *Has the AMFm mechanism helped increase use of quality-assured ACTs, including among vulnerable groups, such as poor people, rural residents and children?*
4. Has the AMFm mechanism helped increase the market share of quality-assured ACTs relative to all antimalarial treatments in the public, private for-profit and not-for-profit sectors in rural/urban areas?

The final independent evaluation report on the AMFm pilot was released in October 2012, concluding that the AMFm had had a significant impact in the private-for-profit sector in six of eight countries though less impact in the public sector of most. In November 2012, the Global Fund Board decided that the AMFm would not continue as a stand-alone programme but would instead integrate some of its key elements into the Global Fund's core funding processes. In addition, it was decided that the pilot phase of the AMFm would be extended for another year (to the end of 2013) to allow for a smooth transition and continuity of access to affordable ACTs. The independent evaluation and the Global Fund Board based their conclusions in part on evidence gathered through ACTwatch outlet and household surveys.

Additional information on the AMFm can be found in the multi-country AMFm report (ICF Macro and London School of Hygiene and Tropical Medicine, 2012) and the ACTwatch Uganda outlet survey report (ACTwatch Group, PACE/Uganda and the IE team, 2012).

1.3 Country background

1.3.1 Overview of the country

Uganda is located in East Africa, bordered by South Sudan to the north, Kenya to the east, Tanzania and Rwanda to the south and Democratic Republic of Congo (DRC) to the West. In 2010 the population was estimated at 34.5 million, 24% of whom were five years of age or younger (UN Population Division, 2011). Approximately 84% of people live in rural areas (UN Population Division, 2012). There are over 15 different ethnic groups in Uganda, including Baganda, Banyakole, Basoga, Bakiga and Iteso. The official languages are English and, since 2005, Swahili. Ganda (also known as Luganda), Arabic and about 40 other indigenous languages are spoken across the country (Encyclopaedia Britannica, 2013).

Figure 1.3.1: Location of Uganda



Source: CIA, 2013. World Factbook.

<https://www.cia.gov/library/publications/the-world-factbook/geos/ug.html>

The climate of Uganda is tropical and tempered by altitude. The country is generally flat and the average altitude is around 1,100 meters above sea level. Due to this rather high altitude, temperatures range from 21 to 25° Celsius. The hottest period of the year is from December to February when the temperature rises to around 29° Celsius. The Central, Eastern, and Western regions of the country have two rainy seasons per year, with heavy rains from March to May and light rains between September and December. Reliability of the rain declines towards the north, which has only one long rainy season from July to September.

Prior to 1986 Uganda experienced two decades of internal strife and political turmoil, including power struggles between the government and traditional leaders. A military coup in 1971 saw Idi Amin gain power and continued leadership battles following the ousting of Amin in 1979. Since 1986 Uganda has remained relatively stable, and structural reforms focusing on infrastructure have led to

an overall economic improvement in most parts of Uganda, with the exception of the north. Serving as a base for the Lord's Resistance Army (LRA), the north was engulfed in an insurgency between 1986 and 2006 as the LRA battled the government. In late 2005 the Ugandan military forced the LRA out of northern Uganda, and relative calm has returned to this region (USDOS, 2012). Since its pacification the north has become an area of special focus for the government and for international donors.

Uganda's Gross Domestic Product (GDP) growth has been on a general upward trend over the past two decades, from an average of 6.5% per year in the 1990s to more than 7% in the 2000s, above the sub-Saharan African average. Over this period the proportion of the population living below the national poverty line dropped from around 44% in 1996 to 25% in 2009/2010, surpassing the Millennium Development Goal of halving the 56% poverty rate recorded in 1992/93. However, a reduction in exports, high inflation and tighter monetary policy reduced the growth in GDP to 3.2% in fiscal year 2011/2012 (World Bank, 2012) and the number of tourists visiting the country was halved from 2010 to 2011 (UBOS, 2012). Uganda is largely dependent on agriculture and fisheries for generating employment, and the biggest growth in economic contribution in 2011/2012 was in the agriculture, forestry, fishing, services and industry sectors (UBOS, 2012). In 2006, Uganda discovered commercially viable oil deposits and further discoveries have been made at regular intervals since then, which may provide the next economic impetus for the country (UMEMD, 2013).

Administratively, Uganda is divided into districts which are further sub-divided into lower administrative units namely counties, sub-counties and parishes (or wards, in some urban areas). Over time, the numbers of districts and lower level administrative units have increased in number with the aim of making administration and delivery of social services easier and closer to the people. This has however placed increased strain on delivery of health services, as the numbers of management and administrative units and functions have increased (President's Malaria Initiative, 2010).

1.3.2 Description of health care system

Health services in Uganda are provided by both the public and private sectors, with each contributing about 50% of the country's service delivery outlets (UMOH et al, 2012). The provision of public sector health services in Uganda is decentralized, with districts and health sub-districts playing a key role in the delivery and management of health services at those levels. The public sector is organized into the following levels of care:

- National, Regional and General Hospitals (operating at the district level and above);
- Health Centre IV (operating at the county / health sub-district level);
- Health Centre III (operating at the sub-county level);
- Health Centre II (operating at the parish level); and
- Health Centre I (Village Health Teams or Committees).

The government has set national standards based on population ratios for the provision of government-owned health facilities. However, there continue to be substantial gaps at each level in health facility staffing (see Table 1.3.2.1 below). Government spending for health declined from 2009/2010 to 2011/2012, but the percentage of approved posts filled by health workers increased slightly from 56% to 58% over the same time period (UMOH et al, 2012).

Table 1.3.2.1: Percent of posts filled in the public sector by March 2012, by facility level

Health services level	% of posts filled
Mulago Hospital (<i>national referral hospital</i>)	87%
Butabika Mental Health Hospital (<i>national referral hospital</i>)	72%
Regional referral hospitals	72%
General hospitals	61%
Health Centre IV	60%
Health Centre III	60%
Health Centre II	45%

Source: UMOH et al, 2012

Services at the health Centre I level refer to community-based health services and outreach, often through volunteers. Interventions at this level are increasingly organized into Village Health Teams (VHTs). By the end of the 2011/2012 financial year, 78% of villages had a trained health team supplied with bicycles (UMOH et al, 2012).

Districts, under the supervision of a district health officer, are responsible for designing and delivering health plans, and for managing their budgets. Funding is received from higher levels of government. Under this structure, the Ministry of Health (MOH) is responsible for strategic planning, policy development, technical assistance, and providing monitoring and evaluation, among other duties. The national referral hospitals, Mulago Hospital and Butabika Mental Health Hospital, both located in Kampala, are semi-autonomous. The regional referral hospitals have been granted self-accounting status but remain under MOH oversight.

Over the past decade the government has focused on decentralization and expanding health infrastructure in an effort to bring services closer to the people. During that time, the number of health districts increased from 56 in 2000 to 112 by the end of 2010. However, this has placed increased strain on the delivery of health services and budgets generally, as the numbers of administrative structures have increased to manage these newly sub-divided areas. In addition, poor remuneration and working conditions in the public sector have led to high attrition rates among staff, and as shown in the Table above, a high proportion of health posts at all levels are not filled. This is particularly evident in remote rural areas, despite the adoption of a 'Hard to Reach' strategy by the government in an attempt to incentivize staff to move to these locations (UMOH, 2010 and UMOH et al, 2012a).

The government eliminated user fees in 2001, and services in public health facilities are thus free. User fees remain in place in private wings of public hospitals.

Public sector procurement in Uganda is conducted through the National Medical Stores (NMS), which delivers medicines and supplies to the district. Further distribution to specific health facilities is done by the districts. However, as a result of poor medicines management capacity at lower-level

health facilities, in early 2010, the NMS and MOH changed the national policy to introduce the "push" system where Health Centres II and III receive a standard kit of set quantities of essential drugs, including ACTs, and other health supplies. Hospitals and facilities at the Health Centre IV level have continued to order based upon their determined needs. A 2011 evaluation of the system conducted by the MOH with support from USAID found that stock-outs for essential medicines had decreased from an average of 20 to 5 days per month as a result of the kits. However, it estimated the cost of oversupplying some drugs, if they expired, to be USD 1.5 million per year, or about 7% of the essential medicines budget. In its conclusion, the report recommended a reassessment of kit content and a system of redistribution at the district level to avoid waste. In addition, the report noted that particular medicines, including malaria treatment, should be monitored much more closely to ensure optimal distribution and top-up when needed (UMOH and SURE, 2011).

The private sector – including private for-profit and not-for-profit facilities – plays a significant role in the health system in Uganda and includes hospitals and clinics, as well as retail pharmacies and both registered and unregistered drug stores. A private sector outlet was the first source of advice or treatment in 56% of child fever cases, according to figures from the 2009 Malaria Indicator Survey (MIS) (UBOS et al, 2010). Private not-for-profit facilities are predominantly faith-based organizations which procure drugs and medical supplies from the Joint Medical Stores. Private for-profit facilities include primary and secondary-care health facilities, retail pharmacies, licensed drug shops and unregistered drug shops that operate illegally. Pharmacies are permitted to dispense prescription-only medicines under the supervision of a registered pharmacist, while drug shops are only permitted to sell over-the-counter medicines. For-profit providers purchase medicines and supplies through a private sector supply chain that includes 250 wholesale pharmacies, 70 drug importers and distributors and 15 local manufacturers. In December 2010, the Kampala manufacturing site for Quality Chemicals Industries Limited became Africa's first local supplier to receive WHO pre-qualification to produce ACTs. The company is licensed to produce artemether/lumefantrine (AL) through the company Cipla Limited, based in India.

A US Agency for International Development (USAID)-funded study from 2005 estimated there were 12,775 staff employed in private health facilities; 9,500 of these professionals were working exclusively in the private sector, including more than 1,500 doctors and 3,500 nurses (Mandelli et al., 2005). The national distribution of health workers is inequitable between public and private sectors as well as geographically. While the Central region (which includes Kampala) hosts only 27% of the population, this region includes 71% of medical doctors and 81% of pharmacists (AHWO, 2009). The percentage of posts filled in rural areas have been as low as 0% at some Health Centre II level facilities and 10% at the Health Centre III level (UBOS et al, 2010).

The government acknowledges the role played by private not-for-profit staff, who provide about half of the combined public/not-for-profit workforce in the country. A breakdown of health units, by level and owner, is shown in Table 1.3.2.2, below. These figures indicate that 56% of facilities are government-run, 27% are for-profit, and 17% are not-for-profit. The Uganda Health Sector Strategic and Investment Plan (HSSIP) 2010/11-2014/15 outlines the government's intention to increase collaboration between public and private health sectors in the coming years (UMOH et al, 2012).

Table 1.3.2.2: Distribution of functional health units by health facility level and ownership

Type of facility	Location	Population Served			Number of Facilities		
		Standard	Current	Public	Private Not-for-Profit	Private For-profit	Total
Health Centre I (Village Health Team)	Village	1,000	N/A	N/A	N/A	N/A	N/A
Health Centre II	Parish	5,000	14,940	1,562	480	964	3,006
Health Centre III	Sub-county	20,000	84,507	832	226	24	1,082
Health Centre IV	County	100,000	187,500	12	1	177	190
General Hospital	District	500,000	263,157	64	56	9	129
Regional Referral Hospital	Region	3,000,000	2,307,692				
National Referral Hospital	National	10,000,000	30,000,000				

Source: UMOH et al, 2012

1.3.3 Epidemiology of malaria

In most parts of Uganda, temperature and rainfall allow intense perennial malaria transmission. Malaria is highly endemic across 95% of the country, affecting approximately 90% of the population. These areas include the entire Central region and the majority of the Northern and Southern regions. The remaining 5% of the country (10% of the population) consists of unstable and epidemic-prone transmission areas in the highlands of the south- and mid-west, along the eastern border with Kenya, and the northeastern border with Sudan (UBOS et al, 2010; PMI, 2012).

Results from the 2009 Malaria Indicator Survey show that *Plasmodium falciparum* is responsible for an estimated 99% of malaria cases in Uganda. Both *P. vivax* and *P. ovale* are rare (estimated <1% of malaria cases in the country). The most common malaria vectors are *Anopheles gambiae* and *Anopheles funestus*. Exposure to malaria transmission measured during the entomological surveys was as high as 1,564 infective bites per person per year in Apac District in Northern Uganda, but is generally in the range of 100-400 in highly endemic areas and around 5-50 infective bites in areas of moderate transmission (UBOS et al, 2010).

Malaria is the most frequently reported disease at both public and private health facilities in Uganda, and as such presents a major public health problem to the population. Malaria accounts for 30-50% of outpatient visits at health facilities, 15-20% of all hospital admissions, and 9-14% of all hospital deaths. Nearly half of inpatient deaths among children under five years of age are attributed to clinical malaria, though a significant percentage of deaths occur at home and are therefore not reported by the facility-based Health Management Information System.

The current government estimates of the annual number of deaths from malaria range from 70,000 to 100,000 (UMOH, 2005).

1.3.4 Antimalarial Policies and Regulatory Environment

In 2004 the National Malaria Control Program (NMCP) adopted artemether-lumefantrine (AL) 20mg/120mg as the first-line treatment for uncomplicated malaria, with artesunate-amodiaquine (ASAQ) 50mg/153mg as an alternative first-line in the private for-profit sector (Uganda Malaria Control Strategic Plan, 2005). Implementation of this policy in public sector facilities began in 2006 and was expanded to community-based services in 2008 through the Home-based Management of Fever (HBMF) program run by community medicine distributors (CMDs). This expansion followed the declassification of all ACTs to over-the-counter medicines, also in 2008. Quinine is recommended for patients with uncomplicated malaria whose AL treatment has failed and parenteral quinine is recommended for the treatment of severe malaria. Artesunate suppositories are recommended for pre-referral treatment of severe malaria at the community level where parenteral therapy is not possible.

At the time of data collection in 2012, the policy on diagnosis was for cases to be confirmed through microscopy or rapid diagnostic tests (RDTs). Microscopic testing was to be provided free of charge in the public health system and made available at Health Centre III and higher levels. In practice, many Health Centre III facilities did not have the necessary facilities and so RDTs were to be used at this level where microscopy was not available, as well as at Health Centre II and village levels. The country's National Malaria Control Program Strategic Plan 2011-2015 includes targets for achieving 90% testing of all fever cases by 2015 (PMI, 2012).

Uganda banned the registration of new oral artemisinin monotherapy treatments in 2005 (WHO, 2010a).

1.3.5 Malaria control strategy

The National Malaria Control Program goals are to eliminate malaria as the major cause of illness and death in Uganda, ensure families received universal access to malaria prevention and treatment, and reduce all-cause mortality rate for children under five. The government has removed import tariffs on RDTs, bed nets, antimalarials, and indoor residual spraying (IRS) commodities (M-TAP, 2010).

Table 1.3.5.1 presents key malaria control indicators as estimated by the 2009 MIS and 2011 DHS. Although there have been some improvements in coverage of malaria control interventions, the prevalence of parasitemia (45%) and anemia (62%) remain high. Results from the 2009 MIS show that 47% of households owned one or more insecticide-treated nets (ITNs) and 44% of pregnant women and 33% of children under five had slept under an ITN the night before the survey. The proportion of women receiving two doses of intermittent preventive treatment in pregnancy (IPTp) was 32%.

Focusing on case management, the MIS estimated that 36% of children under five were treated with an antimalarial drug on the same or the next day after onset of fever. This increased to 42.5% according to the 2011 DHS. Although the proportion receiving an ACT was only 14% in 2009, this increased to 32% in 2011. By comparison, this figure was only 1% according to the 2006 DHS, which was conducted before the rollout of AL to public health facilities.

