



THE REPUBLIC OF UGANDA



UGANDA MALARIA SURVEILLANCE PROJECT

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Inpatient Surveillance Monthly Report

May 2012

Introduction

The Uganda Malaria Surveillance Project (UMSP) was formed in 2001 as collaboration between researchers at the Makerere University-University of California San Francisco malaria research collaboration and the Ministry of Health. Although Uganda's Health Management Information System (HMIS) remains the primary source of malaria morbidity and mortality data, there are several limitations to this data. To address some of these limitations, UMSP started an inpatient health facility-based surveillance system in different epidemiological settings. The program began in 2010 with the goal of including 6 sentinel district hospitals by July 2011. The objective of this surveillance system is to provide accurate and timely data on malaria morbidity and mortality patterns among hospitalized children at participating sites to help guide policy makers and other stakeholders.

This monthly report is comprised of a table and graphs highlighting malaria indicators of morbidity and mortality including treatment practices at participating sites for a specified month. The table below provides a summary of the total number of hospitalized children per site who fulfil each of the criteria for specified indicators. For each indicator a bar graph allowing for comparison of results across the sites is generated, each bar representative of the results (in proportions) for each site for that particular indicator.

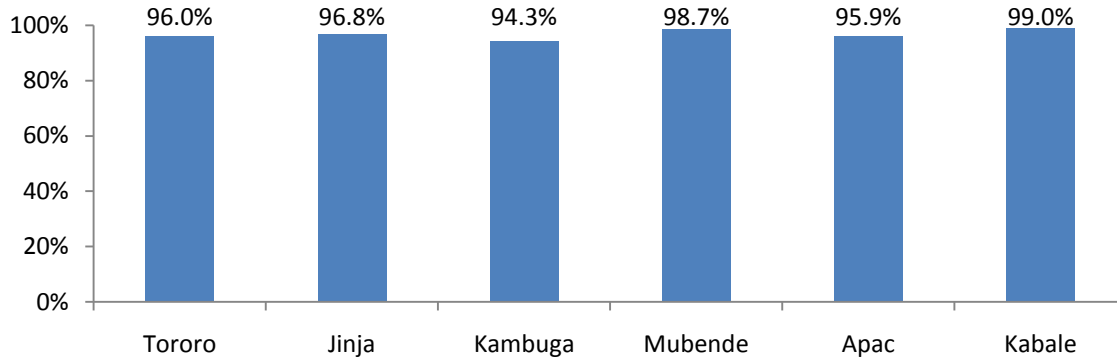
A list of definitions of terms used in the report and a table showing the numerators and denominator used to determine the indicators as proportions are included in the Appendix section (last page).

Absolute numbers of children hospitalized

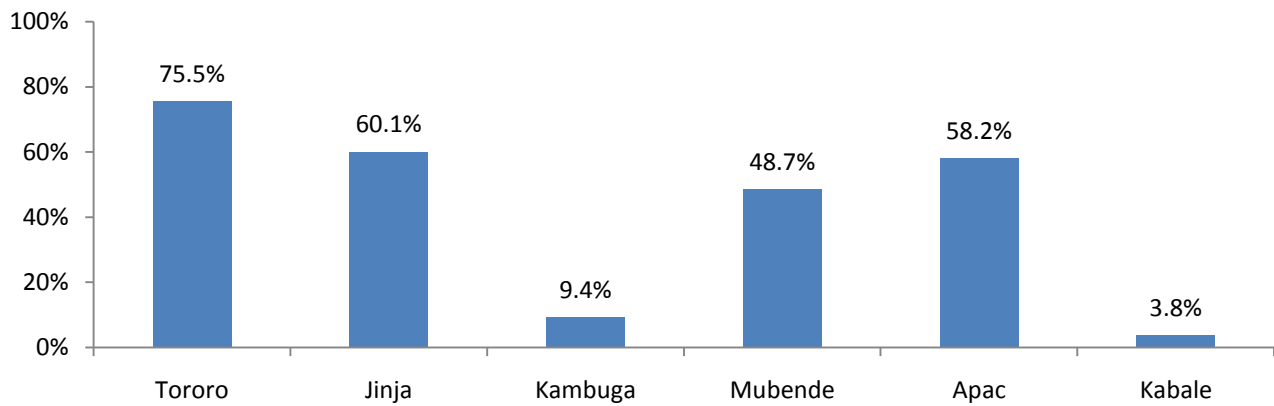
Site	Total	< 5 years	Hospitalized children under 5 years of age only					
			Any malaria lab test result	Clinical diagnosis of malaria	Lab confirmed malaria	Lab confirmed complicated malaria	Any death	Lab confirmed death with malaria
Tororo Hospital	455	424	407	320	302	235	7	1
Jinja Hospital	1,002	870	842	521	395	262	40	9
Kambuga Hospital	99	87	82	8	3	3	1	0
Mubende Hospital	281	236	233	115	114	97	15	4
Apac Hospital	145	98	94	57	53	30	5	2
Kabale Hospital	128	105	104	4	1	1	4	0

