J.C. FLOWERS FOUNDATION

Assessing malaria-related knowledge, attitudes, and practices among community members within the program areas of the Isdell:Flowers Cross Border Malaria Initiative

Results from 2024 KAP Survey within the program areas of

The Anglican Diocese of Matabeleland

The Anglican Diocese of Harare

Methodist Church in Zimbabwe – Harare East District

Isdell:Flowers Cross Border Malaria Initiative

Data collected between 2 July – 18 August 2024

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Abbreviations

CHW	community health worker
HH	household
IFCBMI	Isdell:Flowers Cross Border Malaria Initiative
IPTp	intermittent preventive treatment of malaria in pregnancy
IRS	indoor residual spraying
ITN	insecticide treated net
KAP	knowledge, attitudes, and practices
LLINs	long lasting insecticidal nets
MCA	malaria control agent
MRCZ	Medical Research Council of Zimbabwe
MoHCC	Ministry of Health and Child Care
NMCP	National Malaria Control Program
RCZ	Research Council of Zimbabwe
SBCC	social and behavioural change communication
VHW	village health worker

Section 1. Executive Summary

Through the Isdell:Flowers Cross Border Malaria Initiative (IFCBMI), the Anglican Diocese of Matabeleland, the Anglican Diocese of Harare, and the Methodist Church in Zimbabwe – Harare East District facilitate community engagement for malaria elimination in select communities in Matabeleland North, Mashonaland West, and Mashonaland East Provinces, in partnership with the Ministry of Health and Child Care (MoHCC)'s National Malaria Control Program (NMCP) and the J.C. Flowers Foundation. IFCBMI conducted this study to understand malaria-related knowledge, attitudes, and practices ("KAP") within program areas through a yearly a cross-sectional survey. The overall goal is to inform programmatic decisions based on local and recently collected data. The study's main areas of inquiry are: use of and access to insecticide treated nets (ITNs); indoor residual spraying (IRS) coverage within 12 months prior to the survey; uptake of 3+ doses of intermittent preventive treatment of malaria in pregnancy (IPTp) among women who gave birth in the previous 12 months; patterns of care-seeking behaviour among children under five years with fever in the previous two weeks; knowledge of malaria symptoms and cause; and attitudes towards ITNs, IRS, and IPTp. This report presents key findings from the 2024 KAP Survey and select results from the 2023 KAP Survey for comparison. Results are representative of IFCBMI program areas and cannot be directly extrapolated to the District, Province, or National levels since IFCBMI program areas do not cover these administrative units in their entirety. However, these results can shed important light on the realities of malaria in these administrative units. A full listing of program areas included in the survey's sampling frame can be found in Appendix 1. Below is a summary of the key 2024 KAP Survey Results:

Insecticide treated nets (ITNs)

Most households among program areas in Hwange and Kariba Districts owned at least one ITN (91% and 100%, respectively), but very few households own at least one ITN among program areas in Binga (18%), Hurungwe (34%), and Mudzi (28%) Districts. This is largely dictated by the type of primary vector control method assigned to each district (ITNs in Hwange and Kariba and IRS in Binga, Hurungwe, and Mudzi). However, even in Hwange and Kariba Districts where ownership of at least one ITN was high, there are still many households that do not own enough ITNs to cover everyone in the households, assuming each ITN covers two people; only 57% of households in Hwange District program areas and 52% in Kariba District program areas own at least one ITN for every two people in the household.

Use of ITNs followed the same pattern as ITN ownership. The percent of people who used an ITN the previous night was higher among program areas in Hwange (74%) and Kariba (91%) Districts where ITN ownership was high, and lower in Binga (14%), Hurungwe (21%), and Mudzi (13%) District program areas where ITN ownership was low. However, even in areas with lower overall ITN use, almost all people in all districts who did have access to an ITN used it the previous night, suggesting that people will use nets if they have access to them.

Indoor residual spraying (IRS)

The World Health Organization (WHO) recommends that household IRS coverage reaches ≥85% of households in a targeted area for IRS to be most effective. The percent of households that received IRS within 12 months prior to the 2024 KAP Survey exceeded the WHO recommended level among program areas in Binga (99%), Hurungwe (88%), and Mudzi (91%) Districts. This indicator is not reported for Hwange District program areas, since Hwange District's primary form of vector control is LLINs.

Care-seeking behavior for children under age five (<5) with fever

Across all Zimbabwe program areas, 70% of children <5 with fever in the previous two weeks sought care from a health facility or CHW within 24 hours of fever onset. Among children who sought care from a health facility or CHW (regardless of timing in relation to the fever onset), 81% received a malaria test. 100% of children who tested positive for malaria reportedly received Coartem for malaria treatment.

Intermittent preventive treatment of malaria in pregnancy (IPTp)

Across all program areas, 84% of respondents who gave birth within the previous 12 months took 3+ doses of IPTp during their pregnancy. Among program areas at the district level, IPTp 3+ uptake among respondents who gave birth in the past 12 months ranged from 65% in Hurungwe Distrit program areas to 95% in Binga District program areas.

Knowledge and attitudes

The percent of respondents that correctly identified "fever" or "feeling cold/chills" as a symptom of malaria was very high, ranging from 88% in Mudzi District program areas to 100% in Binga District program areas. The percent of respondents that correctly identified the mosquito as the cause of malaria transmission (and listed nothing else incorrect) was also very high, ranging from 91% in Mudzi and Kariba District program areas to 97% in Binga and Hwange District program areas. When asked about their attitudes toward ITNs, IRS, and IPTp as effective malaria prevention methods, 97%, 92%, and 94% (respectively) said the intervention "helps a lot" to prevent malaria.