Table 1.3.5.1: Comparison of national malaria control indicators, 2006-2011

Indicator	2006 DHS	2009 MIS	2011 DHS
Percentage of households that own at least one ITN	16%	47%	60%
Proportion of children under five years of age sleeping under an ITN the previous night	10%	33%	43%
Proportion of pregnant women sleeping under an ITN the previous night	10%	44%	47%
Percentage of households sprayed in the previous 12 months	6%	6%	7%
Proportion of pregnant women who receive at least two doses of IPTp during antenatal care	16%	32%	27%
Prevalence of parasitemia (by blood slide) in children 0-59 months	n/a	45%	n/a
Prevalence of anemia in children 6-59 months (Hg < 11 g/dL)	n/a	62%	n/a
Prevalence of severe anemia in children 6-59 months (Hg < 8 g/dL)	n/a	10%	4.7%

Source: Uganda Bureau of Statistics (UBOS) & ICF Macro, 2007, 2010 and 2012.

According to national policy, all diagnosis and treatment of uncomplicated malaria is free of charge in the public sector. However, since rollout in 2006 there have been three major national stock-outs of AL (PMI, 2009). These were the result of bottlenecks in grants, prolonged procurement procedures, and ineffective distribution channels and pharmaceutical management systems once the drugs were in country.

Uganda was one of the first countries in Africa to actively promote HBMF through volunteer CMDs. However, its implementation has been chronically impaired by repeated shortages of AL. The 2009 MIS indicated that only 18% of households reported knowledge of a community worker or CMD within their community, and only 9% reported that the CMD had malaria medicines available. In 2010, integrated community case management (iCCM), which provides care for children under five for malaria, diarrhea, pneumonia and care for neonates through voluntary VHTs was introduced as national policy in Uganda. iCCM was piloted in 20 districts in Uganda with training on case management and provision of drug supplies (including ACTs) to the village health teams. A new Global Fund grant signed in 2012 will support the further scale up of iCCM training.

Despite delays in ACT supply, considerable investments have been made in training and supervision of health workers, technical support for HBMF and ACT procurement, and quality testing to improve malaria case management, including in the private sector. In 2010, training on malaria case management, including severe malaria and supportive supervision, was provided to health workers in 32 districts (including almost 3,000 workers from the private sector). More than 1,000 health workers have received laboratory training in improved diagnostics. In addition, a number of small-to-medium sized private clinics under the Uganda Health Marketing project provide free or subsidized health services to their employees and the surrounding communities.

Since 2008 the Consortium for ACT private sector pilot subsidy (CAPSS) project has provided subsidized AL in four districts of Uganda (Kamuli, Kaliro, Pallisa and Budaka). Branded as "ACT with a leaf" to distinguish it from all other ACTs and antimalarials, the maximum recommended retail price for each age-pack is printed on the product. The final price per age-pack ranged from UGX 200 to

UGX 800 (USD 0.10 to USD 0.40). Given the reported success of the pilot (CAPSS, 2010), an extension of the CAPSS program (CAPSS Plus) was undertaken and included an assessment of feasibility and acceptability of licensed drug shops providing a malaria diagnosis before selling subsidized ACTs to patients or providing treatment for other common causes of infection. In 2010, 519,128 doses of “ACT with the leaf” were packaged.

Also in 2010 a significant number of outlets selling expired drugs were closed down by the National Drug Authority (NDA), and since this action monitoring of outlets selling drugs illegally has been intensified by the NDA. Widespread publicity of drug thefts by government officials led to the development of a monitoring unit under the President’s office. Highly publicized closing down of outlets in the private sector carrying ‘not for sale’ government drugs and supplies has also been noted in the media (personal communication, Uganda AMFm 2010 key informant interviews).

1.3.6 Malaria financing

Health financing in Uganda places a large burden on the household. The Ministry of Health estimates that 50% of personal healthcare costs are met by out-of-pocket expenditure and that 9% of all household expenditure is on health care (UMOH, 2010).

Funding for malaria control rose sharply between 2004 and 2006, from \$12 million to \$62 million, but dropped by more than half in 2007 as earlier Global Fund grants expired or stalled (WHO, 2010). Funding fell further to nearly 2004 levels in 2009 before spiking sharply upward to almost \$200 million in 2010 and close to \$100 million in 2011 (WHO, 2012). The largest donors for malaria control in Uganda continue to be the Global Fund (approved grants worth \$293.5 million since 2004, and \$244.7 million disbursed from 2004 to 2012) and PMI (\$33.5 million in 2012 and \$178 million since 2005). The government of Uganda contributed \$7 million in 2008, double the financing it provided in 2005, but government funding has dropped in the years since, according to the World Malaria Report (WHO, 2012). Other donors include the United Nations Children’s Fund (UNICEF), the UK Department for International Development (DFID) and the Bill and Melinda Gates Foundation (PMI, 2011).

After poor performance implementing the Global Fund Round 2 grant, greater success has been achieved in more recent rounds. Uganda’s Round 4 application sought to support the introduction of ACTs nationwide. A \$66 million phase 1 was completed in February 2008 and a \$46 million phase 2 was due to end in December 2012. Over 32 million ACT treatments were procured and distributed (67% of the target) and over 34,000 health workers underwent training on the new drug policy. Six districts participated in a pilot of RDTs, 5300 health workers were trained on RDT policy (121% of target) and over 1,000 CMDs were trained in the use of ACTs for home-based management of fever (well short of the original target of 8,600) (Global Fund, 2008 and 2012).

A \$51 million Round 7 Phase 1 grant was signed in August 2008 to cover the purchase and distribution of 17.7 million long-lasting insecticidal nets (LLINs) over five years, beginning in 2009, through mass campaigns and routine distribution. Due to administrative delays this proposal was later revised to cover mass campaigns only, and 7.2 million nets were distributed with the assistance of PMI in 2010 (PMI, 2009). A \$61 million phase 2 grant was approved through 2014 for the procurement and distribution of additional LLINs.

Two additional Round 10 grants worth \$46 million were signed in 2012 for the procurement and distribution of RDTs, ACTs and LLINs, the training of village health teams in integrated community case management, the training of private, not-for-profit sector staff in malaria diagnostics and case management, and strengthened malaria surveillance and routine monitoring.

Since 2005, funding through PMI – the second-largest donor in Uganda – has supported IRS campaigns in 8 districts, and the procurement and distribution of 3.2 million LLINs, 1.9 million ACTs and 295,000 RDTs. In addition, PMI has supported the distribution of commodities procured by other donors, including an additional 2.8 million LLINs and 13.3 million ACTs (PMI, 2012).

1.3.7 AMFm Phase 1 pilot

In February 2011, Uganda signed its AMFm grant, making it the last of the participating countries to receive the manufacturer-level subsidy. Negotiations were held up over concerns that the inexpensive AMFm drugs would cause financial harm to local manufacturer, Quality Chemicals Industries Limited. Once WHO granted pre-qualification for local AL production in December of 2010, negotiations advanced. The initial order of AMFm drugs was further delayed by quantification discussions and confusion over public sector suppliers. The first order of co-paid ACTs was finally delivered to the NMS in July 2011 and a total of 20.7 million treatment courses were approved and delivered to the public sector in 2011. DfID and PMI made emergency procurements to re-supply dwindling stocks to the public and not-for-profit sector during AMFm negotiations.

The private not-for-profit sector procured its AMFm drugs through three registered first line buyers, receiving its first supply of co-paid ACTs in April 2011. A total of 1.1 million treatments were ordered and 0.6 million treatments were delivered to the Joint Medical Stores by the end of 2011. The private for-profit sector made orders through four registered first line buyers. A total of 15 orders were approved in 2011 for 7.9 million treatment courses and 6.9 million treatments were delivered by the end of the year. Supporting interventions for promotion of AMFm drugs had not begun as of August 2012.

Table 1.3.7.1 presents the timing of the baseline and endline household surveys, and the time between the midpoint of fieldwork and the first arrival of co-paid drugs.

Table 1.3.7.1: Timing of data collection for household surveys and arrival of co-paid ACTs

	Start date	End date	Date of first arrival of co-paid drugs in country	Time between midpoint of data collection and drugs arriving in country
Baseline	March 16, 2009	April 20, 2009	Apr 23, 2011	24 months
Endline	April 10, 2012	May 11, 2012	Apr 23, 2011	12 months

Additional information on the AMFm intervention is described elsewhere (ICF Macro and London School of Hygiene and Tropical Medicine, 2012).

1.3.8 Other research findings

Data from Demographic and Health Surveys (2012), Malaria Indicators Surveys (2009) and the ACTwatch baseline household survey (2009) is presented below for comparison with key results from this survey.

Results from DHS, MIS and ACTwatch surveys in Uganda

Background characteristics	Any antimalarial treatment		ACT treatment		Prompt ACT treatment		Source & date
	Percentage	N	Percentage	N	Percentage	N	
Uganda							ACTwatch Mar-Apr 2009
Residence							
Urban	na	na	na	na	na	na	
Rural	na	na	na	na	na	na	
Wealth quintiles							
Lowest	53.4	356	24.5	356	20.5	356	
Second	47.1	357	16.7	357	12.9	357	
Middle	46.2	343	15.8	343	14.0	343	
Fourth	53.2	360	20.8	360	18.1	360	
Highest	58.3	334	26.4	334	23.1	334	
Total	51.2	1752	20.8	1752	17.6	1752	
Uganda							MIS Nov-Dec 2009
Residence							
Urban	52.7	234	26.4	234	20.1	234	
Rural	60.7	1,433	22.8	1433	12.6	1,433	
Wealth quintiles							
Lowest	63.0	461	24.4	461	12.0	461	
Second	60.1	361	23.1	361	12.5	361	
Middle	54.5	338	20.9	338	13.6	338	
Fourth	57.2	277	22.0	277	14.0	277	
Highest	62.1	229	26.5	229	18.6	229	
Total	59.6	1,667	23.3	1,667	13.7	1,667	
Uganda							DHS Jun-Dec 2011
Residence							
Urban	63.6	345	45.5	345	33.4	345	
Rural	64.6	2,698	44.1	2,698	29.5	2,698	
Wealth quintiles							
Lowest	na	na	na	na	na	na	
Second	na	na	na	na	na	na	
Middle	na	na	na	na	na	na	
Fourth	na	na	na	na	na	na	
Highest	na	na	na	na	na	na	
Total	64.5	3,042	44.2	3,042	29.9	3,042	
Uganda							ACTwatch Apr-May 2012
Residence							
Urban	44.1	1,102	33.2	1,102	27.1	1,102	
Rural	55.5	1,171	46.6	1,171	37.5	1,171	
Wealth quintiles							
Lowest	58.7	451	49.4	451	40.2	451	
Second	56.1	465	47.6	465	35.4	465	
Middle	54.0	443	44.0	443	38.0	443	
Fourth	46.6	433	38.8	433	32.6	433	
Highest	38.1	418	26.3	418	19.5	418	
Total	53.5	2,273	44.2	2,273	35.6	2,273	

2. Methods

2.1 Household Survey

The primary objectives of household survey were to monitor key aspects of treatment-seeking behavior for fever in children under five between 2009 and 2012 nationally and in rural and urban areas. These include:

- use of diagnostic blood testing;
- presumptive antimalarial treatment;
- presumptive ACT treatment; and
- presumptive treatment with the national first-line antimalarial.

These comparisons provide information on the success of national malaria control efforts maintained or scaled up between 2009 and 2012, including the AMFm.

A secondary objective of this study was to estimate exposure to AMFm supporting interventions that were designed to create informed demand and lead to appropriate fever treatment-seeking behavior.

2.1.1 Sampling Approach

2.1.1.1 Target Population

The target population for this study was caregivers of children under five living in malaria-endemic areas (urban or rural) who have had fever in the past two weeks.

2.1.1.2 Sample Size

The household survey was designed to measure differences in indicators over time and between urban and rural strata. The following paragraphs summarise the methodology for determining the overall sample size needed to detect statistically significant changes in proportions over time.

The key question for powering the study was: How has presumptive antimalarial treatment of fever in children under five changed between 2009 and 2012 nationally and in urban and rural areas?

- Results from the ACTwatch baseline survey (2009) suggest that 51% of children under five with malaria in the past two weeks received treatment with any antimalarial. ACT treatment was 21%.
- The desired sample size would be able to detect a 10% change over time in treatment nationally, and within urban and rural areas.

The required number of children for a single domain was calculated using the following formula:

$$n = \frac{Deff \times \left(Z_{1-\alpha} \sqrt{2P(1-P)} + Z_{1-\beta} \sqrt{P_1(1-P_1) + P_2(1-P_2)} \right)^2}{(P_1 - P_2)^2}$$

where:

$$P_1 = 0.51$$

$$P_2 = 0.61$$

$$P = 0.56$$

and:

Deff = 2.0, the estimated design effect of the sampling strategy;

$Z_\alpha = 1.96$, corresponding to an α (type I) error of 5% with a two-sided test

$Z_{1-\beta} = 0.84$, corresponding to a power of test at 80% (or a type II error of 20%)

This gave a minimum required number of children under five with fever per strata of 771.

When estimating how many households would need to be screened in order to achieve this sample size we began by inflating this figure by 10% to allow for a certain level of non-response during survey implementation, giving 849 children. The next step was to convert the number of children required to households, and account for estimated fever prevalence.

The average household size was 3.8 in urban areas and 4.9 in rural areas, and children under five accounted for 19% of the population in urban and rural areas (UBOS and ICF Macro, 2010). Therefore the average number of children under five in urban households was 0.72 and in rural households was 0.95. A conservative fever prevalence estimate of 40% was used based on estimates from the 2009 Uganda MIS. Based on these assumptions, the number of households to be screened was 2,948 in urban areas and 2,235 in rural areas in order to achieve a sample of at least 849 fevers in urban and 849 fevers in rural areas.

2.1.1.3 Selection Procedure of the clusters/EAs

The 2002 Housing and Population Census was used as the sampling frame for the 2012 household survey. Sub-counties listed in the census were classified as either urban or rural (100 urban sub-counties and 858 rural). Before the urban and rural samples were drawn, the sampling frame was sorted by endemicity within the urban and rural domains in order to achieve an implicit stratification of malaria endemicity. Using the epidemiological profile of Uganda, areas with holo- and hyper-endemicity were described as high endemicity and areas of hypo- and meso- endemicity were described as low endemicity.

Nationally-representative samples were selected using stratified four-stage cluster sampling. A sampling summary is provided in Table 2.1.1.

For the 2011 outlet survey, 18 sub-counties were selected from the urban domain and 26 sub-counties selected from the rural domain with probability proportional to size (PPS). A second level of sampling was undertaken for selected sub-counties from Kampala. Being the capital city and main urban conurbation the populations in Kampala sub-counties (called “divisions”) are far higher than the average populations in other sub-counties. In order to aid fieldwork logistics and consistently select areas with a population in the range 10,000 to 15,000, one parish was randomly selected from each selected sub-county that fell within Kampala.

The 2012 household survey sampled from the same 44 sub-counties (parishes in Kampala) selected for the 2011 outlet survey. Within each sub-county the second-stage sample comprised 2 parishes

selected with PPS. At the third stage enumeration areas (EAs), villages, were drawn with PPS for each parish: 4 EAs per parish in urban areas and 2 EAs per parish in rural areas for a total of 248 villages. The final stage of selection involved the systematic selection of households from a list of households in each cluster, where households had been mapped prior to the survey. Systematic sampling with a specific skip interval was used to select households for screening. 22 households were selected from urban EAs and 21 households from rural EAs.

All caregivers with a child under five with fever in the past two weeks were eligible for inclusion in the survey. All caregivers with a child under five who were listed in the household were eligible to complete a questionnaire module on exposure and awareness of the AMFm.

	Urban areas	Rural areas	Total
Total number of sub-counties selected ¹	18	26	44
Total number of parishes selected	36	52	88
Number of villages selected per parish	4	2	--
Total number of villages	144	104	248
Number of households to be screened per village	21	22	--
Total number of households to be screened	3,024	2,288	5,312

¹ 7 urban clusters are parishes given the large size of the sub-counties selected in Kampala.