Data below only includes children under 5 years of age admitted to the hospital

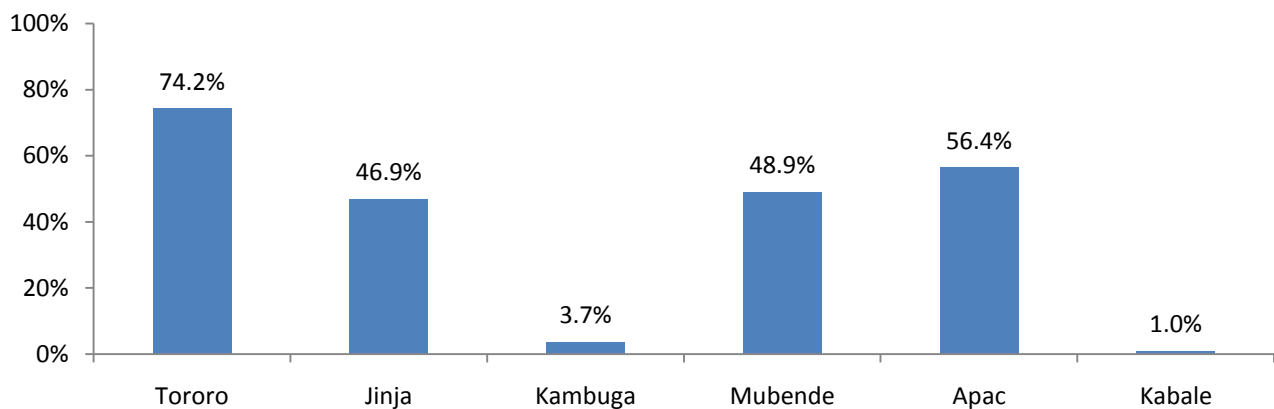
Proportion of patients with any malaria diagnostic test result during hospitalization



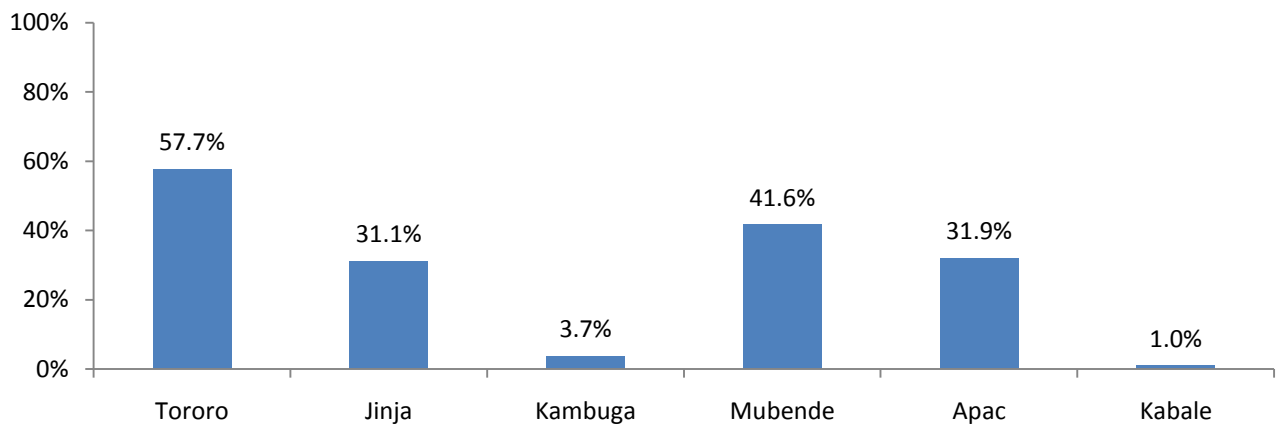
Proportion of patients with clinical diagnosis of malaria at discharge