Section 2. Background

Through the Isdell:Flowers Cross Border Malaria Initiative (IFCBMI), the Anglican Diocese of Matabeleland, the Anglican Diocese of Harare, and the Methodist Church in Zimbabwe – Harare East District facilitate community engagement for malaria elimination in select communities in Matabeleland North, Mashonaland West, and Mashonaland East Provinces, in partnership with the Ministry of Health and Child Care (MoHCC)'s National Malaria Control Program (NMCP) and the J.C. Flowers Foundation. IFCBMI operates on the principle that malaria can be eliminated only if those most affected have the knowledge, skills, and resources to prevent and treat the disease and to advocate for its elimination.

The program supports a network of approximately community health workers (CHWs) and malaria control agents (MCAs) who conduct community-based testing and treatment for malaria, where policy allows, and deliver malaria education and prevention services within their communities. Religious leaders, teachers, and other influential community members support the efforts of this cadre and help to deliver malaria education within churches, schools, and the community as a whole.

IFCBMI received approval from the Medical Research Council of Zimbabwe (MRCZ) and the Research Council of Zimbabwe (RCZ) to conduct this study to gain a better understanding of malaria-related knowledge, attitudes, and practices ("KAP") among community members living within IFCBMI Zimbabwe program areas. This study has three main areas of inquiry:

1) Knowledge: assess knowledge of the cause of malaria and its symptoms
2) Attitudes: understand attitudes toward ITNs, IRS, and IPTp
3) Practices: measure the reported use of and access to insecticide treated nets (ITNs) the night before the survey; reported household indoor residual spraying (IRS) coverage within 12 months prior to the survey; reported uptake of intermittent treatment of malaria in pregnancy (IPTp) among women who gave birth in the 12 months prior to the survey; and the reported trajectory of care for children under five years with fever in the two weeks prior to the survey

The KAP study collects data through a yearly cross-sectional survey in order to understand change in the main areas of inquiry over time. The overall goal of this study is to improve programmatic decision-making and strategic action based on local and recently collected data. Data collected in the KAP study will also highlight opportunities to collaborate across borders with IFCBMI program areas in Namibia and Zambia. Study findings will also be shared with the NMCP, the MoHCC, and the academic community to contribute to the body of knowledge on malaria in these communities in Zimbabwe.

This document presents key results from the 2024 KAP Survey, with select results from the 2023 KAP Survey for comparison over time. Results are representative of IFCBMI program areas and cannot be directly extrapolated to the District, Provincial, or National levels, since IFCBMI program areas do not cover these administrative units in their entirety. However, these results can shed important light on the realities of malaria within these administrative units. A full listing of the IFCBMI Zimbabwe program areas included in the 2024 KAP Survey sampling frame can be found in Appendix 1.

Additional information about methodology, statistical analysis, and additional indicators can be available upon request.

Section 3. Methodology

Sampling frame and sample size

The sampling frame for the 2024 KAP Survey was all IFCBMI program areas in Zimbabwe (Appendix 1). The 2024 sample size was determined to be a minimum of 2200 households, based on power calculations intending to achieve at least 80% power to detect annual incremental improvements in the following primary outcome measures: the proportion of households that had one unused ITN and also at least one uncovered person the night before the survey, the proportion of women who gave birth in the previous 12 months that took 3+ doses of IPTp during their pregnancy, and the proportion of children <5 with fever in the prior two weeks who sought care from a health facility or CHW and did so within 24 hours of fever onset. Sample sizes for KAP Surveys of previous years were calculated in the same manner. Data was collected between 2 July and 18 August 2024.

Table 1. Zimbabwe KAP Survey sample sizes

Province	Program area	2024 sample size
Matabeleland North	Binga District program areas	832
	Hwange District program areas	225
Mashonaland West	Kariba District program areas	156
	Hurungwe District program areas	129
Mashonaland East	Mudzi District program areas	1490
TOTAL		**2832**
Response rate		**100%**

Household selection

Households were sampled by systematic random sampling. A "skip pattern" was calculated such that for a sampling frame of H households comprising IFCBMI Zimbabwe program areas, of which X are to be sampled, each '(H/X)-1' household was surveyed until X households were reached. The first household surveyed in every village was selected randomly by drawing a number 'N' ranging from 1-10 and surveying the household that was 'N' households away from the starting point, which was always the headman's household.

Survey respondents

All survey participants were required to be female, 18 years old or older, and provide verbal consent. If a household selected for the survey included more than one eligible woman, preference was given to the mother or caregiver of the youngest child in the household. Women were surveyed because they are typically the main caregivers of children under five (<5) and therefore are most likely to answer questions about care-seeking behaviour for their children accurately. They also are most likely to answer questions about their own IPTp history accurately.

Data analysis

Descriptive statistics were calculated for all indicators. Descriptive statistics weighted each household to account for its inverse probability of being included in the sample. Statistical tests were conducted to compare findings between survey years. Differences in outcomes that are dichotomous at the individual household level were tested for significance using a regression of the outcome on an indicator for survey year. Differences in outcomes expressed as continuous percentages at the individual household level were tested with a linear regression of the outcome on an indicator for the survey year. The significance threshold was set at .05. Data was analyzed in STATA v 14.2.

Section 4. Results

Results are representative of IFCBMI program areas only and cannot be directly extrapolated to the District, Provincial, or National levels, since IFCBMI program areas do not cover these administrative units in their entirety. However, these results can shed important light on the realities of malaria within these administrative units.