2.1.2 Questionnaire

Caregivers responded to a series of questions about management of fevers that had occurred among children in their care in the two weeks preceding the survey. Five household modules were used in the household survey: 1) a screening module, to identify households that were eligible for the full questionnaire or the supplementary AMFm awareness section; 2) a household listing of all the usual members in the selected households together with basic information on the characteristics of each person listed, including age, sex and for children under five, their primary caregiver; 3) a household questionnaire module, modelled after the Demographic and Health Survey (DHS), to collect information on housing characteristics and household assets to be used in assessment of relative socioeconomic status; 4) a treatment seeking module, which included questions documenting the type, timing, source and cost of treatments acquired for the child's fever; and 5) an AMFm awareness section, which included questions on caregiver exposure and awareness of the AMFm interventions and activities. Caregiver recall and recognition of the type of treatment acquired was aided by the use of a comprehensive antimalarial field guide with photographs and brand names of common antimalarials available in public and private sector outlets. Modules 1-4 were administered to caregivers with a child under five with fever in the last two weeks. Module 5 was administered to any caregiver with a child under five.

The questionnaire was translated into local languages (Ganda, Luo and Rutooro/Runyankole) through a process of forwards and backwards translation. Paper questionnaires were administered during data collection. The questionnaire was pretested prior to the main data collection.

2.1.3 Data Collection

2.1.3.1 Preparatory Phase

The study received ethical clearance from Uganda's ethical approval committee at the Ministry of Health on the 7th February 2012.

74 candidates participated in an eight-day household survey training between the 26th March and 3rd of April in Kampala. Standardised training materials developed by ACTwatch were adapted to the national setting, and administered by PACE research staff. Training session topics covered sampling and identifying households, gaining informed consent, and administration and completion of the questionnaire modules. Interviewers were trained on how to use the prompt cards and when to administer different sections of the questionnaire. A field practice session was undertaken to mimic actual data collection. Of the 69 candidates who completed the training, 64 were selected as field staff following a review of performance during the training.

Supervisors and quality controllers received additional training to clarify roles and responsibilities in the field. This training also included a review of logistical procedures to be followed during data collection, including the collection of field monitoring data. An additional training was held on the 31st March for the household mapping team, which was responsible for conducting the household census in each of the selected EAs.

2.1.3.2 Fieldwork

Eight teams carried out data collection, each consisting of one team supervisor, one quality controller, one mapper (working in advance of the arrival of the rest of the team) and five interviewers. One regional coordinator was responsible for managing the supervisors and ensuring that standardized methods were implemented. Fieldwork commenced on the 10th of April and was completed on the 11th May 2012.

For each household selected, geographic location and the household's longitude and latitude coordinates were recorded. The fieldworker then identified the household head or primary caregiver and administered the screening questions. All caregivers of children under five with fever in the two weeks preceding the survey were invited to participate in the study. Primary caregivers were identified based on their responsibilities as the main caregiver for the child with fever (i.e. responsible for daily care of the child including supervision, bathing and feeding). Primary caregivers were typically the child's mother, with the exception of orphaned and foster children. Additionally, all caregivers of children under five were eligible to complete a module assessing caregiver awareness of and exposure to the AMFm interventions and activities (i.e. irrespective of the child's recent fever status).

For households that were eligible for either the full questionnaire or the AMFm module, the fieldworker read an information sheet to the household head or representative and obtained witnessed oral consent to proceed with the interview. A full interview lasting approximately one hour was conducted with each caregiver of an eligible child. Informed consent was sought from each household member interviewed.

Throughout the planning, training and implementation of the survey, Standard Operating Procedures (SOPs) developed by ACTwatch were used to ensure the collection of high quality data and set out a framework for documenting challenges encountered during fieldwork.

2.1.4 Data Collection

Teams were accompanied by supervisors and quality controllers in the field. Quality controllers conducted spot checks on 10% of all households and supervisors observed 10% of interviews, verifying adherence to study procedures. Supervisory and quality control measures also included a daily review of team's questionnaires, which were checked for any inconsistencies, irregular skip patterns or large amounts of missing data.

At periodic intervals during data collection the regional coordinators would collect completed questionnaires from their local field teams and courier these to Kampala. Questionnaires arriving in Kampala were counted and stamped with a serial number. They were then couriered to Nairobi where they were double entered using MS Access 2007.

2.1.5 Data analysis

2.1.5.1 Data analysis process

Detailed guidelines, giving step by step instructions on how to clean the data using range and consistency checks, were utilized during the analysis process across all ACTwatch countries. Data cleaning and analysis was centralised to maintain consistency in methods and cleaning decisions. Commands executed during data cleaning were documented using syntax files, and the results archived in Stata log files.

A tabulation plan was used for the household survey report, and tables were produced using standardized data management and analysis syntax files in Stata.

2.1.5.2 Indicators

Indicators of treatment-seeking behaviour and treatment of fever were constructed from caregiver reports on treatment sources; type of treatments acquired (brand names); timing of treatments; and whether or not the child received a diagnostic blood test for malaria. Brand names were used to categorize drugs according to generic antimalarial types (e.g. chloroquine, quinine, artemether-lumefantrine). These were then further classified as artemisinin combination therapy (ACT), artemisinin monotherapy, or non-artemisinin monotherapy. Indicators were calculated using the three classes of antimalarials above, as well as an overall category for any antimalarial.

Consistent with indicators calculated by the DHS and Malaria Indicator Surveys (MIS), antimalarial treatment received the same or next day after onset of fever was used as a proxy measure for treatment within 24 hours of onset of fever and is considered prompt treatment.

Treatment sources were categorized as belonging to either the public/not for profit sector or private for-profit sector. Public health facilities (PHFs), community health workers (CHWs) and non-profit health facilities were classified as public/not for profit, with PHFs constituting the majority of this category. The private for-profit sector encompassed all other outlets, with or without qualified health workers, such as private for-profit health facilities, licensed pharmacies and unlicensed drug

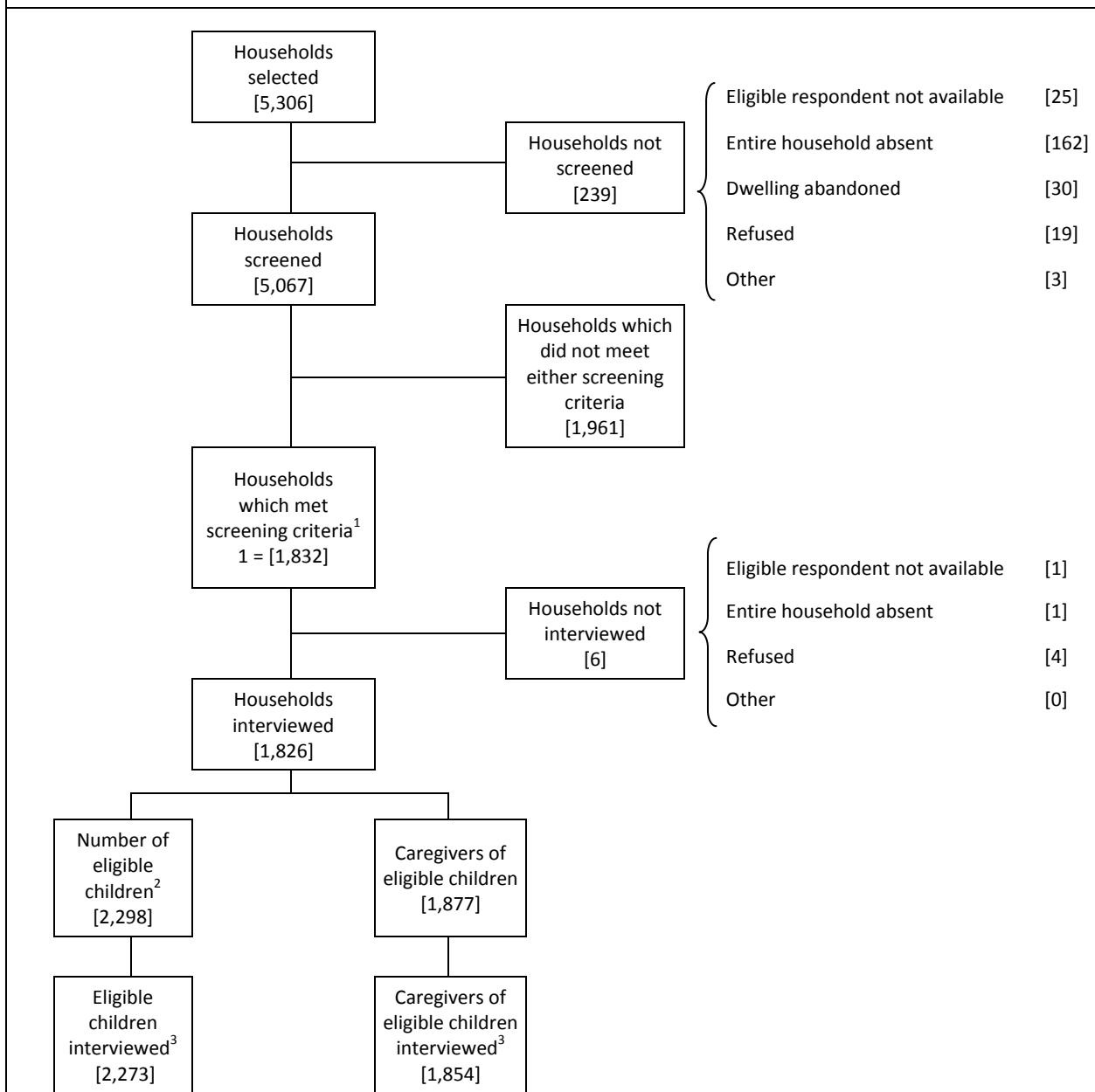
shops.

Household wealth status was assessed relative to other households using measures of housing characteristics, water, sanitation and household assets modelled after the DHS household questionnaire (www.measure.com). A wealth index was constructed from the individual indicators, which were assigned a weight through principal component analysis and standardized in relation to a standard normal distribution. Each child was categorized according to the value of their household's wealth index, and placed in one of five wealth quintiles, ranging from poorest to least poor.

3. Results:

3.1 Characteristics of the sample

Figure 3.1.1: Survey flow diagram



¹ Household includes at least one child under five with fever in the past two weeks.

² Eligible children means a child was under five years of age and had fever in the past two weeks.

³ Interviewed means the final interview status was *completed* or *partial*. *Partial* interviews are counted if the relevant Section of the question was at least begun: Section 4 for eligible children; Section 5 for caregivers of eligible children; the AMFm section for all caregivers.

Source: ACTwatch Household Survey, Uganda, 2012.

Table 3.1.1: Results of the household and individual interviews

Number of households, number of interviews, and response rates, according to location of residence (unweighted).

	Residence		Total
	Urban	Rural	
Household interviews			
Households selected	3,024	2,282	5,306
Households occupied	3,004	2,272	5,276
Households screened	2,833	2,234	5,067
Eligible households (criteria 1) ¹	917	915	1,832
Eligible households (criteria 2) ²	719	555	1,274
Household response rate ³	94.3	98.3	96.0
Interviews conducted on behalf of children under five with fever (criteria 1)			
Eligible children	1,113	1,185	2,298
Eligible children for whom fever treatment information was recorded	1,102	1,171	2,273
"Child" response rate ⁴	99.0	98.8	98.9
¹ Household includes at least one child under five with fever in the past two weeks. ² No children under five with fever in the past two weeks, but at least one child under five in the household. ³ Households screened / households occupied. ⁴ Children for whom fever treatment information was complete or interrupted / eligible children.			
Source: <i>ACTwatch</i> Household Survey, Uganda, 2012.			

Table 3.1.2: Demographic characteristics

Characteristics of children under five with fever in the two weeks preceding the survey, of children's caregivers, and of households for interviewed cases (unweighted).

	Number (Percentage)					
	Children under five with fever		Caregivers of children under five with fever		Households	
	N=2,273		N=1,853		N=1,826	
Strata						
Urban	1,102	(48.5)	921	(49.7)	913	(50.0)
Rural	1,171	(51.5)	932	(50.3)	913	(50.0)
Household wealth index						
Lowest	451	(19.8)	359	(19.4)	352	(19.3)
Second	465	(20.5)	360	(19.4)	352	(19.3)
Middle	443	(19.5)	361	(19.5)	352	(19.3)
Fourth	433	(19.1)	360	(19.4)	352	(19.3)
Highest	418	(18.4)	358	(19.3)	351	(19.2)
Missing	63	(2.8)	55	(3.0)	67	(3.7)
Age (years)						
Infants (<1 year)	500	(22.0)	-		-	
1	505	(22.2)	-		-	
2	417	(18.4)	-		-	
3	389	(17.1)	-		-	
4	462	(20.3)	-		-	
Sex						
Male	1,147	(50.5)	-		-	
Female	1,122	(49.4)	-		-	
Education						
No education	-		211	(11.4)	-	
Some primary	-		807	(43.6)	-	
Primary or higher	-		830	(44.8)	-	

Source: ACTwatch Household Survey, Uganda, 2012.

3.2 Treatment for fever

Table 3.2.1: Treatment of children with fever

Among children under five with fever in the two weeks preceding the survey the percentage who took antibiotic medicines, the percentage who took antipyretic medicines, the percentage who took antimalarial medicines, and the percentage who took the antimalarial medicines the same or next day following the onset of fever, by background characteristics.

	Percentage who took antibiotic medicines	Percentage who took antipyretic medicines	Percentage who took antimalarial medicines	Percentage who took antimalarial medicines same or next day	Number of children with fever
Age (in years)					
<1	33.3 (26.9, 40.4)	69.1 (61.9, 75.4)	43.8 (34.9, 53.1)	34.0 (26.6, 42.3)	500
1	32.8 (28.1, 38.0)	76.5 (71.4, 81.0)	55.6 (47.8, 63.2)	43.4 (36.4, 50.7)	505
2	28.9 (23.0, 35.5)	72.0 (65.5, 77.7)	53.9 (43.8, 63.7)	44.2 (34.9, 53.9)	417
3	26.9 (20.9, 33.9)	74.6 (66.1, 81.5)	55.9 (45.4, 65.8)	47.7 (38.6, 57.0)	389
4	27.3 (19.8, 36.4)	76.3 (67.3, 83.4)	59.0 (49.4, 67.9)	50.3 (41.4, 59.1)	462
Strata					
Urban	36.4 (31.5, 41.7)	77.5 (71.8, 82.4)	44.1 (37.5, 50.9)	36.1 (29.4, 43.4)	1,102
Rural	28.6 (24.9, 32.7)	72.8 (68.2, 76.9)	55.5 (47.3, 63.5)	45.3 (38.1, 52.8)	1,171
Caregiver's education					
No education	24.5 (17.7, 32.8)	70.0 (61.4, 77.3)	54.7 (43.5, 65.5)	39.6 (30.6, 49.3)	266
Some primary	26.3 (22.1, 30.9)	72.7 (67.5, 77.4)	57.0 (48.9, 64.8)	48.1 (40.7, 55.6)	996
Primary completed +	37.2 (32.9, 41.6)	75.9 (70.6, 80.6)	48.0 (41.3, 54.9)	38.8 (32.4, 45.7)	999
Wealth index					
Poorest	22.7 (18.5, 27.4)	70.7 (63.2, 77.2)	58.7 (47.6, 69.0)	48.4 (38.9, 58.1)	451
Second	29.4 (24.1, 35.3)	74.9 (68.8, 80.1)	56.1 (46.2, 65.5)	42.7 (34.1, 51.8)	465
Middle	33.0 (25.7, 41.2)	76.8 (71.1, 81.7)	54.0 (44.8, 62.9)	46.8 (38.8, 55.0)	443
Fourth	32.3 (24.1, 41.8)	71.4 (59.7, 80.8)	46.6 (34.8, 58.9)	39.5 (27.9, 52.4)	433
Richest	43.4 (33.9, 53.4)	75.5 (67.6, 82.1)	38.1 (30.1, 46.8)	28.5 (22.4, 35.6)	418
All children	30.0 (26.8, 33.5)	73.6 (69.8, 77.2)	53.5 (46.7, 60.2)	43.7 (37.6, 49.9)	2,273

Source: ACTwatch Household Survey, Uganda, 2012.

3.3 Diagnosis

Table 3.3.1: Diagnosis of fever among children under five

Among children under five with fever in the two weeks preceding the survey the percentage who had blood taken from finger or heel for testing; among children who had blood taken, the type of test received and the test result, by background characteristics.