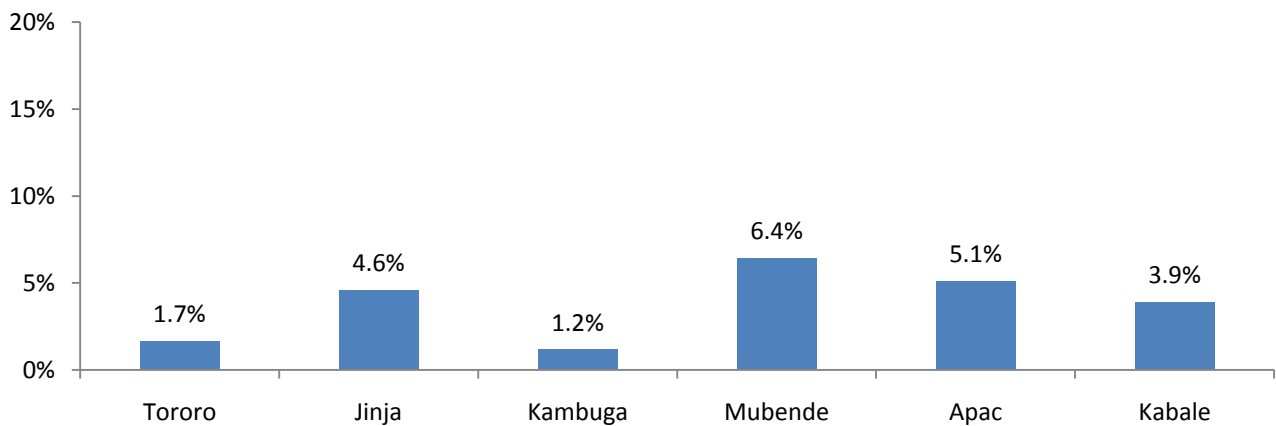
Proportion of patients with laboratory confirmed malaria



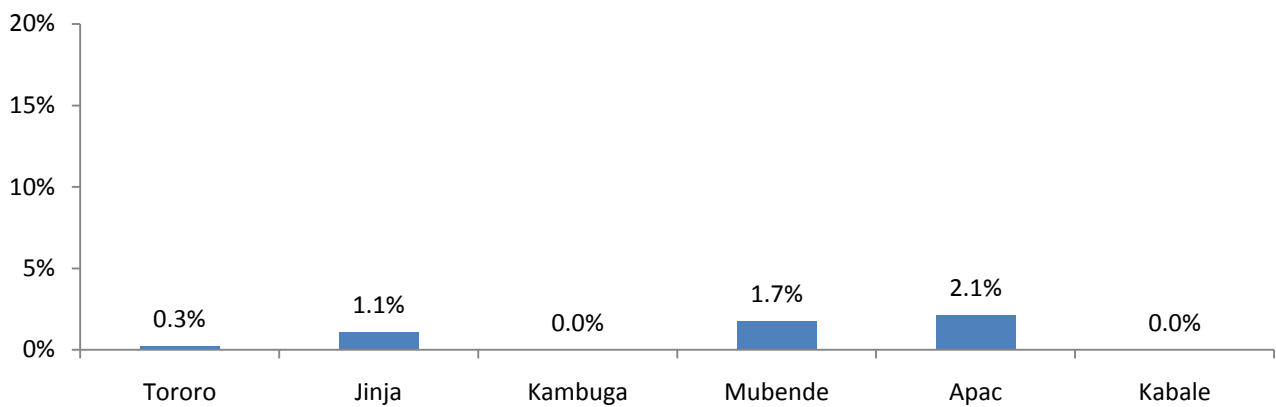
Proportion of patients with laboratory confirmed complicated malaria