Results comparing data between two survey years only include data from program areas that were surveyed in both years being compared. In the sampling frame for the 2024 KAP Survey, there were two new program area wards within Mudzi District, Masarakufa and Mukota C, as well as some new program area villages within Mashonaland West Province, that had not been surveyed in prior years and thus data from households surveyed in that area are not included in 2023-2024 comparative results. The data from those newly surveyed areas, however, are included in all 2024 descriptive results.

Table 2. Background characteristics, all Zimbabwe program areas combined (2024)

Background characteristic	
Average age of respondent (n)	32.9
Households with at least one child under 5 who slept there the previous night (%)	83%
Average number of children <5 in household the previous night, among households with at least one child <5 (n)	1.4
Households with at least one pregnant woman who slept there the previous night (%)	25%
Average number of people who slept in the household the prior night (n)	4.8
Average number of sleeping spaces (n)	2.6
Households with surrounding standing water, per visual observation of data collector (%)	14%

Table 3. Respondent education level, all Zimbabwe program areas combined (2024)

Education level	**%**
Never attended school	4%
Attended some primary school	9%
Completed primary school	23%
Attended some secondary school	30%
Completed secondary school	32%
Higher than secondary school	2%
Not sure	0%

Insecticide treated nets (ITNs)

All participants were asked about their household ITN ownership and household members use of ITNs the night before the survey.

Figure 1. shows household ITN ownership. There is distinct variation in household ITN ownership between District program areas, which reflect the primary vector control strategy assigned to each District. The primary vector control strategy in Hwange and Kariba Districts is long lasting insecticidal nets (LLINs), while the vector control strategy of Binga, Hurungwe, and Mudzi Districts is indoor residual spraying (IRS).

Among program areas in Hwange District, 91% of households owned at least one ITN, and 89% owned at least one good condition ITN. However, fewer households (57%) own enough ITNs to cover everyone in the household (defined as owning one ITN for every two people in the household). Among program areas in Kariba District, 100% of households owned at least one ITN and 99% own at least one ITN in good condition. Fewer households (52%) own enough ITNs to cover everyone in the household.

Among program areas in Binga, Hurungwe, and Mudzi Districts, where the primary vector control strategy is IRS much fewer households owned at least one ITN (18%, 34%, and 28%, respectively).

Figure 1. Percent of households owning ITNs in various quantities and conditions (2024)