	Percentage who reported having blood taken from finger or heel for testing	Number of children	Among children under five with fever who had blood taken for testing:						Number of children tested
			Percentage who received an RDT	Percentage who received microscopy	Percentage who don't know / missing test type	Percentage who self report positive for malaria	Percentage who self report negative for malaria	Percentage who don't know / missing test result	
Age (in years)									
<1	16.1 (11.9, 21.4)	497	54.7 (40.2, 68.5)	42.6 (29.8, 56.5)	5.4 (1.9, 14.4)	57.1 (43.9, 69.4)	29.8 (17.0, 46.8)	19.8 (11.0, 33.1)	105
1	21.1 (15.7, 27.7)	498	55.3 (42.9, 67.1)	37.9 (26.2, 51.1)	8.7 (3.9, 18.3)	68.6 (55.8, 79.1)	18.0 (9.4, 31.7)	13.7 (7.6, 23.4)	118
2	19.5 (13.6, 27.1)	412	51.5 (33.5, 69)	39.1 (24.5, 55.9)	10.8 (4.8, 22.4)	71 (53.3, 84)	14.4 (7.8, 25.2)	15.9 (7.2, 31.6)	93
3	15.8 (11.1, 21.9)	385	61.2 (45.7, 74.7)	34.6 (21.2, 51.0)	4.2 (1.4, 11.7)	78.1 (62.9, 88.2)	12.9 (5.1, 29.1)	9.0 (4.1, 18.4)	82
4	16.6 (10.8, 24.6)	452	31.4 (15.8, 52.9)	64.3 (43.4, 80.8)	4.3 (1.7, 10.3)	62.0 (35.5, 82.8)	27.4 (8.3, 61.1)	10.6 (4.4, 23.4)	75
Strata									
Urban	25.4 (20.4, 31.1)	1085	39.5 (31.2, 48.5)	53.8 (43.2, 64.1)	7.4 (3.9, 13.6)	69.5 (59.4, 78.0)	23.5 (15.2, 34.5)	9.2 (6.0, 13.9)	287
Rural	16.2 (12.4, 20.8)	1159	54.2 (40.8, 67.0)	40.5 (29.5, 52.5)	6.7 (3.7, 12.0)	66 (53.9, 76.3)	19.8 (10.2, 34.9)	15.7 (9.4, 25.2)	186
Caregiver's education									
No education	17.9 (12.0, 25.8)	262	71.0 (51.9, 84.7)	30.8 (16.0, 51.1)	0.0	72.2 (53.6, 85.3)	11.6 (4.6, 26.1)	16.3 (6.9, 33.7)	48
Some primary	13.4 (10.1, 17.5)	983	58.4 (47.0, 69.0)	35.2 (25.3, 46.6)	7.5 (3.9, 14)	71.3 (58.4, 81.5)	12.2 (6.8, 20.9)	17.1 (9.9, 27.7)	163
Primary completed +	23.9 (19, 29.6)	987	39.3 (26.6, 53.7)	53.7 (42.2, 64.8)	8.2 (4.6, 14.3)	62.3 (49.9, 73.2)	29.5 (17.0, 46.0)	11.2 (6.4, 18.9)	261
Wealth index									
Poorest	16.6 (12.1, 22.3)	447	58.4 (50.3, 66.2)	40.0 (32.1, 48.4)	3.3 (0.9, 11.7)	65.8 (51.6, 77.6)	14.0 (7.0, 25.9)	20.2 (10.2, 36.2)	75
Second	14.9 (10.9, 19.9)	460	59.5 (46.3, 71.5)	33.1 (20.0, 49.4)	8.4 (4.0, 17.1)	74.8 (58.9, 86.0)	10.3 (2.7, 32.2)	14.9 (8.1, 25.7)	72
Middle	14.5 (9.9, 20.8)	436	63.9 (47.5, 77.7)	30.5 (17.7, 47.3)	6.4 (2.1, 18.2)	73.2 (57.7, 84.5)	14.2 (6.3, 28.9)	18.3 (8.9, 34.2)	78
Fourth	20.0 (14.3, 27.4)	428	36.9 (19.1, 59.3)	60.5 (44.9, 74.2)	5.3 (1.9, 13.7)	66.1 (46.7, 81.2)	29.6 (14.6, 50.6)	7.0 (2.5, 18.2)	101
Richest	30.1 (22.5, 39.1)	410	23.7 (11.5, 42.6)	64.4 (47.9, 78.1)	12.1 (6.7, 20.8)	53.7 (36.0, 70.5)	39.8 (21, 62.3)	8.3 (3.7, 17.5)	129
All children	17.8 (14.5, 21.7)	2244	50.5 (40.3, 60.6)	43.9 (35.0, 53.1)	6.9 (4.3, 10.9)	66.9 (57.5, 75.1)	20.8 (12.9, 31.7)	14.1 (9.2, 20.9)	473

Source: ACTwatch Household Survey, Uganda, 2012.

Table 3.3.2: Source of diagnosis

Among children under five with fever in the two weeks preceding the survey who received a diagnosis, source of diagnostic test, by background characteristics.

	Public / not for profit sector				Private sector					At home	Missing or don't know	Number of children tested
	Public health facility	Community health worker	Private not-for-profit health facility	Total	Private health facility	Pharmacy / drug store	General retailer	Other	Total			
Age (in years)												
<1	51.5 (36.6, 66.1)	11.9 (2.9, 37.7)	5.0 (1.7, 14.2)	68.4 (54.1, 79.9)	38.0 (26.7, 50.8)	2.2 (0.6, 8.1)	0.0	0.0	40.2 (28.3, 53.4)	0.0	0.0	105
1	42.9 (28.2, 58.9)	6.6 (1.3, 27)	15.6 (6.1, 34.6)	63.3 (48.3, 76.1)	38.8 (26.3, 53.0)	1.4 (0.3, 7.3)	0.0	0.0	40.3 (27.4, 54.6)	0.0	0.0	118
2	52.2 (37.2, 66.8)	4.1 (1, 15.1)	17.1 (6.7, 37.4)	68.3 (54.7, 79.4)	27.0 (16.2, 41.5)	3.2 (0.7, 13.5)	0.0	0.0	30.2 (18.4, 45.5)	1.7 (0.3, 10.2)	0.0	93
3	47.6 (29.1, 66.8)	11.3 (2.6, 37.7)	17.4 (5.4, 43.7)	76.3 (60.8, 87)	23.2 (12.5, 38.8)	0.0	0.0	0.0	23.2 (12.5, 38.8)	0.5 (0.1, 4.1)	0.0	82
4	49.7 (26.9, 72.7)	3.5 (0.5, 22.5)	22.3 (5.6, 58.4)	75.6 (64.6, 84.0)	24.3 (15.9, 35.3)	0.2 (<0.1, 1.2)	0.0	0.0	24.4 (16.0, 35.4)	0.0	0.0	75
Strata												
Urban	27.7 (19.9, 37.1)	0.0	11.3 (6.0, 20.3)	39.0 (29.0, 50.1)	61.6 (50.5, 71.6)	1.1 (0.4, 2.9)	0.0	0.0	62.7 (51.7, 72.5)	0.3 (<0.1, 2.4)	0.0	287
Rural	55.7 (41.5, 69.1)	9.7 (2.5, 31.1)	16.8 (6.7, 36.1)	80.2 (70.6, 87.2)	20.6 (14.6, 28.1)	1.6 (0.6, 4.1)	0.0	0.0	22.2 (15.6, 30.5)	0.5 (0.1, 3.2)	0.0	186
Caregiver's education												
No education	63.4 (38.7, 82.7)	13.3 (1.8, 55.7)	10.6 (3.8, 26.3)	83.4 (67.1, 92.5)	15.7 (6.9, 31.9)	0.8 (0.2, 3.5)	0.0	0.0	16.6 (7.5, 32.9)	0.0	0.0	48
Some primary	59.3 (44.1, 72.9)	6.0 (1.1, 26.1)	11.2 (4.6, 24.7)	74.6 (61.7, 84.2)	22.6 (13.7, 34.8)	2.2 (0.7, 6.8)	0.0	0.0	24.8 (15, 38.2)	0.9 (0.1, 6.3)	0.0	163
Primary completed +	36.6 (25.3, 49.7)	6.6 (1.6, 23.7)	19.9 (8.6, 39.5)	62.5 (51.6, 72.4)	41.3 (32.4, 50.8)	1.1 (0.2, 4.9)	0.0	0.0	42.4 (33, 52.5)	0.2 (<0.1, 1.2)	0.0	261
Wealth index												
Poorest	63.0 (39.9, 81.3)	10.2 (1.9, 39.9)	18.5 (4.5, 52.2)	88.8 (75.7, 95.3)	7.5 (3.2, 16.7)	3.6 (1.2, 10.6)	0.0	0.0	11.2 (4.7, 24.3)	0.0	0.0	75
Second	68.1 (53.9, 79.6)	2.3 (0.3, 16.5)	5.9 (2, 15.8)	76.3 (63.4, 85.7)	23.7 (14.3, 36.6)	0.0	0.0	0.0	23.7 (14.3, 36.6)	0.0	0.0	72
Middle	51.9 (36.4, 67.0)	14.4 (3.8, 42.1)	10.3 (3.1, 29.6)	73.7 (54.7, 86.7)	28.3 (16.3, 44.4)	2.0 (0.4, 9.5)	0.0	0.0	30.2 (16.7, 48.3)	2.1 (0.3, 12.4)	0.0	78
Fourth	27.6 (16, 43.1)	11.5 (1.6, 50.9)	13.9 (4.8, 34)	51.1 (34.2, 67.8)	56 (41.8, 69.4)	1.1 (0.3, 4.6)	0.0	0.0	57.2 (42.7, 70.5)	0.5 (0.1, 4.2)	0.0	101
Richest	20.0 (11.8, 31.9)	0.0	26.9 (8.2, 60.1)	46.9 (27.3, 67.5)	54.8 (33.4, 74.5)	0.3 (<0.1, 2.8)	0.0	0.0	55.1 (33.6, 74.9)	0.0	0.0	129
All children	48.6 (38.1, 59.2)	7.2 (1.8, 24.4)	15.4 (7.3, 29.6)	69.7 (61.4, 76.9)	31.0 (24.7, 38.1)	1.5 (0.7, 3.2)	0.0	0.0	32.5 (25.8, 39.9)	0.4 (0.1, 2.1)	0.0	473

Source: ACTwatch Household Survey, Uganda, 2012.

3.4 Type of antimalarials taken and source of antimalarials

Table 3.4.1: Type of antimalarial medicines taken by children under five

Among children under five with fever in the two weeks preceding the survey, percentage who took specific antimalarial medicines after developing fever, by background characteristics.

	Any non-artemisinin therapy	SP	Chloroquine	Quinine	Other non-artemisinin therapy	Artemisinin monotherapy	Any ACT	First-line ACT (AL)	ACT with AMFm logo	Number of children with fever
Age (in years)										
<1	16.7 (11.4, 23.7)	2.3 (1.1, 4.8)	2.9 (1.2, 6.9)	11.4 (7.7, 16.7)	<0.1 (<0.1, 0.3)	1.3 (0.6, 3.0)	32.1 (24.8, 40.3)	31.9 (24.7, 40.2)	14.0 (9.8, 19.6)	499
1	14.3 (11.3, 18.1)	1.2 (0.5, 2.9)	2.4 (1.0, 6.1)	12.1 (9.5, 15.3)	0.4 (0.1, 1.7)	0.4 (0.1, 1.6)	46.1 (38.3, 54.2)	45.9 (37.9, 54)	20.1 (15.5, 25.6)	503
2	16.9 (12.1, 23.0)	1.0 (0.3, 2.8)	3.8 (1.7, 8.3)	13.7 (9.2, 20.1)	0.0	2.4 (0.9, 6.6)	43.3 (34.5, 52.6)	42.8 (33.9, 52.2)	16.6 (11.9, 22.8)	416
3	12.0 (9.2, 15.4)	0.9 (0.3, 2.5)	2.2 (0.9, 5.3)	9.2 (6.7, 12.4)	0.1 (<0.1, 0.7)	0.2 (0.1, 1.1)	47.7 (37.4, 58.3)	46.6 (36.5, 57.1)	17.8 (12.5, 24.7)	388
4	12.9 (9.1, 17.8)	0.5 (0.1, 2.1)	2.1 (0.8, 5.1)	10.4 (7.1, 14.9)	0.4 (0.1, 3.1)	0.9 (0.2, 3.1)	52.6 (43.6, 61.5)	52.4 (43.3, 61.3)	20.6 (15.0, 27.7)	459
Strata										
Urban	15.6 (12.7, 19)	1.4 (0.8, 2.5)	0.8 (0.4, 1.6)	13.8 (10.8, 17.5)	0.3 (0.1, 1.0)	1.1 (0.4, 2.5)	33.2 (27.4, 39.6)	32.1 (26.2, 38.6)	11.5 (7.4, 17.4)	1,097
Rural	14.4 (12, 17.2)	1.2 (0.6, 2.3)	3.1 (2.1, 4.5)	10.9 (8.7, 13.6)	0.2 (<0.1, 0.7)	1.1 (0.5, 2.5)	46.6 (38.7, 54.5)	46.3 (38.4, 54.3)	19.2 (15.0, 24.3)	1,168
Caregiver's education										
No education	14.6 (10.5, 19.9)	1.2 (0.3, 4.4)	4.3 (1.9, 9.4)	8.6 (5.9, 12.5)	0.4 (0.1, 3.0)	4.1 (1.3, 12.2)	40.6 (30.9, 51.2)	40.2 (30.4, 50.7)	16.7 (10.2, 26.2)	265
Some primary	14.3 (11.8, 17.2)	1.2 (0.6, 2.6)	2.8 (1.6, 4.7)	11.5 (8.9, 14.7)	0.2 (<0.1, 1.3)	0.6 (0.3, 1.2)	48.8 (41.2, 56.4)	48.4 (40.7, 56.1)	20.4 (16.1, 25.6)	991
Primary completed +	15.2 (12.3, 18.7)	1.2 (0.6, 2.3)	2.0 (1.1, 3.3)	12.4 (9.7, 15.8)	0.1 (<0.1, 0.5)	0.7 (0.3, 1.7)	38.9 (32.4, 45.8)	38.4 (31.9, 45.4)	14.9 (10.7, 20.3)	998
Wealth index										
Poorest	13.5 (9.6, 18.7)	0.7 (0.2, 2.3)	3.2 (1.5, 6.9)	10.4 (6.9, 15.3)	0.5 (0.1, 2.3)	0.6 (0.2, 1.9)	47.6 (37.4, 58.0)	47.4 (37.2, 57.8)	19.3 (14.2, 25.6)	465
Second	15.4 (10.9, 21.2)	1.2 (0.4, 3.2)	3.5 (1.7, 7.1)	10.8 (7.4, 15.5)	0.0	0.1 (<0.1, 0.5)	44.0 (36, 52.5)	44.0 (35.9, 52.4)	17.3 (12.4, 23.4)	440
Middle	11.8 (7.4, 18.2)	1.7 (0.4, 6.2)	1.5 (0.5, 4.1)	9.4 (6.1, 14.2)	0.2 (<0.1, 0.8)	1.1 (0.4, 3.5)	38.8 (26.8, 52.4)	38.0 (26, 51.6)	18.5 (9.4, 33.2)	431
Fourth	16 (11.9, 21.2)	1.3 (0.5, 3.1)	0.8 (0.2, 3.0)	14.7 (10.2, 20.5)	0.3 (<0.1, 1.8)	1.2 (0.4, 3.2)	26.3 (19.7, 34.3)	25.0 (18.8, 32.4)	6.0 (3.1, 11.4)	417
Richest	13.5 (9.6, 18.7)	0.7 (0.2, 2.3)	3.2 (1.5, 6.9)	10.4 (6.9, 15.3)	0.5 (0.1, 2.3)	0.6 (0.2, 1.9)	47.6 (37.4, 58)	47.4 (37.2, 57.8)	19.3 (14.2, 25.6)	465
All children	14.6 (12.5, 17.0)	1.2 (0.7, 2.1)	2.7 (1.8, 3.8)	11.4 (9.5, 13.7)	0.2 (0.1, 0.6)	1.1 (0.5, 2.2)	44.2 (37.7, 50.8)	43.7 (37.2, 50.5)	17.8 (14.2, 22.1)	2,265

Source: ACTwatch Household Survey, Uganda, 2012.