Proportion of patients who died from any cause during hospitalization

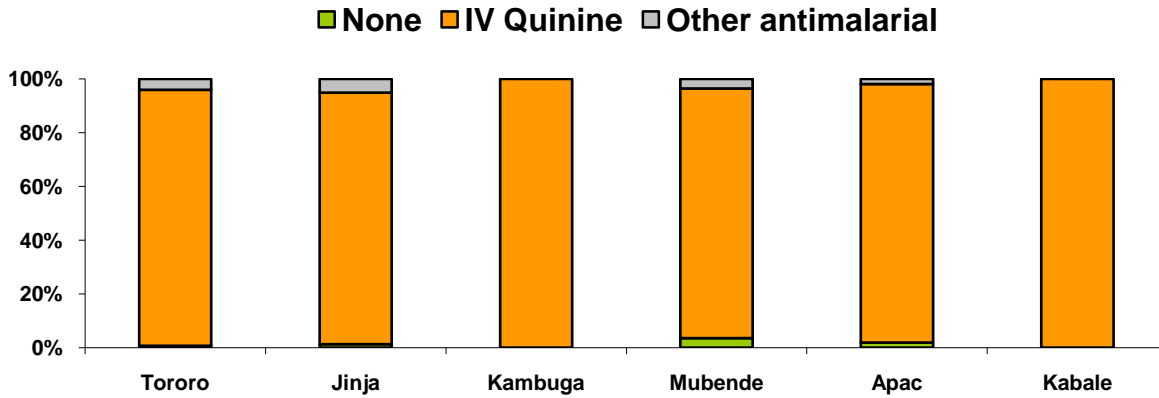


Proportion of patients who died with laboratory confirmed malaria during hospitalization

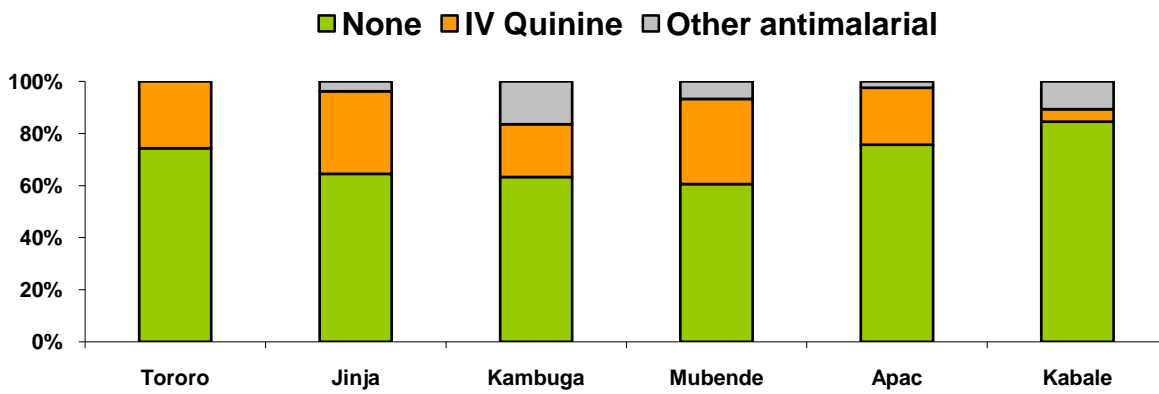


Antimalarial treatment practices based on laboratory testing

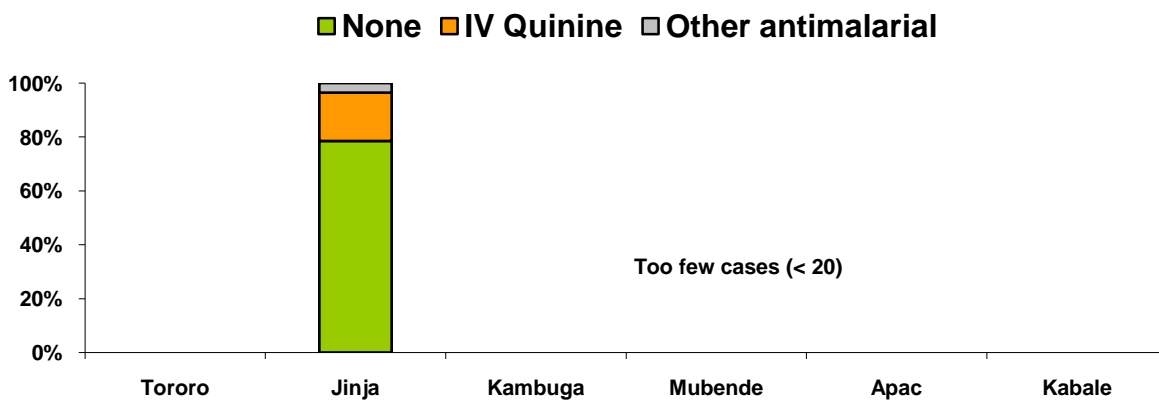
Any positive laboratory test result



Only negative laboratory test results



No laboratory test done



Laboratory Quality Control (QC) results

In a bid to monitor standards of malaria microscopy at sentinel sites, UMSP has over the years been validating the accuracy of microscopist's (persons who uses a microscope to read blood films to aid or confirm the diagnosis of malaria and reports on their findings) in reading blood smears for malaria parasites. Starting Jan 2012, laboratories at all sentinel sites were switched from using Field Stain to Giemsa stain, the recommended gold standard technique for malaria microscopy. Prior to starting the QC exercise using Giemsa stain, microscopists at all sites were trained on the Giemsa staining technique, proper labelling of slides, proper recording of results and storage of slides in individualised slide boxes