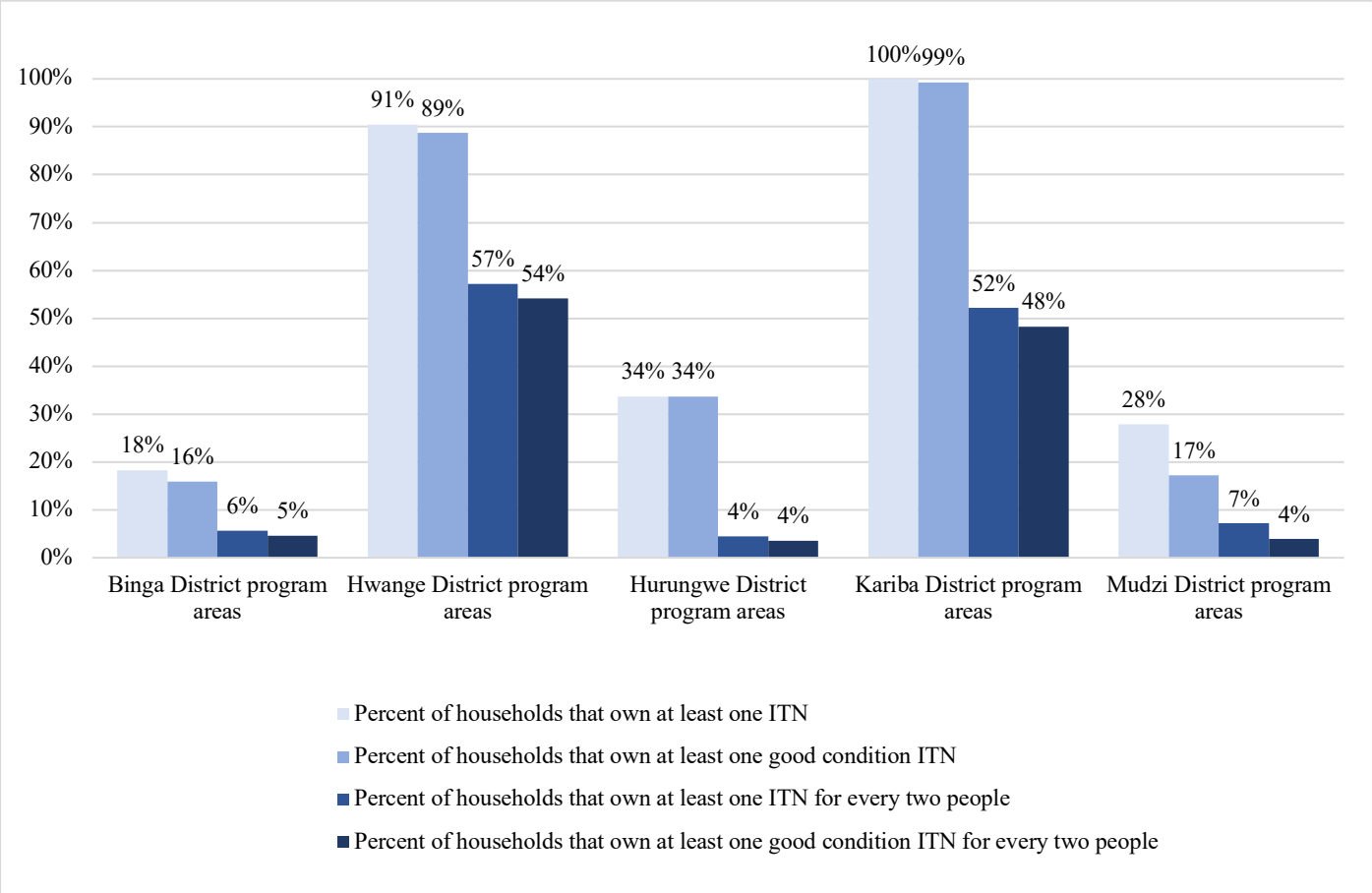


Figure 2. describes intrahousehold access to ITNs, which is the household average of the percent of people who had access to an ITN within their own household the night before the survey, assuming each ITN covers two people. In general, ITN access followed a similar pattern as ITN ownership (shown in Figure 1). Among program areas in Hwange and Kariba Districts where ITNs are the main vector control strategy and thus where household ITN ownership was higher, the percent of people (household average) who had access to an ITN in their own household the previous night was also higher (78% and 87%, respectively). Among program areas in Binga, Hurungwe, and Mudzi Districts where ITNs are not the main vector control strategy and thus household ITN ownership was lower, the percent of people (household average) with access to an ITN in their own household the previous night (ITN access) was also lower (13%, 20%, and 18%, respectively).

Figure 2. Percent of people (household average) who had access to an ITN within their own household the previous night, assuming each ITN covers two people (2024)

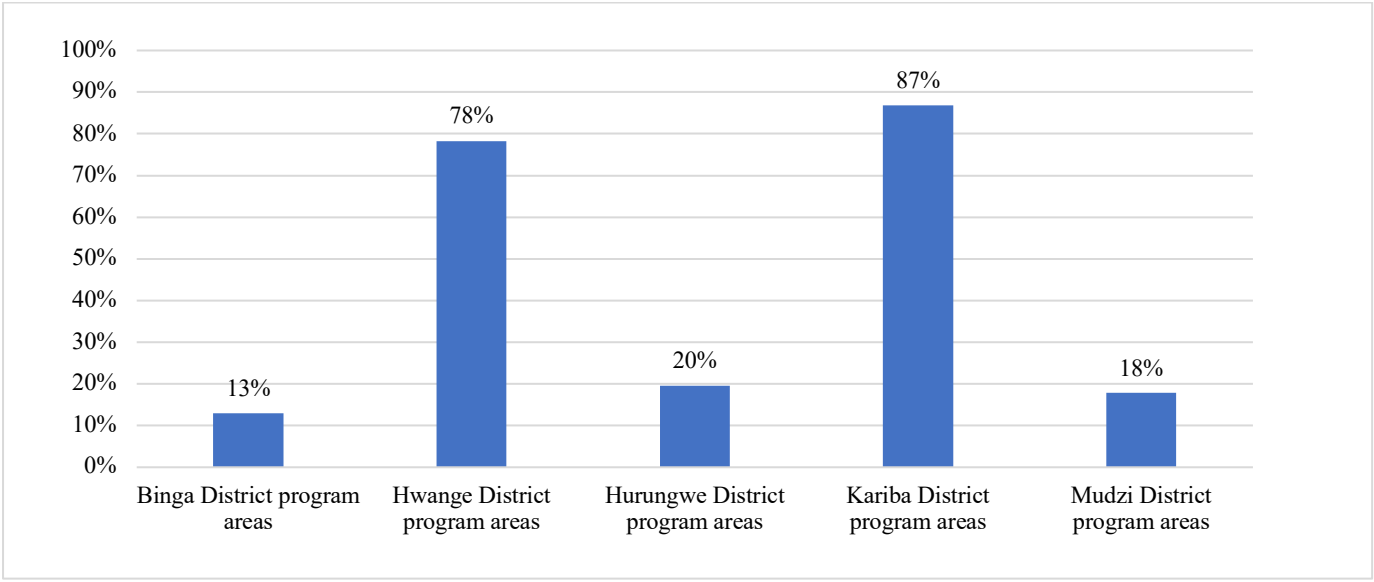
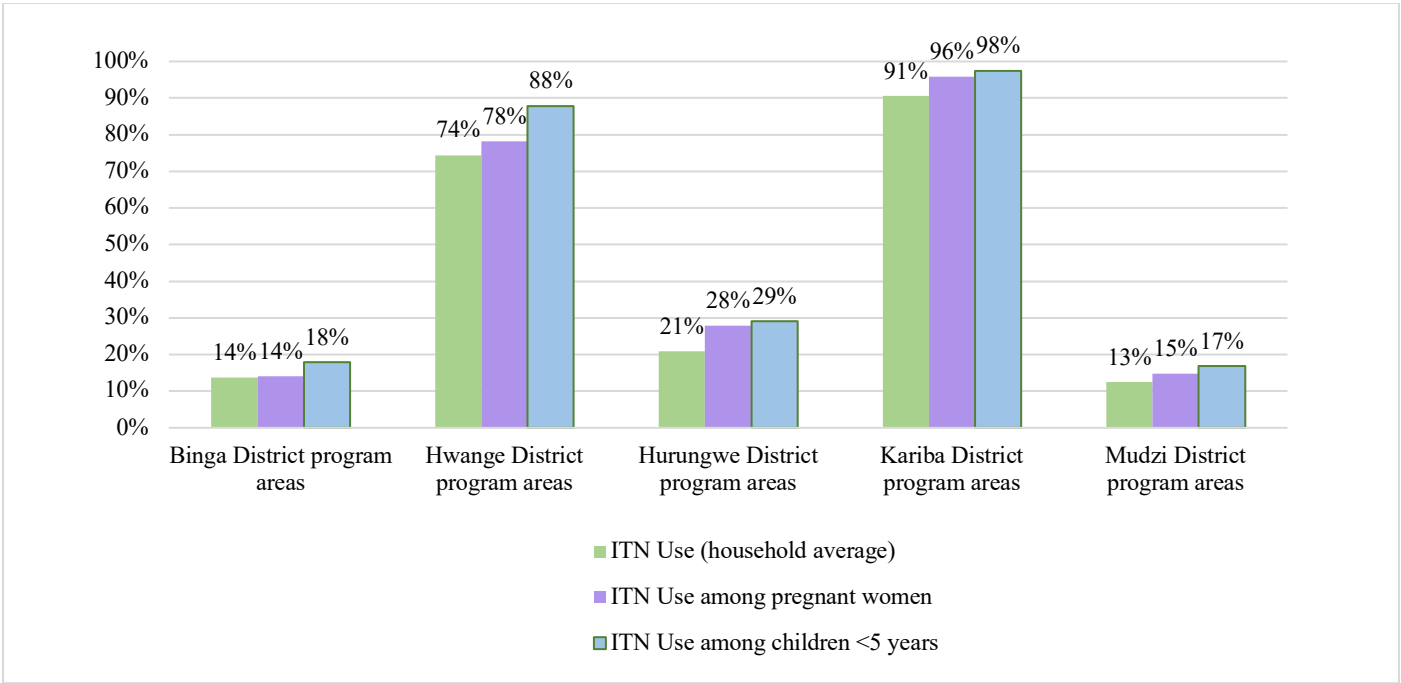