Table 3.4.2: Type of antimalarial medicines taken promptly by children under five

Among children under five with fever in the two weeks preceding the survey, percentage who took specific antimalarial medicines the same or next day after developing fever, by background characteristics.

	Any non-artemisinin therapy	SP	Chloroquine	Quinine	Other non-artemisinin therapy	Artemisinin monotherapy	Any ACT	First Line ACT (AL)	ACT with AMFm logo	Number of children with fever
Age (in years)										
<1	11.8 (7.7, 17.6)	1.7 (0.8, 3.9)	2.2 (0.9, 5.1)	7.8 (4.9, 12.4)	<0.1 (<0.1, 0.3)	0.9 (0.3, 2.6)	25.3 (18.9, 33)	25.2 (18.8, 32.9)	10.4 (6.8, 15.8)	500
1	10.6 (7.9, 14.0)	1 (0.3, 2.6)	1.8 (0.7, 4.7)	8.5 (6.3, 11.4)	0.4 (0.1, 1.7)	0.3 (0.1, 1.3)	35.1 (28.8, 42.1)	34.9 (28.4, 41.9)	14.5 (10.8, 19.1)	505
2	13.2 (8.7, 19.5)	0.9 (0.3, 2.8)	3.1 (1.3, 7.3)	10.5 (6.3, 17)	0.0	2.1 (0.7, 6.1)	35.2 (26.9, 44.5)	35.1 (26.8, 44.3)	13.8 (9.5, 19.7)	417
3	10.1 (7.5, 13.4)	0.5 (0.1, 1.9)	2.2 (0.9, 5.3)	7.8 (5.7, 10.6)	0.1 (<0.1, 0.7)	0.2 (0.1, 0.9)	39.4 (30.4, 49.3)	39.0 (30.0, 48.8)	14.1 (9.4, 20.6)	389
4	10.7 (7.2, 15.7)	0.5 (0.1, 2.2)	1.6 (0.5, 4.7)	8.6 (5.6, 13.1)	0.4 (0.1, 3.1)	0.6 (0.2, 2.3)	44.1 (35.3, 53.3)	43.8 (35.0, 53.1)	16.8 (11.4, 24.1)	462
Strata										
Urban	10.8 (8.4, 13.8)	1.1 (0.6, 2.2)	0.7 (0.4, 1.5)	9.3 (6.9, 12.5)	0.3 (0.1, 1)	0.7 (0.3, 1.6)	27.1 (21.2, 33.8)	26.1 (20.2, 32.9)	8.6 (5.1, 14.2)	1,102
Rural	11.4 (9.4, 13.7)	0.9 (0.4, 1.7)	2.5 (1.6, 3.7)	8.5 (6.6, 10.9)	0.2 (<0.1, 0.7)	0.9 (0.4, 2.1)	37.5 (30.6, 44.9)	37.4 (30.5, 44.9)	15.0 (11.6, 19.3)	1,171
Caregiver's education										
No education	10.9 (7.2, 16.2)	1.1 (0.3, 4.5)	2.4 (0.9, 6.6)	6.9 (4.5, 10.5)	0.4 (0.1, 3)	3.2 (1.1, 9)	27.7 (19.9, 37.2)	27.7 (19.9, 37.2)	8.9 (5.2, 14.9)	266
Some primary	11.5 (9.1, 14.3)	0.9 (0.5, 1.7)	2.5 (1.4, 4.4)	9 (6.6, 12.0)	0.2 (<0.1, 1.3)	0.5 (0.2, 1.1)	40.7 (34.2, 47.7)	40.6 (34.0, 47.6)	16.9 (13.2, 21.4)	996
Primary completed +	11.3 (9.0, 14.1)	0.9 (0.4, 2.1)	1.6 (0.9, 2.8)	8.9 (6.7, 11.8)	0.1 (<0.1, 0.5)	0.5 (0.2, 1.5)	31.1 (24.6, 38.3)	30.6 (24.2, 37.9)	11.7 (8.1, 16.7)	999
Wealth index										
Poorest	12.1 (8.5, 17)	0.8 (0.3, 2.3)	1.8 (0.7, 4.5)	9.5 (5.8, 15.1)	0.0	1.9 (0.6, 5.3)	40.2 (31.1, 50.0)	40.0 (30.9, 49.9)	17.2 (12.0, 23.9)	451
Second	10.1 (7.1, 14.2)	0.5 (0.1, 2.3)	2.7 (1.2, 6.1)	7.5 (4.8, 11.3)	0.5 (0.1, 2.3)	0.5 (0.1, 1.8)	35.4 (27.2, 44.6)	35.4 (27.2, 44.6)	13.9 (10.2, 18.7)	465
Middle	12.8 (9.3, 17.3)	1.1 (0.4, 3.2)	2.7 (1.3, 5.5)	9.0 (6.2, 13.0)	0.0	0.1 (<0.1, 0.5)	38.0 (30.4, 46.3)	38.0 (30.3, 46.3)	13.9 (9.6, 19.8)	443
Fourth	9.0 (5.4, 14.8)	1.3 (0.3, 4.8)	1.5 (0.5, 4.1)	6.6 (4.1, 10.5)	0.2 (<0.1, 0.8)	0.5 (0.2, 1.6)	32.6 (21.0, 46.9)	32.4 (20.7, 46.6)	15.6 (7.0, 31.3)	433
Richest	9.8 (6.4, 14.9)	0.9 (0.2, 2.9)	0.8 (0.2, 3.0)	8.9 (5.4, 14.5)	0.3 (<0.1, 1.8)	1.1 (0.4, 3.2)	19.5 (13.1, 28.0)	18.2 (12.3, 26.1)	4.7 (2.1, 10.0)	418
All children	11.3 (9.6, 13.2)	0.9 (0.5, 1.6)	2.2 (1.4, 3.2)	8.6 (7, 10.6)	0.2 (0.1, 0.6)	0.8 (0.4, 1.8)	35.6 (29.9, 41.8)	35.4 (29.6, 41.6)	13.9 (11.0, 17.5)	2,273

Source: ACTwatch Household Survey, Uganda, 2012.

Table 3.4.3: Type of antimalarial medicines taken among children who received an antimalarial

Among children under five with fever in the two weeks preceding the survey who received an antimalarial, percentage who took specific antimalarial medicines, by background characteristics.

	Any non-artemisinin therapy	SP	Chloroquine	Quinine	Other non-artemisinin therapy	Artemisinin monotherapy	Any ACT	First Line ACT (AL)	ACT with AMFm logo	Number of children who received an antimalarial
Age (in years)										
<1	38.0 (27.8, 49.4)	5.3 (2.6, 10.6)	6.5 (2.7, 15.0)	26.1 (18.8, 35.0)	0.1 (<0.1, 0.6)	3.0 (1.4, 6.5)	73.2 (63.6, 81.0)	72.9 (63.3, 80.7)	31.9 (24.7, 40.1)	191
1	25.7 (20.1, 32.4)	2.2 (0.9, 5.4)	4.4 (1.7, 10.6)	21.8 (17.3, 27.0)	0.7 (0.2, 3.0)	0.8 (0.2, 2.8)	82.9 (75.3, 88.6)	82.4 (74.8, 88.1)	36.2 (29.2, 44.0)	277
2	31.3 (22.7, 41.4)	1.8 (0.6, 5.1)	7.0 (3.1, 14.9)	25.5 (17.0, 36.3)	0.0	4.5 (1.8, 11.2)	80.3 (73.8, 85.5)	79.4 (72.8, 84.7)	30.9 (24.1, 38.7)	227
3	21.4 (15.4, 29.0)	1.6 (0.6, 4.6)	3.9 (1.5, 9.6)	16.5 (11.4, 23.2)	0.2 (<0.1, 1.3)	0.4 (0.1, 1.9)	85.4 (79.1, 90.1)	83.5 (76.9, 88.5)	31.9 (24.4, 40.5)	218
4	21.8 (15.4, 29.9)	0.9 (0.2, 3.6)	3.5 (1.4, 8.8)	17.6 (12.1, 24.8)	0.7 (0.1, 4.9)	1.5 (0.4, 5.5)	89.2 (83.7, 93.1)	88.7 (83.2, 92.6)	35.0 (27.5, 43.4)	264
Strata										
Urban	35.3 (29.8, 41.2)	3.3 (1.9, 5.4)	1.8 (0.9, 3.7)	31.4 (25.4, 38.1)	0.7 (0.2, 2.2)	2.4 (1.0, 5.4)	75.4 (69.5, 80.6)	72.8 (66.6, 78.3)	26.2 (18.6, 35.5)	523
Rural	25.9 (21.4, 31)	2.1 (1.1, 4.1)	5.5 (3.6, 8.5)	19.6 (15.8, 24)	0.3 (0.1, 1.2)	1.9 (0.8, 4.3)	83.8 (79.9, 87.2)	83.4 (79.3, 86.8)	34.6 (30.2, 39.4)	654
Caregiver's education										
No education	26.6 (19.1, 35.8)	2.2 (0.6, 7.8)	7.9 (3.6, 16.3)	15.8 (10.5, 23.1)	0.7 (0.1, 5.5)	7.5 (2.6, 19.9)	74.2 (63.7, 82.6)	73.4 (62.6, 81.9)	30.6 (20.5, 42.9)	135
Some primary	25.1 (20.8, 29.9)	2.1 (1.0, 4.7)	4.9 (2.7, 8.8)	20.1 (16.1, 24.9)	0.3 (<0.1, 2.2)	1.0 (0.5, 2.1)	85.5 (81.3, 88.9)	84.8 (80.5, 88.3)	35.9 (30.0, 42.3)	563
Primary completed +	31.7 (25.4, 38.7)	2.5 (1.3, 4.8)	4.1 (2.4, 6.8)	25.8 (20.0, 32.7)	0.3 (0.1, 1.0)	1.5 (0.6, 3.6)	80.9 (75.4, 85.5)	80 (74.3, 84.6)	31.0 (24.3, 38.6)	471
Wealth index										
Poorest	26.2 (18.8, 35.1)	2.2 (0.7, 6.4)	4.5 (2.0, 9.8)	20.1 (13.3, 29.4)	0.0	3.9 (1.4, 10.3)	84.2 (77.8, 89.0)	83.5 (76.9, 88.5)	37.2 (30.5, 44.5)	271
Second	24.1 (16.5, 33.7)	1.3 (0.4, 4.5)	5.8 (2.4, 13.5)	18.5 (12.7, 26.0)	1.0 (0.2, 3.9)	1.1 (0.4, 3.2)	84.9 (77.4, 90.2)	84.5 (77.1, 89.9)	34.4 (27.7, 41.8)	254
Middle	28.4 (20.9, 37.4)	2.2 (0.8, 5.8)	6.5 (3.2, 12.7)	20.0 (14.2, 27.6)	0.0	0.1 (<0.1, 0.9)	81.5 (73.7, 87.5)	81.4 (73.6, 87.4)	32.0 (24.7, 40.3)	252
Fourth	25.2 (14.3, 40.6)	3.6 (0.9, 13.4)	3.2 (1.1, 9.2)	20.1 (11.8, 32.2)	0.4 (0.1, 1.8)	2.5 (0.8, 7.5)	83.3 (71.1, 91.0)	81.4 (68.9, 89.7)	39.9 (24.3, 57.7)	199
Richest	41.9 (31.5, 53.2)	3.4 (1.5, 7.6)	2.1 (0.5, 7.8)	38.4 (27.3, 50.9)	0.7 (0.1, 4.6)	3.1 (1.0, 9.3)	69.0 (58.6, 77.8)	65.5 (55.9, 74.1)	15.8 (9.3, 25.6)	162
All children	27.3 (23.3, 31.8)	2.3 (1.3, 3.9)	5.0 (3.3, 7.5)	21.3 (17.9, 25.2)	0.4 (0.1, 1.0)	2.0 (1, 3.9)	82.6 (79.1, 85.6)	81.8 (78.2, 84.9)	33.4 (29.3, 37.7)	1,177

Source: ACTwatch Household Survey, Uganda, 2012.

Table 3.4.4: Source of antimalarials

Among children under five with fever in the two weeks preceding the survey who received an antimalarial treatment, the source of antimalarial treatment, by background characteristics.

	Public / not for profit sector			Private sector					At home ¹	Missing or don't know	Number of children who received an antimalarial	
	Public health facility	Community health worker	Private not-for-profit health facility	Total	Private health facility	Pharmacy / drug store	General retailer	Other				Total
Age (in years)												
<1	30.9 (21.4, 42.3)	2.7 (0.6, 11.2)	1.7 (0.5, 5.1)	34.6 (24.3, 46.6)	36.3 (25.7, 48.5)	19.4 (11.9, 30.2)	0.0	0.0	55.7 (46, 65.1)	15.1 (9.7, 22.7)	0.0	191
1	29.0 (21.4, 38.1)	5.1 (1.9, 12.9)	2.8 (0.9, 8.5)	36.9 (27.8, 47.0)	28.0 (21.9, 35.0)	15.5 (9.5, 24.2)	1.4 (0.2, 7.4)	0.0	44.4 (35.7, 53.4)	22.9 (16.5, 30.8)	0.0	277
2	25.3 (18.0, 34.3)	5.0 (1.1, 20.5)	4.9 (1.5, 14.6)	34.2 (24.6, 45.4)	33.4 (24.7, 43.3)	18.7 (12.5, 27.0)	1.8 (0.5, 6.6)	0.0	53.7 (44.8, 62.4)	22.0 (16.0, 29.4)	0.0	227
3	27.2 (17.5, 39.7)	5.6 (1.8, 15.9)	5.1 (1.6, 14.9)	37.8 (27.0, 50.0)	19.6 (12.8, 28.7)	21.7 (15.0, 30.5)	1.9 (0.5, 7.7)	0.0	42.0 (32.5, 52.2)	26.8 (18.3, 37.6)	0.0	218
4	26.9 (18.6, 37.3)	8.3 (1.6, 33.5)	1.4 (0.6, 3.5)	36.3 (25.7, 48.4)	22.6 (16.3, 30.5)	19.5 (13.1, 28.0)	0.2 (<0.1, 0.9)	0.0	42.3 (31.6, 53.7)	28.5 (19.7, 39.2)	0.0	264
Strata												
Urban	18.7 (14.3, 24.1)	0.8 (0.1, 5.4)	4.4 (2.4, 8.0)	23.9 (19.4, 29.1)	47.5 (38, 57.1)	12.9 (8.6, 18.9)	0.6 (0.2, 2.3)	0.0	60.8 (53.7, 67.4)	23.0 (16.4, 31.3)	0.0	523
Rural	29.4 (21.9, 38.3)	6.3 (2.0, 18.1)	2.8 (0.9, 8.4)	38.1 (29.7, 47.3)	24.3 (19.3, 30.2)	19.9 (14.5, 26.6)	1.1 (0.3, 3.5)	0.0	45.0 (38.1, 52.0)	23.4 (18.1, 29.6)	0.0	654
Caregiver's education												
No education	30.8 (20.3, 43.8)	5.2 (1.2, 19.8)	1 (0.1, 7.3)	37.0 (25.5, 50.2)	30.5 (21.0, 42.1)	21.4 (14.5, 30.5)	1.5 (0.2, 9.7)	0.0	53.4 (40.7, 65.6)	16.2 (10.4, 24.5)	0.0	135
Some primary	27.2 (18.3, 38.3)	6.2 (1.7, 20.2)	1.8 (0.7, 4.4)	34.9 (25.1, 46.1)	21.6 (16.9, 27.3)	22.3 (16.2, 29.9)	0.9 (0.3, 3.0)	0.0	44.6 (36.6, 53.0)	26.1 (20.7, 32.4)	0.0	563
Primary completed +	27.5 (21.1, 35.0)	4.5 (1.4, 13.4)	6 (2.5, 13.5)	37.3 (29.8, 45.6)	36.9 (29.8, 44.7)	11.9 (7.6, 18.3)	1.1 (0.3, 3.9)	0.0	49.3 (41.9, 56.8)	21.7 (15.3, 29.7)	0.0	471
Wealth index												
Poorest	28.0 (17.3, 42.1)	2.5 (0.4, 13.0)	3.9 (0.7, 18.3)	33.8 (21.8, 48.3)	20.0 (13.8, 28.0)	26.7 (18.4, 37.0)	2.1 (0.5, 9.1)	0.0	48.2 (38.1, 58.4)	25.0 (16.6, 36.0)	0.0	271
Second	38.8 (30.7, 47.6)	3.5 (1, 11.1)	1.2 (0.4, 3.4)	43.1 (35.4, 51.1)	27.2 (20.4, 35.2)	15.0 (9.4, 23.3)	1.3 (0.4, 3.8)	0.0	43.5 (36.0, 51.2)	18.7 (13.6, 25.1)	0.0	254
Middle	26.7 (19.3, 35.6)	5.7 (2.3, 13.5)	2.0 (0.5, 8.6)	34.4 (26.1, 43.8)	26.6 (20.3, 34.1)	18.2 (11.6, 27.3)	0.0	0.0	44.7 (35.9, 53.9)	28.4 (20.8, 37.5)	0.0	252
Fourth	13.3 (7.6, 22.3)	21.6 (4.6, 61.0)	5.5 (1.8, 15.7)	39.6 (19, 64.7)	35.9 (21.7, 53.1)	13.2 (7.3, 22.8)	0.0	0.0	48.2 (28.9, 68.1)	19.4 (11.7, 30.4)	0.0	199
Richest	16.7 (9.2, 28.4)	1.2 (0.2, 8.6)	6.0 (2.8, 12.1)	23.9 (16.3, 33.6)	47.8 (33.1, 62.9)	10.6 (5.1, 20.8)	0.0	0.0	58.2 (45.5, 69.9)	21.4 (12.1, 35.1)	0.0	162
All children	27.8 (21.4, 35.4)	5.5 (1.8, 15.6)	3.1 (1.3, 7.3)	36.0 (28.8, 43.8)	27.8 (23.1, 33.0)	18.9 (14.2, 24.6)	1.0 (0.3, 3.0)	0.0	47.3 (41.4, 53.3)	23.3 (18.7, 28.7)	0.0	1,177