For each microscopist 50 slides were randomly sampled from slides collected over a period of one month and re-read by expert microscopist's based at the UMSP central laboratory. If a microscopist read less than 50 slides in a month, all slides were re-read. Blood smear results of slides read at the sites by site microscopist's were compared to results of the same slides read by expert microscopists 'the gold standard' based at the UMSP central laboratory in Kampala. Accuracy is assessed by calculating the sensitivity, specificity and percent level of agreement. Results are calculated on individual microscopist basis and for the site. Unacceptable performance is defined as percent level of agreement < 90%. Microscopist's with percent level of agreement < 90% were contacted and re-trained where necessary. Presented are overall site results of a validation exercise conducted during the month of March 12.

Sentinel sites lab quality control results (March 2012)

	Number of slides		Results		
	Positive	Negative	Sensitivity	Specificity	% Agreement
Tororo	81	201	70%	87%	82%
Mubende	10	108	90%	92%	91%
Kabale	3	330	100%	97%	97%
Apac*	8	232	75%	100%	99%

* Results are for April 2012

A total of 25 microscopists were assessed in during this period; Tororo (7), Mubende (4), Kabale (9), and Apac (5). Performance was acceptable at most of the sites with the exception of Tororo where over-all and individual performance was below the pass mark. Compared to results of the previous month, Tororo performance declined unlike other sites where performance has remained good (>90% level of agreement). The UMSP lab team has visited the Tororo lab team and put in place measures to improve performance.

Appendix I. Definitions

Laboratory confirmed malaria: Any hospitalized child with a positive malaria test (thick blood smear or RDT) result

Clinical diagnosis of malaria: Any hospitalized child with a final discharge diagnosis of malaria (confirmed or unconfirmed) as indicated by the clinician.

Laboratory confirmed complicated malaria: Any hospitalized child with a positive malaria test result and fulfils any of the following: 1) any criteria for severe malaria. 2) one or more general danger signs (vomiting everything, inability to drink, feed or breastfeed, lethargy or unconscious or convulsions) or 3) dies during hospitalization

Indicators expressed as proportions

Indicator	Definition
Proportion of hospitalized children < 5 years of age with malaria diagnostic test result	<p>Numerator: Number of hospitalized children < 5 years of age with a malaria test result</p> <p>Denominator: Number of hospitalized children < 5 years of age</p>
Proportion of hospitalized children < 5 years of age with a clinical diagnosis of malaria	<p>Numerator: Number of hospitalized children < 5 years of age with a final diagnosis of malaria</p> <p>Denominator: Number of hospitalized children < 5 years of age with any final diagnosis</p>
Proportion of hospitalized children < 5 years of age with laboratory confirmed malaria	<p>Numerator: Number of hospitalized children < 5 years of age with a positive malaria lab test</p> <p>Denominator: Number of hospitalized children < 5 years of age with a malaria test result</p>
Proportion of hospitalized children < 5 years of age with complicated malaria	<p>Numerator: Number of hospitalized children < 5 years of age with + lab test and complicated malaria</p> <p>Denominator: Number of hospitalized children < 5 years of age with a malaria test result</p>
Proportion of hospitalized children < 5 years of age who died of any cause	<p>Numerator: Number of hospitalized children < 5 years of age who died of any cause</p> <p>Denominator: Number of hospitalized children < 5 years of age with a disposition</p>
Proportion of hospitalized children < 5 years of age who died with malaria	<p>Numerator: Number of hospitalized children < 5 years of age who died with a positive malaria lab test</p> <p>Denominator: Number of hospitalized children < 5 years of age with a malaria test result & disposition</p>
Antimalarial treatment practices	<p>Numerator: Number in each treatment category stratified by malaria test results</p> <p>Denominator: Totals for each malaria test results strata</p>