Figure 3. shows use of ITNs, which is the percent of people who slept under an ITN the night before the survey among all household members, among pregnant women, and among children <5. Previous night ITN use also follows the same patterns of ITN ownership and ITN access. The percent of people who used an ITN the night before the survey was higher among program areas in Hwange District (74%) and Kariba District (91%) where ITNs are the main vector control strategy, and lower among program areas Binga District (14%), Hurungwe District (21%), and Mudzi District (13%) where ITNs are not the main vector control strategy. In most areas, pregnant women and children <5 slept under an ITN at equivalent or higher levels than the general population, suggesting that these higher-risk groups are correctly being prioritized to sleep under ITNs when there aren't enough ITNs to cover everyone in the household.

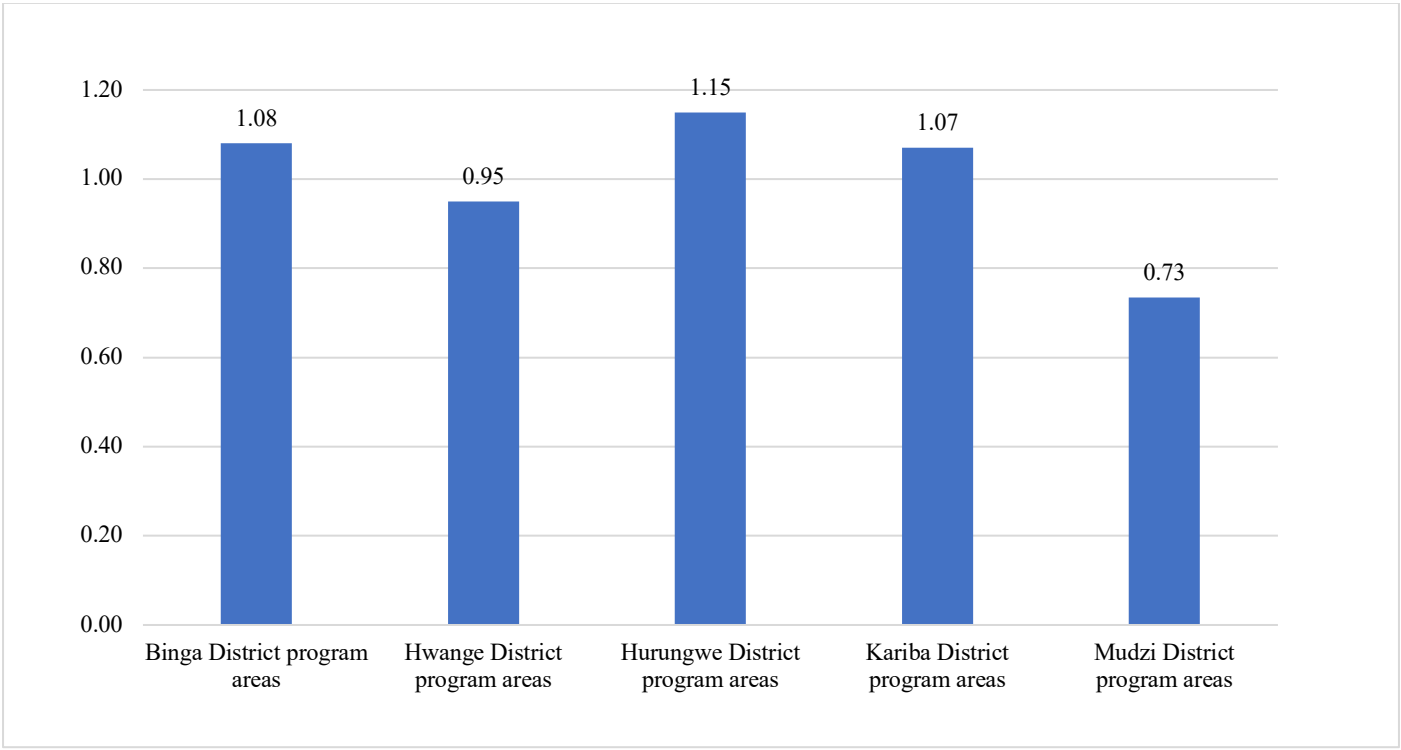
Figure 3. Percent of people, percent of pregnant women, and percent of children <5 who slept under an ITN the previous night (2024)