¹ The most common original sources for antimalarials obtained from home were: public health facility (44%, n=130), private clinic (25%, n=72) and drug shop (17%, n=49) (unweighted).

Source: ACTwatch Household Survey, Uganda, 2012.

Table 3.4.5: Source of ACTs

Among children under five with fever in the two weeks preceding the survey who received an ACT, the source of treatment, by background characteristics.

	Public / not for profit sector			Private sector					At home ¹	Missing or don't know	N. of children who received ACT	
	Public health facility	Community health worker	Private not-for-profit health facility	Total	Private health facility	Pharmacy / drug store	General retailer	Other				Total
Age (in years)												
<1	35.2 (24.0, 48.2)	3.7 (0.8, 14.9)	2.2 (0.7, 6.8)	40.1 (27.9, 53.6)	24.6 (15.5, 36.7)	18.9 (10.6, 31.5)	0.0	0.0	43.5 (33.3, 54.3)	17.3 (10.1, 28.1)	0.0	138
1	29.6 (21.2, 39.7)	6.1 (2.3, 15.4)	2.3 (0.7, 7.2)	38.0 (28.1, 49.0)	26.2 (20.1, 33.3)	16.2 (9.9, 25.3)	1.4 (0.2, 9.7)	0.0	43.8 (35.1, 52.9)	21.7 (15.3, 29.9)	0.0	224
2	28.6 (20.1, 39.1)	6.3 (1.4, 24.7)	2.1 (0.6, 7.4)	36.4 (25.7, 48.7)	30.9 (22.4, 41.0)	15.6 (9.4, 24.8)	0.9 (0.1, 6.3)	0.0	47.5 (38.0, 57.2)	24.0 (17.4, 32.1)	0.0	182
3	29.5 (18.9, 42.8)	6.5 (2.1, 18.5)	5.6 (1.6, 17.4)	41.6 (29.5, 54.8)	15.7 (10.1, 23.5)	18.0 (11.8, 26.5)	2.3 (0.5, 9.0)	0.0	35.9 (26.5, 46.5)	26.3 (17.9, 36.8)	0.0	178
4	27.1 (18.3, 38.3)	9.3 (1.8, 36.3)	1.5 (0.6, 4.0)	37.5 (26.0, 50.6)	21.3 (15.2, 29.0)	16.9 (10.7, 25.7)	0.0	0.0	38.3 (27.6, 50.2)	28.7 (19.3, 40.4)	0.0	226
Strata												
Urban	20.2 (15.1, 26.6)	1.0 (0.1, 6.9)	3.2 (1.5, 6.6)	24.5 (19.0, 30.8)	43.4 (34.0, 53.2)	11.1 (7.4, 16.2)	0.0	0.0	54.4 (46.3, 62.3)	24.4 (16.1, 35.1)	0.0	401
Rural	31.1 (23.0, 40.6)	7.5 (2.4, 21.4)	2.5 (1.0, 6.1)	40.8 (31.3, 50.9)	20.6 (15.3, 27.0)	18.0 (13.1, 24.1)	1.0 (0.3, 3.4)	0.0	39.6 (31.9, 47.8)	24.0 (18.2, 30.9)	0.0	547
Caregiver's education												
No education	34.9 (21.5, 51.2)	7.0 (1.6, 25.9)	0.0	42.0 (27.1, 58.4)	28.8 (17.9, 42.9)	14.0 (8.4, 22.5)	0.0	0.0	42.8 (28.4, 58.7)	17.8 (11.1, 27.3)	0.0	100
Some primary	29.9 (20.1, 41.8)	7.3 (2.0, 23.4)	1.4 (0.6, 3.2)	38.1 (27.2, 50.5)	18.3 (13.4, 24.6)	20.9 (15.0, 28.4)	0.9 (0.2, 3.6)	0.0	40.1 (31.3, 49.6)	25.6 (20.1, 32.1)	0.0	463
Primary completed +	27.2 (19.9, 36)	5.6 (1.8, 16.3)	5.8 (2.7, 11.9)	38.1 (29.7, 47.3)	31.3 (24.4, 39.1)	11.1 (6.6, 17.9)	1.3 (0.3, 4.9)	0.0	43.6 (35.7, 51.9)	23.7 (16.3, 33.1)	0.0	377
Wealth index												
Poorest	28.8 (17.2, 44.1)	2.9 (0.5, 15.1)	2.2 (0.6, 8.5)	33.2 (20.8, 48.5)	17.1 (11.1, 25.4)	25.5 (17.5, 35.6)	1.8 (0.4, 7.5)	0.0	44.4 (33.8, 55.5)	24.8 (15.9, 36.5)	0.0	228
Second	41.8 (32.9, 51.3)	4.1 (1.2, 13.2)	1.4 (0.5, 4)	46.8 (38.0, 55.8)	23.8 (16.1, 33.6)	12.6 (7.7, 20.2)	1.2 (0.3, 4.4)	0.0	37.7 (29.1, 47.1)	19.5 (13.7, 27.1)	0.0	208
Middle	29.1 (20.6, 39.4)	7.0 (2.7, 17)	2.5 (0.6, 10.2)	38.6 (28.8, 49.4)	21.4 (14.4, 30.6)	15.2 (8.0, 27.0)	0.0	0.0	36.6 (26.0, 48.6)	30.5 (21.5, 41.2)	0.0	205
Fourth	11.3 (5.6, 21.7)	25.9 (5.8, 66.6)	5.2 (1.3, 18.5)	42.5 (18.9, 70.0)	29.7 (16.5, 47.5)	10.8 (5.0, 21.7)	0.0	0.0	40.5 (22.0, 62.1)	21.4 (12, 35.2)	0.0	154
Richest	20.1 (10, 36.4)	1.8 (0.3, 11.6)	5.4 (2.2, 12.8)	27.3 (17.6, 39.9)	44.5 (30.3, 59.6)	8.8 (3.9, 18.5)	0.0	0.0	53.3 (38.7, 67.3)	21.4 (11.2, 37.2)	0.0	120
All children	29.7 (22.6, 37.9)	6.7 (2.2, 18.7)	2.6 (1.2, 5.5)	38.6 (30.4, 47.4)	23.7 (18.8, 29.3)	17.0 (12.8, 22.4)	0.9 (0.3, 2.9)	0.0	41.6 (34.8, 48.7)	24.0 (18.8, 30.2)	0.0	948

¹ The most common original sources for ACTs obtained from home were: public health facility (52%, n=126), private clinic (20%, n=47) and drug shop (15%, n=37) (unweighted).

Source: ACTwatch Household Survey, Uganda, 2012.

Table 3.4.6: Source of ACTs with the AMFm logo, among children under five with fever who received an AMFm logo ACT

Among children under five with fever in the two weeks preceding the survey who received an ACT with the AMFm logo, the source of treatment, by background characteristics.

	Public / not for profit sector				Private sector				At home		Missing / don't know	N. of children receiving logo ACT
	Public health facility	Community health worker	Private not-for-profit health facility	Total	Private health facility	Pharmacy / drug store	General retailer	Other	Total	At home ¹		
Age (in years)												
<1	37.3 (25.9, 50.4)	5.0 (0.6, 30.5)	1.8 (0.2, 12.6)	44.1 (30.7, 58.5)	15.4 (8.2, 26.9)	18.0 (8.5, 34.1)	0.0	0.0	33.3 (21.5, 47.7)	22.5 (13.7, 34.8)	0.0	55
1	36.4 (24.7, 50.1)	10.1 (2.8, 30.5)	0.2 (<0.1, 1.3)	46.7 (33.3, 60.7)	13.0 (6.8, 23.4)	15.4 (8.2, 27)	1.5 (0.2, 10.3)	0.0	29.9 (18.7, 44.0)	28.4 (18.8, 40.5)	0.0	94
2	32.0 (19.7, 47.5)	6.6 (0.8, 36.9)	1.7 (0.3, 10.4)	40.3 (26.4, 56)	25.2 (14.8, 39.5)	11.8 (5.2, 24.4)	0.0	0.0	37.0 (25.1, 50.7)	25.4 (13.6, 42.4)	0.0	68
3	32.0 (19.8, 47.3)	5 (1.1, 20.1)	3.6 (0.5, 20.7)	40.7 (27.2, 55.7)	17.9 (8.7, 33.2)	16.0 (8.3, 28.6)	0.0	0.0	34.0 (21.4, 49.3)	27.4 (15.8, 43.3)	0.0	71
4	21.6 (11.9, 36.1)	12.1 (2.4, 43.6)	1.1 (0.1, 7.8)	33.8 (19.0, 52.6)	19.3 (10.2, 33.5)	13.4 (6.6, 25.4)	0.0	0.0	32.8 (19.4, 49.6)	37.0 (23.2, 53.3)	0.0	85
Strata												
Urban	18.9 (12.7, 27.1)	0.0	0.7 (0.1, 5.2)	19.6 (13.2, 28.0)	31.6 (20.8, 44.8)	15.3 (10.2, 22.3)	0.0	0.0	46.9 (35.7, 58.3)	35.7 (27.2, 45.1)	0.0	147
Rural	33.0 (25.3, 41.8)	9.3 (2.6, 28.1)	1.6 (0.4, 6.1)	43.7 (33.1, 54.9)	16.2 (10.1, 25.0)	14.8 (9.5, 22.3)	0.4 (0.1, 2.7)	0.0	31.3 (22.5, 41.7)	27.9 (20.5, 36.9)	0.0	226
Caregiver's education												
No education	47.0 (24.1, 71.3)	9.9 (1.3, 48.8)	0.0	56.9 (31.3, 79.3)	24.4 (11.5, 44.5)	10.3 (3.5, 26.8)	0.0	0.0	34.8 (18.9, 54.9)	8.3 (1.7, 32.4)	0.0	37
Some primary	30.9 (21.7, 42.0)	10.3 (2.1, 38.5)	1.0 (0.2, 3.9)	41.8 (29.0, 55.7)	11.8 (6.6, 20.2)	18.5 (11.7, 27.9)	0.6 (0.1, 4.1)	0.0	30.8 (20.6, 43.5)	30.5 (22.7, 39.5)	0.0	190
Primary completed +	26.2 (18.5, 35.9)	3.7 (0.7, 16.7)	3.2 (0.7, 12.5)	33.1 (23.1, 45)	26.8 (17.0, 39.5)	9.9 (5.0, 18.6)	0.0	0.0	36.7 (26.5, 48.3)	33.8 (22.4, 47.5)	0.0	146
Wealth index												
Poorest	30.7 (21.0, 42.5)	2.1 (0.2, 15.3)	0.8 (0.1, 5.5)	32.8 (22.3, 45.4)	18.3 (10.8, 29.4)	23.5 (14.4, 36.0)	1.0 (0.1, 8.1)	0.0	42.9 (31.2, 55.4)	26.8 (17, 39.4)	0.0	104
Second	39.9 (30.2, 50.4)	1.7 (0.2, 12.9)	1 (0.1, 7.2)	42.7 (32.9, 53.0)	21.5 (12.0, 35.5)	9.8 (4.3, 20.9)	0.0	0.0	31.3 (20.4, 44.8)	28.1 (18.8, 39.7)	0.0	90
Middle	38.7 (24.0, 55.9)	9.1 (2.8, 26.4)	0.0	47.9 (31.1, 65.2)	10.2 (4.9, 20.1)	11.1 (5.1, 22.4)	0.0	0.0	21.3 (11.4, 36.4)	36.2 (22.2, 52.9)	0.0	80
Fourth	9.8 (2.7, 30.0)	39.5 (9.1, 81)	7.1 (1.5, 27.8)	56.4 (24.7, 83.7)	17.5 (6.8, 38.1)	9.8 (3.0, 27.4)	0.0	0.0	27.3 (10.9, 53.6)	18.9 (7.1, 41.6)	0.0	63
Richest	18.2 (5.8, 44.7)	0.0	0.0	18.2 (5.8, 44.7)	14.8 (5.1, 35.9)	16.0 (5.9, 36.6)	0.0	0.0	30.8 (14.5, 54.0)	51.0 (25.9, 75.6)	0.0	27
All children	31.4 (24.5, 39.3)	8.3 (2.4, 25.1)	1.5 (0.4, 5.3)	40.9 (31.5, 51.1)	18.0 (12.3, 25.5)	14.8 (10.0, 21.4)	0.3 (<0.1, 2.4)	0.0	33.1 (25.1, 42.2)	28.8 (22.0, 36.8)	0.0	373

¹The most common original sources for ACTs with the AMFm logo obtained from home were: public health facility (53%, n=62), private clinic (19%, n=22) and drug shop (15%, n=18) (unweighted).

Source: ACTwatch Household Survey, Uganda, 2012.

3.5 Sources of advice and treatment for fever

Table 3.5.1: Care seeking behaviour: first place to seek care

Among children under five with fever in the two weeks preceding the survey for whom advice or treatment was sought¹, percentage for whom advice or treatment was first sought at a given outlet type, by background characteristics.