The ITN Use:Access Ratio (Koenker and Kilian 2014) is a recommended indicator to better understand if poor ITN use behaviour (e.g. not utilizing an ITN that the household already owns) is contributing to the low ITN use. Ratios below 0.80 indicate that there is room for behaviour change, meaning that there were some available ITNs that went unused when someone could have been sleeping under it. Ratios above 0.80 indicate that there is likely only a small amount of room for improvement in the behaviour of sleeping under an ITN. Ratios of ITN use to ITN access above 1.0 indicate that more than two people are sharing a net, on average.

Figure 4 shows the ITN Use:Access Ratio. In Binga, Hurungwe, and Kariba District program areas, the ITN Use:Access Ratio was above 1.0 (1.08, 1.15, and 1.07, respectively), indicating that all available ITN spaces were being used and, in many cases, more than two people were sleeping under an ITN. This suggests that desired ITN use behavior is high and most people will use ITNs if they have them, even in areas where ITNs are not currently the main vector control strategy (such as in Binga and Hurungwe Districts). This shows that ITNs are very widely accepted in these areas. At the District level, Mudzi District had the lowest ratio at 0.73 indicating that there could be some room for behavior change improvement, in addition to increasing ITN access.

Figure 4. ITN Use:Access Ratio (2024)

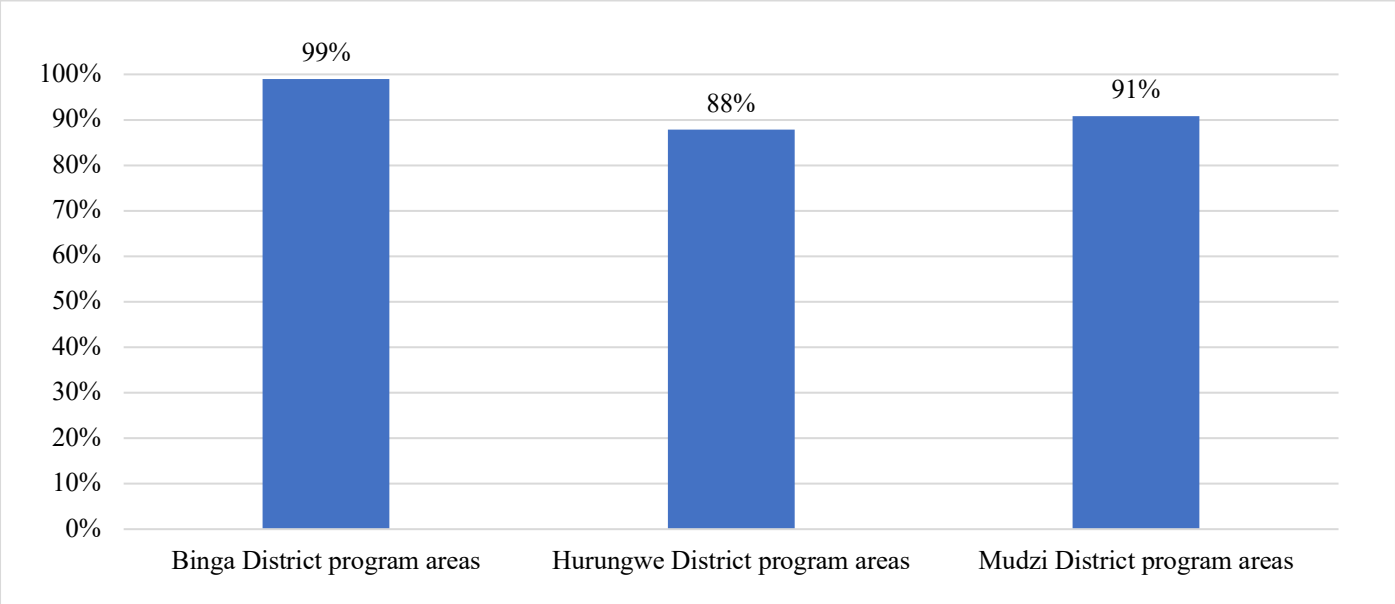


Indoor residual spraying (IRS)

Figure 5. shows the percent of households that reported receiving IRS within 12 months prior to the 2024 KAP Survey, among program areas within districts where IRS was the main vector control strategy during that time.

The World Health Organization indicates that at least 85% of households within a targeted area must receive IRS in order for IRS to be most effective. The 2024 KAP Survey results showed that past-12 month household IRS coverage reached the WHO-recommended level of ≥85% among program areas in Binga (99%), Hurungwe (88%), and Mudzi (91%) Districts.

Figure 5. Percent of households that received IRS within 12 months prior to the survey (2024)



If a respondent indicated that their household did *not* receive IRS within 12 months prior to the survey, they were asked why their household did not receive it. The most common reason given for not receiving IRS was "no one was at my household when the spray team came to offer IRS" (10/10 unsprayed households in Binga District, 8/16 unsprayed households in Huurngwe District, 92/137 unsprayed households in Mudzi District). Ensuring widespread awareness of IRS campaigns well in advance could help decrease the number of people who are away from their household when IRS is offered in future campaigns.