	Public / not-for-profit Sector					Private Sector				At home	Missing / don't know	Number of children
	Public Health facility	Community health worker	Public not-for-profit health facility	Total	Private health facility	Pharmacy / drug store	General retailer	Other	Total			
Age (in years)												
<1	11.9 (7.2, 18.9)	2.1 (0.7, 6.2)	0.1 (<0.1, 0.5)	14.0 (8.9, 21.4)	18.1 (13.9, 23.2)	11.1 (7.2, 17.0)	0.0	0.3 (<0.1, 2.2)	29.5 (23.4, 36.5)	56.4 (50.5, 62.2)	0.0	482
1	11.0 (7.1, 16.7)	3.3 (1.1, 9.1)	1.3 (0.4, 4.0)	15.6 (10.9, 21.7)	13.1 (9.6, 17.5)	9.4 (6.5, 13.3)	1.1 (0.3, 4.1)	0.0	23.5 (19.4, 28.3)	60.9 (54.0, 67.3)	0.0	490
2	7.3 (4.8, 10.8)	4.7 (1.4, 14.7)	0.9 (0.2, 3.7)	12.9 (8.5, 18.9)	17.5 (12.8, 23.4)	8.8 (5.3, 14.5)	1.0 (0.3, 3.5)	0.1 (<0.1, 0.5)	27.5 (22.6, 32.9)	59.7 (52.6, 66.4)	0.0	402
3	7.4 (3.9, 13.4)	2.2 (0.7, 6.6)	1.0 (0.3, 3.9)	10.6 (6.8, 16.3)	13.7 (9.5, 19.4)	9.2 (5.7, 14.4)	0.2 (0.1, 0.5)	0.2 (0.1, 0.6)	23.3 (18, 29.5)	66.1 (59.7, 72.0)	0.0	381
4	8.6 (5.8, 12.5)	1.1 (0.3, 4.6)	3.1 (0.5, 17.8)	12.9 (8.2, 19.6)	13.2 (9.2, 18.5)	12.6 (8.2, 18.8)	0.1 (<0.1, 0.8)	0.3 (<0.1, 2.4)	26.2 (18.9, 35.1)	60.9 (53.1, 68.2)	0.0	457
Strata												
Urban	4.5 (3.2, 6.2)	0.2 (<0.1, 1.4)	1.4 (0.5, 3.7)	6.1 (4.8, 7.7)	23.3 (17.5, 30.3)	6.9 (4.5, 10.4)	0.6 (0.2, 1.5)	0.3 (0.1, 0.8)	31.0 (25.6, 37.0)	62.9 (57.0, 68.4)	0.0	1,086
Rural	10.5 (7.6, 14.1)	3.2 (1.3, 7.5)	1.3 (0.4, 4.6)	14.9 (11.7, 18.9)	13.3 (10.2, 17.2)	11.1 (7.9, 15.4)	0.4 (0.1, 1.7)	0.2 (<0.1, 0.7)	25.0 (20.9, 29.7)	60.0 (55.9, 64.1)	0.0	1,127
Caregiver's educ.												
No education	8.5 (5.1, 14)	2.9 (0.7, 11.1)	0.0	11.4 (7.2, 17.6)	18.7 (13.7, 25.0)	12.1 (7.1, 19.9)	1.0 (0.2, 4.4)	0.6 (0.1, 3.1)	32.4 (25.3, 40.5)	56.1 (47.3, 64.6)	0.0	255
Some primary	9.0 (6.1, 13)	3.4 (1.3, 8.9)	0.9 (0.3, 2.8)	13.3 (9.5, 18.2)	12.8 (9.5, 16.9)	12.2 (8.8, 16.7)	0.5 (0.1, 1.8)	<0.1 (<0.1, 0.2)	25.5 (20.9, 30.7)	61.2 (56.9, 65.4)	0.0	959
Primary completed +	9.9 (7.1, 13.6)	1.6 (0.6, 4.5)	2.4 (0.6, 9.1)	13.8 (11, 17.2)	17.0 (12.7, 22.4)	7.1 (4.5, 11.0)	0.3 (0.1, 1.3)	0.3 (0.1, 1.2)	24.6 (20.1, 29.7)	61.5 (57.0, 65.9)	0.0	986
Wealth index												
Poorest	11.5 (6.8, 19.0)	2.8 (0.5, 13.5)	1.0 (0.2, 4.7)	15.4 (9.2, 24.5)	10.8 (7.2, 15.9)	16.2 (10.9, 23.4)	0.8 (0.2, 3.5)	0.5 (0.1, 1.8)	28.3 (21.3, 36.5)	56.3 (48.1, 64.2)	0.0	433
Second	15.2 (10.5, 21.6)	3.0 (1.1, 7.9)	0.0	18.2 (13.1, 24.9)	10.9 (7.9, 14.9)	5.4 (3.2, 9.2)	0.4 (0.1, 2.0)	0.1 (<0.1, 0.5)	16.8 (12.8, 21.8)	64.9 (58.0, 71.3)	0.0	449
Middle	7.1 (4.3, 11.4)	1.5 (0.4, 5.1)	0.7 (0.2, 2.8)	9.3 (6.2, 13.6)	18.8 (12.6, 27)	12.2 (7.5, 19.4)	0.5 (0.1, 2.6)	0.0	31.6 (25.1, 38.8)	59.2 (53.4, 64.8)	0.0	435
Fourth	3.4 (1.6, 7.2)	6.1 (1.7, 19.5)	0.5 (0.2, 1.3)	10.0 (4.9, 19.5)	21.2 (15.4, 28.4)	8.9 (5.4, 14.4)	0.2 (<0.1, 0.7)	0.1 (<0.1, 0.8)	30.4 (23.6, 38.2)	59.6 (51.3, 67.4)	0.0	426
Richest	2.6 (1.3, 5)	0.0	6.5 (1.4, 25.1)	9.1 (3.4, 22)	18.7 (12.8, 26.5)	5.3 (2.8, 9.7)	0.2 (0.1, 1.1)	0.2 (0.1, 0.9)	24.5 (16.8, 34.3)	66.4 (59.7, 72.6)	0.0	409
All children	9.4 (7, 12.4)	2.6 (1.1, 6.2)	1.3 (0.5, 3.7)	13.3 (10.7, 16.5)	15.1 (12.3, 18.5)	10.3 (7.6, 13.8)	0.5 (0.2, 1.3)	0.2 (0.1, 0.5)	26.1 (22.6, 30.0)	60.6 (57.0, 64.0)	0.0	2,212

¹ Excludes caregivers of children under five with fever who reported they did not do anything to treat the fever.

Subtotals by background characteristics may not sum to the value given here due to missing values for some background characteristics.

Source: ACTwatch Household Survey, Uganda, 2012.

Table 3.5.2: Care seeking behavior: any source to seek care

Among children under five with fever in the two weeks preceding the survey for whom advice or treatment was sought¹, percentage for whom advice or treatment was sought at a given outlet type, by background characteristics.

	Public / not-for-profit Sector				Private Sector					At home	Missing / don't know	Number of children
	Public Health facility	Community health worker	Public not-for-profit health facility	Total	Private health facility	Pharmacy / drug store	General retailer	Other	Total			
Age (in years)												
<1	27.6 (20.4, 36.3)	3.6 (1.4, 9.2)	1.3 (0.5, 3.1)	31.9 (24.2, 40.7)	39.6 (33.3, 46.3)	21.3 (15.6, 28.4)	0.7 (0.2, 2.7)	0.6 (0.2, 2.1)	60.4 (54.0, 66.4)	58 (52.2, 63.5)	0.1 (<0.1, 0.7)	482
1	23.9 (18.5, 30.4)	4.1 (1.7, 9.4)	4 (1.8, 8.6)	31.6 (25.2, 38.8)	36.3 (29.9, 43.3)	19.1 (13.7, 26.1)	2.1 (0.6, 7.1)	0.6 (0.2, 1.9)	56.1 (49.4, 62.5)	63.6 (57.1, 69.6)	0.0	490
2	24.4 (17.7, 32.6)	5.0 (1.6, 14.6)	3.9 (1.6, 9.2)	32.3 (24.4, 41.2)	39.2 (32.1, 46.7)	20.4 (13.9, 28.9)	3.1 (1.3, 7.2)	0.2 (<0.1, 1.0)	61.1 (54.9, 66.9)	62.8 (55.4, 69.7)	0.1 (<0.1, 0.5)	402
3	22.1 (15.3, 30.8)	3.3 (1.0, 10.0)	3.5 (1.2, 9.3)	28.7 (21.4, 37.3)	29.7 (22.2, 38.3)	25.9 (18.5, 35.0)	2.7 (1.1, 6.6)	0.2 (0.1, 0.9)	56.1 (46.3, 65.5)	67.3 (60.8, 73.2)	0.1 (<0.1, 0.5)	381
4	20.9 (15.2, 27.8)	5.4 (1.2, 21.7)	4.3 (1.1, 15.4)	30.0 (22.7, 38.6)	27.9 (22.6, 34.0)	20.6 (15.1, 27.4)	1.6 (0.6, 4.0)	0.2 (<0.1, 0.6)	49.7 (41.2, 58.1)	62.3 (54.4, 69.7)	0.2 (<0.1, 1.4)	457
Strata												
Urban	15.6 (12.7, 19.0)	0.5 (0.1, 3.5)	4.3 (2.5, 7.3)	20.3 (17.2, 23.8)	51.1 (43.3, 58.8)	17.3 (12.7, 23.1)	1.2 (0.5, 2.7)	0.8 (0.4, 1.9)	67.7 (62.7, 72.2)	65.7 (60.3, 70.8)	0.3 (0.1, 1)	1,085
Rural	25.7 (19.8, 32.6)	5.2 (2, 12.6)	3.1 (1.3, 7.2)	33.4 (27.3, 40.0)	30.9 (25.7, 36.7)	22.2 (16.6, 28.9)	2.1 (1.0, 4.5)	0.3 (0.1, 0.9)	54.1 (48.5, 59.5)	61.9 (57.8, 65.8)	0.1 (<0.1, 0.4)	1,127
Caregiver's educ.												
No education	26.1 (18.1, 36.2)	5.2 (1.6, 15.7)	2.1 (0.7, 6.0)	32.7 (23.4, 43.6)	32.1 (24.1, 41.4)	25.1 (17.6, 34.5)	6.4 (2.3, 16.4)	0.8 (0.2, 2.9)	62.4 (51.6, 72.0)	58.6 (49.4, 67.2)	0.1 (<0.1, 1.0)	255
Some primary	24.6 (18.1, 32.5)	4.9 (1.7, 13.2)	2.1 (1.0, 4.1)	31.2 (24.4, 38.8)	28.6 (23.2, 34.8)	24.0 (18.8, 29.9)	1.2 (0.5, 3.1)	0.4 (0.2, 1)	52.5 (46.1, 58.8)	63.9 (59.8, 67.8)	0.1 (<0.1, 0.6)	959
Primary completed +	22 (17.5, 27.3)	3.4 (1.3, 8.5)	5.5 (2.5, 11.5)	30.2 (26, 34.8)	43.3 (37.6, 49.3)	16.5 (11.6, 22.9)	1.4 (0.6, 3.4)	0.2 (<0.1, 0.7)	59.9 (54.4, 65.1)	62.4 (57.9, 66.7)	0.1 (<0.1, 0.3)	986
Wealth index												
Poorest	25.8 (17.4, 36.5)	3.3 (0.6, 16.4)	3.3 (0.8, 12.1)	31.5 (22.2, 42.4)	23.1 (16.6, 31.2)	30.6 (23.2, 39.0)	1.8 (0.4, 7.6)	0.7 (0.2, 2.4)	54 (44.8, 63.0)	56.9 (48.5, 65)	0.2 (<0.1, 1.3)	433
Second	35.8 (28.6, 43.7)	3.4 (1.4, 8)	1.4 (0.6, 3.2)	40.4 (33.2, 48.0)	30.7 (24.4, 37.8)	16.9 (10.6, 25.8)	2.1 (0.9, 4.7)	0.2 (<0.1, 1.4)	49.5 (42.5, 56.5)	65.6 (58.6, 72.0)	0.1 (<0.1, 0.5)	449
Middle	21.8 (16.1, 28.7)	3.7 (1.5, 9)	2.4 (0.9, 6.2)	27.4 (21.2, 34.7)	37.5 (30.0, 45.6)	21.1 (14.6, 29.5)	3.6 (1.4, 9)	0.0	60.4 (52.8, 67.6)	61.9 (56, 67.4)	0.0	435
Fourth	11.7 (8.4, 16.1)	12.6 (3.3, 38)	3.3 (1.3, 8.0)	26.6 (14.9, 42.9)	47.9 (38.6, 57.4)	17.6 (12.1, 24.9)	1 (0.3, 3.3)	0.6 (0.2, 2.2)	64.3 (53.1, 74.1)	65.3 (57.7, 72.1)	0.1 (<0.1, 0.8)	426
Richest	11.0 (6.8, 17.3)	0.5 (0.1, 3.7)	9.4 (3.3, 23.9)	20.9 (14.9, 28.4)	49.2 (41.7, 56.6)	14.3 (8.8, 22.3)	0.2 (0.1, 1.1)	0.6 (0.1, 2.4)	61.6 (53.3, 69.3)	68.8 (62.4, 74.6)	0.3 (0.1, 1.2)	409
All children	23.8 (19.0, 29.5)	4.3 (1.7, 10.4)	3.4 (1.7, 6.4)	31.0 (26, 36.4)	34.6 (30.1, 39.5)	21.3 (16.6, 26.9)	1.9 (1.0, 3.9)	0.4 (0.2, 0.8)	56.6 (51.9, 61.1)	62.6 (59.1, 65.9)	0.1 (<0.1, 0.3)	2,212

¹ Excludes caregivers of children under five with fever who reported they did not do anything to treat the fever.

Subtotals by background characteristics may not sum to the value given here due to missing values for some background characteristics.

Source: ACTwatch Household Survey, Uganda, 2012.

Table 3.5.3: Treatment at home (Supplementary Table)

Among children under five with fever in the two weeks preceding the survey who only received treatment at home, caregiver reasons for not seeking treatment outside the home.

Reasons treatment was not sought outside the home	Percent ¹
	N=438
Illness not serious	22.6 (18.1, 27.8)
Illness went away / child got better	59.6 (52, 66.7)
No money for treatment	28.6 (19.8, 39.4)
No transportation	12.0 (6.5, 21.1)
Place for treatment was too far away	10.5 (5.8, 18.4)
No one in the household had time to obtain treatment	3.1 (1.6, 5.9)
Did not know where to get treatment	1.0 (0.3, 3.2)
Medicines / drugs not available at outlets	5.4 (2.9, 9.8)
Still ill, waiting for the fever to worsen	4.4 (2.8, 7.0)
Used familiar treatment at home	3.8 (2.1, 6.7)
Other	2.7 (1.5, 5.0)
Don't know	0.0
¹ Caregivers could state multiple reasons and total may sum to more than 100%.	
Source: <i>ACTwatch</i> Household Survey, Uganda, 2012.	

Table 3.5.4: Initial treatment source (Supplementary Table)

Among children under five with fever in the two weeks preceding the survey for whom the first treatment source was outside the home, caregiver reasons for seeking treatment at this source.

Main reason for seeking treatment from initial source	Percent
	N=834
Close by or easy to reach	53.5 (48.2, 58.7)
Reputation for quality treatment	18.4 (14.7, 22.8)
Availability of inexpensive treatment	17.5 (14.7, 20.6)
Availability of modern medicine	4.5 (3.0, 6.8)
Availability of traditional medicine	<0.1 (<0.1, 0.2)
Source provides credit	1.3 (0.5, 3.0)
Source has a short waiting time	1.7 (0.9, 3.4)
Fever wasn't serious	2.1 (1.0, 4.4)
Source open at night	0.5 (0.2, 1.1)
Illness was serious/had persisted	0.3 (0.1, 1.0)
"Habit"	<0.1 (<0.1, 0.2)
Other	0.1 (<0.1, 0.5)
Don't know	<0.1 (<0.1, 0.3)
Source: ACTwatch Household Survey, Uganda, 2012.	

3.6 Breakdown of antimalarials acquired

Note that unlike other tables in the report this section shows information at the antimalarial level, rather than the child level.