Care-seeking behaviour

There are several key steps in the ideal trajectory of care for children under five years (<5) with fever: go to a health facility or community health worker (CHW) within 24 hours of fever onset, receive a malaria test, receive treatment if positive for malaria, and take the full course of the medication. Each step in the trajectory of care presents an opportunity for children to be "missed" and, therefore, for possible malaria infections to be left undiagnosed or untreated. The steps in the trajectory of care depend on both individual behavior and availability of health services. The trajectory of care cascade (Figure 6) helps to visualize the gaps within the care-seeking trajectory of children <5 with fever.

If respondents indicated that they were a mother or caregiver of a child <5, they were asked if their child had a fever within the previous two weeks and, if yes, about their child's trajectory of care for that fever. The largest gap in the trajectory of care was seeking care within 24 hours of the start of the fever. Among respondents whose child <5 had a fever in the previous two weeks, 385/605 (64%) sought care from a health facility or CHW within 24 hours of the fever onset. The second largest gap in the trajectory of care was seeking care for the child's fever at all (regardless of where care was sought or the time frame relative to the fever onset). Among respondents whose child <5 had a fever in the previous two weeks, 529/605 (88%) sought care for the child's fever.

Figure 6. Number of children at each step in the trajectory of care cascade for children <5 with fever within the two weeks prior to the survey, all program areas combined (2024)

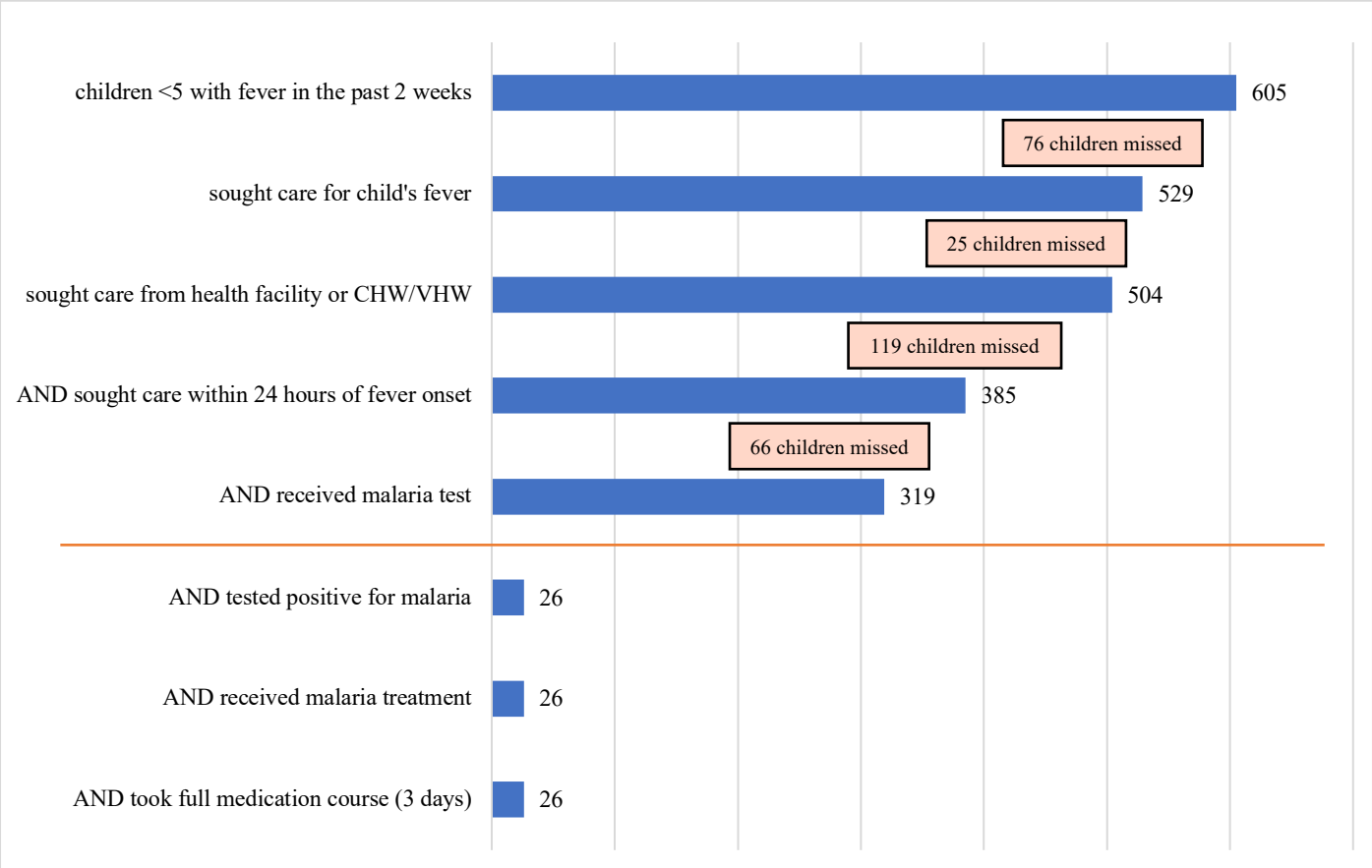


Table 4. shows the three key indicators of the trajectory of care for children <5 with fever across all Zimbabwe program areas from 2023 and 2024 KAP Survey years:

1. the proportion of children <5 with fever who sought care within 24 hours of fever onset
2. the proportion who received a malaria test among those who sought care from a health facility or CHW
3. the proportion who received malaria treatment among those who tested positive for malaria.

Results in Table 4. are inclusive only of areas that were surveyed in both years (two newly wards within Mudzi District, Masarakufa and Mukota C, which were only surveyed in 2024 were excluded from this analysis). Statistically significant changes between 2023-2024 are denoted by bold font, arrows, and p-values.