Type of antimalarial	Urban	Rural	Total
	%	%	%
	N=641	N=795	N=1,436
Any non-artemisinin therapy	32.7	25.4	26.5
SP	2.7	1.9	2.0
Chloroquine	1.5	4.6	4.2
Quinine	27.9	18.7	20.0
Other non-artemisinin therapy	0.6	0.2	0.3
Artemisinin monotherapy	2.3	1.9	1.9
Any ACT	65.1	72.7	71.6
First-line ACT (AL) ¹	63.0	72.3	70.9
Any ACT with AMFm logo	22.2	29.5	28.4
¹ Of the 1,001 ACT cases, caregivers responded "ACT" for 1 case. This case appears in the 'Any ACT' figure but as the precise generic ingredients in the ACT are not known it is not included in the First-line ACT figure.			
Source: <i>ACTwatch</i> Household Survey, Uganda, 2012.			

3.7 Caregiver Knowledge and Beliefs

Table 3.7.1: Caregiver knowledge of malaria and antimalarials

Percentage of caregivers of children under five with fever in the two weeks preceding the survey who state that fever is the main symptom of malaria in children under five, and who spontaneously name given antimalarial types or brands when asked what medicines can be used to treat malaria.

	Malaria symptoms		Knowledge of antimalarials			
	State that fever is the main symptom of malaria in children under five	Number of caregivers	Name AL or an AL brand	Name CQ or a CQ brand	Name SP or an SP brand	Number of caregivers
Strata						
Urban	78.8 (73.3, 83.4)	919	85.7 (78.9, 90.5)	45.5 (39.9, 51.2)	38.3 (33.0, 43.9)	921
Rural	79.1 (73.8, 83.6)	929	83.9 (79.1, 87.8)	40.0 (33.6, 46.6)	25.4 (19.1, 32.9)	931
Caregiver's education						
No education	79.8 (69.9, 87.1)	211	74.9 (64.4, 83.1)	27.7 (21.1, 35.6)	19.7 (12.4, 29.9)	211
Some primary	77.4 (70.8, 82.9)	807	83.6 (77.7, 88.1)	42.0 (35.2, 49.2)	21.9 (17.2, 27.5)	806
Primary completed +	80.9 (76.3, 84.8)	829	88.2 (84.8, 90.9)	44.1 (37.3, 51.1)	38.2 (30.9, 46.2)	830
All caregivers	79.1 (74.7, 82.9)	1848	84.2 (80.2, 87.6)	41.0 (35.7, 46.5)	27.8 (22.4, 33.9)	1,852

Source: ACTwatch Household Survey, Uganda, 2012.

Table 3.7.2: Caregiver beliefs about the most effective antimalarial treatment

Percentage of caregivers of children under five with fever in the two weeks preceding the survey who state a given antimalarial type as most effective for treating malaria in children under five and in adults.

Type of antimalarial	Percentage of caregivers who cite antimalarial type as being most effective for:	
	Children under five Number of caregivers = 1,852	Adults Number of caregivers = 1,849
	Any non-artemisinin therapy	20.0 (17.1, 23.3)
SP	1.2 (0.7, 2.1)	7.7 (5.6, 10.5)
Chloroquine	2.8 (1.9, 4.2)	5.1 (3.7, 7)
Quinine	15.7 (13.3, 18.4)	18.5 (15.4, 21.9)
Other non-artemisinin therapy	0.3 (0.1, 0.9)	0.2 (0.1, 0.5)
Artemisinin monotherapy	0.4 (0.2, 0.9)	0.2 (0.1, 0.5)
Any ACT	63.8 (59.6, 67.7)	48.9 (45.2, 52.7)
First-line ACT (AL)	62.1 (57.2, 66.8)	47.7 (43.6, 51.9)
Non-antimalarial	6.5 (4.4, 9.5)	9.0 (6.5, 12.5)
Don't know	9.3 (6.7, 12.7)	10.4 (7.9, 13.6)

Source: *ACTwatch* Household Survey, Uganda, 2012.

3.8 Awareness and Exposure of the AMFm

Table 3.8.1: Caregiver awareness of and exposure to the AMFm logo and initiative

Among caregivers of children under five, the percentage who have seen or heard of the AMFm logo, or heard of the initiative to reduce the price of ACTs, by strata.

Strata	Have seen or heard of the AMFm logo	Number of caregivers	Have heard of an initiative to reduce the price of ACTs	Number of caregivers	Have either seen/heard of the AMFm logo or heard of the AMFm initiative	Number of caregivers
Urban	38.8 (32.9, 45.1)	1,660	18.2 (14.6, 22.5)	1,660	47.3 (42.0, 52.7)	1,660
Rural	39.2 (32.7, 46.1)	1,533	18.4 (15.4, 21.7)	1,533	48.1 (41.9, 54.4)	1,533
All caregivers	39.2 (33.7, 44.9)	3,193	18.3 (15.8, 21.2)	3,193	48.0 (42.8, 53.2)	3,193

Source: ACTwatch Household Survey, Uganda, 2012.

Table 3.8.2: Sources of exposure to the AMFm logo

Among caregivers of children under five who have seen or heard of the AMFm logo, the percentage citing the following sources of exposure.

Source	Percent ¹
	N=1,281
Medicine packaging	36.8 (32.3, 41.5)
TV	3.2 (1.9, 5.4)
Radio	30.8 (25.4, 36.8)
Newspaper	0.3 (0.1, 0.6)
Poster	18.5 (13.4, 24.9)
Billboard	0.6 (0.3, 1.5)
Leaflet	1.5 (0.8, 2.6)
Cap / T-Shirt / Clothing	2.9 (1.0, 7.8)
Community event	3.2 (1.9, 5.2)
Public health facility	38.9 (33.4, 44.6)
Community health worker	2.7 (1.7, 4.2)
NGO/Mission health facility	2.1 (1.0, 4.3)
Private for-profit health facility	16.8 (11.8, 23.3)
Pharmacy	2.4 (1.6, 3.6)
Drug store	3.2 (1.8, 5.6)
General Retailer	0.2 (<0.1, 0.9)
Friend or neighbor	5.2 (3.5, 7.8)
Other	0.7 (0.4, 1.4)
Don't know	1.3 (0.7, 2.4)
¹ Caregivers could state multiple sources and total may sum to more than 100%.	
Source: <i>ACTwatch</i> Household Survey, Uganda, 2012.	

Table 3.8.3: Sources of exposure to the AMFm initiative

Among caregivers of children under five who have heard of the AMFm initiative, the percentage citing the following sources of exposure.

Source	Percent ¹
	N=579
Medicine packaging	2.8 (1.2, 6.6)
TV	6.5 (4.2, 9.9)
Radio	74.7 (65.8, 81.9)
Newspaper	1.4 (0.8, 2.6)
Poster	1.3 (0.5, 3.6)
Billboard	0.1 (<0.1, 0.7)
Leaflet	0.0
Cap / T-Shirt / Clothing	0.7 (0.2, 3.0)
Community event	5.3 (3.3, 8.3)
Public health facility	20.0 (14.8, 26.5)
Community health worker	6.0 (3.4, 10.4)
NGO/Mission health facility	0.2 (0.1, 0.7)
Private for-profit health facility	7.0 (3.6, 13.3)
Pharmacy	0.7 (0.2, 1.9)
Drug store	1.8 (0.7, 4.9)
General Retailer	0.3 (<0.1, 2.4)
Friend or neighbor	11.0 (7.4, 16.1)
Other	1.1 (0.2, 5.3)
Don't know	0.1 (<0.1, 0.6)
¹ Caregivers could state multiple sources and total may sum to more than 100%.	
Source: <i>ACTwatch</i> Household Survey, Uganda, 2012.	

Table 3.8.4: Meaning of the AMFm logo

Among caregivers of children under five who have seen or heard of the AMFm logo, the reported meaning of the logo.

Meaning	Percent ¹
	N=1,280
Medicine	33.6 (28.3, 39.4)
Cheap medicine	0.1 (0.1, 0.3)
Effective medicine	3.8 (2.4, 5.8)
Readily available medicine	0.7 (0.3, 1.6)
Medicine recommended by the government	1.4 (0.6, 3.2)
Antimalarial	27.1 (19.6, 36.2)
Cheap antimalarial	0.4 (0.1, 1.2)
Effective antimalarial	5.5 (3.1, 9.6)
Readily available antimalarial	0.3 (0.1, 1.7)
Antimalarial recommended by the government	1.2 (0.4, 3.6)
“Health”	8.3 (6.3, 11.0)
“Environment”	3.0 (1.6, 5.4)
Other	1.9 (1.2, 3.2)
Don't know	39.9 (34.0, 46.1)
¹ Caregivers could state multiple responses and total may sum to more than 100%.	
Source: <i>ACTwatch</i> Household Survey, Uganda, 2012.	

Table 3.8.5: Knowledge of the recommended price for AMFm medicine

Among caregivers of children under five who have seen or heard of the AMFm logo, the percentage who state there is a recommended price for medicine with the AMFm logo, and of these, percentage that correctly state the recommended price.

	State that there is a recommended price for medicine with the AMFm logo	Number of caregivers	Correctly state the recommended price	Number of caregivers
Strata				
Urban	9.9 (7.0, 13.9)	669	0.0	75
Rural	11.9 (8.5, 16.3)	612	1.5 (0.2, 9.1)	70
All caregivers	11.5 (8.6, 15.1)	1,281	1.3 (0.2, 7.9)	145

Source: ACTwatch Household Survey, Uganda, 2012.

Table 3.8.6: Knowledge of the use of AMFm medicine

Among caregivers of children under five who have seen or heard of the AMFm logo, the percentage who stated 'malaria' when asked what illnesses are treated with medicine with the logo..

	Cite <i>Malaria</i> only	Number of caregivers
Strata		
Urban	52.4 (45.3, 59.4)	669
Rural	59.9 (52.6, 66.9)	611
All caregivers	58.6 (52.4, 64.5)	1,280

Source: ACTwatch Household Survey, Uganda, 2012.

Table 3.8.7: Caregiver reported ever use of ACTs with the AMFm logo

Among caregivers of children under five who have seen or heard of the AMFm logo, the percentage who report ever purchasing or been given medicine with the AMFm logo.

	Ever purchased or been given medicine with the AMFm logo	Number of caregivers
Strata		
Urban	35.9 (31.1, 40.9)	669
Rural	47.5 (39.9, 55.2)	611
All caregivers	45.4 (39.0, 51.9)	1,280

Source: ACTwatch Household Survey, Uganda, 2012.

Table 3.8.8: Source of ACTs with the AMFm logo

Among caregivers of children under five who have ever purchased or been given an ACT with the AMFm logo, the percentage who report the following sources for the AMFm-logo ACT.

Source	Percent ¹
	N=543
Public health facility	63.8 (58.7, 68.6)
Community health worker	4.4 (1.8, 10.6)
NGO/Mission health facility	5.2 (2.7, 9.7)
Private for-profit health facility	41.2 (33.8, 49)
Pharmacy	6.0 (4.0, 8.9)
Drug store	18.3 (13.4, 24.5)
General Retailer	1.1 (0.2, 5.2)
Other	1.2 (0.5, 2.6)
Don't know	0.4 (0.1, 1.5)

¹ Caregivers could state multiple sources and total may sum to more than 100%.

Source: ACTwatch Household Survey, Uganda, 2012.

Table 3.8.9: Perceptions of the efficacy and affordability of AMFm ACTs

Among caregivers of children under five who have seen or heard of the AMFm logo and know that AMFm medicines are antimalarials, the perceptions of affordability and efficacy of ACTs with the AMFm logo.

	Affordability				Effectiveness				Number of children
	Cheaper than most other antimalarial medicines	Same price as most other antimalarial medicines	More expensive than most other antimalarial medicine	Don't know / Missing	More effective than most other antimalarial medicines	As effective as most other antimalarial medicines	More effective than more other antimalarial medicines	Don't know / Missing	
Strata									
Urban	27.2 (21.9, 33.3)	6.5 (3.7, 11.2)	41.0 (33, 49.5)	25.3 (20, 31.3)	65.2 (59.5, 70.4)	12.6 (8.1, 19.2)	3.5 (2.2, 5.8)	18.7 (13.9, 24.7)	364
Rural	30.3 (23.8, 37.8)	5.4 (3.1, 9.4)	42.7 (36.2, 49.5)	21.5 (16.9, 27)	78.5 (74.0, 82.5)	8.3 (5.4, 12.7)	1.9 (0.7, 4.6)	11.3 (8.6, 14.7)	367
All caregivers	29.8 (24.2, 36.1)	5.6 (3.5, 8.9)	42.4 (36.8, 48.3)	22.1 (18.1, 26.8)	76.3 (72.2, 80)	9.0 (6.3, 12.8)	2.1 (1.1, 4.2)	12.5 (10.0, 15.4)	731

Source: ACTwatch Household Survey, Uganda, 2012.

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We would like to express our thanks to the field teams and individuals involved in the survey. Their names are presented in Appendix 6.2.

Finally, we would like to thank the thousands of caregivers who took time to complete the interview.

6. Appendices

6.1 AMFm use indicator for poorest households

Table 6.1.1: Treatment of children with fever in the poorest households				
Among children under five with fever in the two weeks preceding the survey from the poorest households (lowest two wealth quintiles), the percentage who received treatment with any antimalarials, who received ACT treatment, and who received ACT treatment the same/next, by background characteristics.				
	Percentage who took antimalarial medicines	Percentage who took ACTs	Percentage who took ACTs same or next day	Number of children with fever
Urban	60.1 (52.6, 67.2)	48.7 (40.8, 56.8)	44.7 (36.4, 53.3)	156
Rural	57.3 (48.3, 65.8)	48.5 (39.5, 57.7)	37.6 (30.2, 45.7)	760
All children	57.4 (48.7, 65.7)	48.5 (39.8, 57.4)	37.9 (30.6, 45.7)	916
Source: <i>ACTwatch</i> Household Survey, Uganda, 2012.				

6.2 Survey team

Table 6.2.1: List of staff members involved in the survey, 2011

Household Mapping:	
<i>Eastern</i>	Archileo Kiwanuka
<i>Eastern</i>	Samuel Meya
<i>Central</i>	Bonita Nyabwire
<i>Central</i>	Fredrick Kaboggoza
<i>Westnile</i>	Peter Opio
<i>Northern</i>	Simon Peter Oola
<i>Western</i>	Alex Nduhukire
<i>South Western</i>	Stoliva Manzi
Data collection:	
Eastern Team 1	
Supervisor	Irene Senkungu
Quality Controller	Ronnie Simon Kanyike
Interviewers	Albert Gayi Shamimu Nabatte Sarah Kasiibo Husein Kyanjo Robert Muwanguzi
Eastern Team 2	
Supervisor	Mathew Amollo
Quality Controller	Monica Dhabangi
Interviewers	Alice Nabwanika Vera Julia Nashuha Victor Lubanga Francis Kato
Central Team 1	
Supervisor	Jean Asasira
Quality Controller	Joseph Jjumba
Interviewers	Olivia Nalwanga Godfrey Kikonyogo Maria Kisakye John Robert Katende Susan Nakazzi
Central Team 2	
Supervisor	William Tusasire
Quality Controller	John Ssendagire
Interviewers	Lydia Najjemba Olivia Senkungu Mariam Magezi Rose Nazziwa Andrew Bakashaba
Westnile Team	
Supervisor	Tamali Adiru
Quality Controller	Ritah Ociba
Interviewer	Anne Adikini Robert Okello John Bosco Kilima Susan Avako Joel Akuma

continued

Nothern Team

Supervisor

Quality Controller

Interviewer

Sarah Angom

Godfrey Nyeko

Desire Amonyi

Denis Okello

Phionah Alanyo

Raymond Kilama

Sarah Akullo

Western Team

Supervisor

Quality Controller

Interviewer

Dan Busingye

Charles Mugume

Comfort Akatukunda

Jennifer Kobusigye

Doreen Tukahirwa

Benson Mushabe

Evelyn Muhumuza

South Western Team

Supervisor

Quality Controller

Interviewer

Lawrence Magara

Joan Ainembabazi

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Rogers Twesigye

Christopher Muhoozi

Dianah Komugisha

*Team Leader**Field Manager**Agency Field Regional Coordinator**Agency Field Regional Coordinator**Agency Field Regional Coordinator**Data Assistant*

6.3 Questionnaire

The questionnaire used for this survey can be downloaded from the ACTwatch website:
www.actwatch.info/research/questionnaires.php

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