Across all Zimbabwe program areas, the proportion of children <5 with fever in the two weeks prior to the survey who sought care from a health facility or CHW within 24 hours of the start of the fever increased significantly between 2023-2024, from 61% to 70% (p=0.001). However, the proportion of children <5 with fever in the past two weeks that received a malaria test, among those who sought care from a health facility or CHW, decreased significantly between 2023-2024, from 89% to 81% (p=0.001). The proportion of children who received Coartem for treatment of malaria, among those who reportedly tested positive for malaria, has remained at 100%.

Table 4. Key indicators in the trajectory of care for children <5 with fever in the prior two weeks (%), all program areas combined (2023-2024)

Percent of children<5 with fever in the pst two weeks who:	**2023**	**2024**
sought care from a health facility or CHW within 24 hours of fever onset	61%	**70%↑** (p=0.001)
received a malaria test, among those who sought care from a health facility or CHW	89%	**81%↓** (p=0.001)
received malaria treatment, among those who tested positive for malaria	100%	100%

Intermittent preventive treatment of malaria in pregnancy (IPTp)

Figure 7. shows the proportion of women that reported taking three or more (3+) doses of IPTp during their pregnancy, among those who gave birth within 12 months prior to the 2024 KAP Survey. Significant changes from the previous survey year are denoted by bold font. Between 2023 and 2024, there was a statistically significant increase of respondents who took 3+ doses of IPTp during their pregnancy (among those respondents who reported giving birth within 12 months prior to the surveys) across all program areas, from 77% in 2023 to 84% in 2024 (p=0.008).

Figure 7. Percent of women who took 3+ doses of IPTp during their pregnancy, among those who gave birth in the 12 months prior to the survey, all program areas combined (2023-2024)

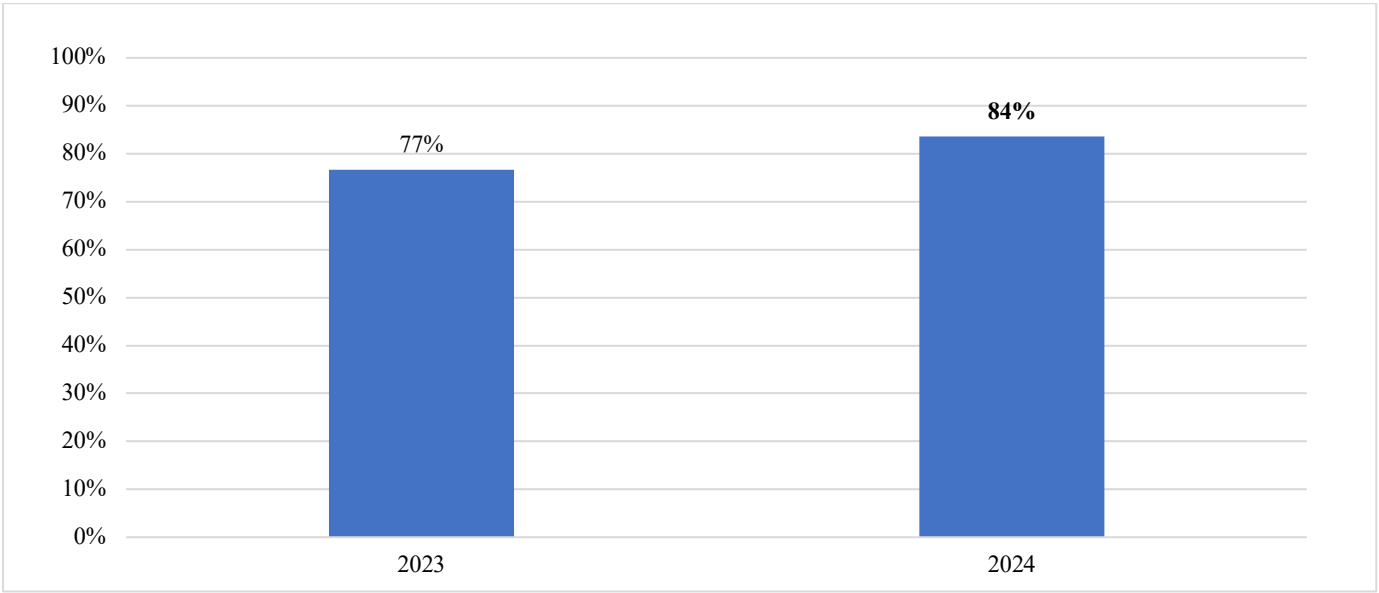


Table 5. shows the percent of women who gave birth in the previous 12 months that took 3+ doses of IPTp during their pregnancy by program areas at the district level in 2024. Numerator and denominators of percentages are included since subsamples of respondents who gave birth in the previous 12 months are small in some areas. The percent of respondents who took 3+ doses of IPTp during their pregnancy ranged from 65% in Hurungwe District program areas to 95% in Binga District program areas.

Table 5. Percent of women who took 3+ doses of IPTp during their pregnancy, among those who gave birth in the 12 months prior to the survey (2024)

Program area	**2024**
Binga District program areas	95% (159/167)
Hwange District program areas	78% (32/41)
Hurungwe District program areas	65% (11/17)
Kariba District program areas	80% (15/19)
Mudzi District program areas	69% (213/306)

Knowledge and attitudes

Respondents were asked questions pertaining to their knowledge of malaria symptoms and cause. Figure 8. shows the proportion of respondents who identified "fever" or "chills" as a symptom of malaria. Correct knowledge of fever as a symptom of malaria was high, ranging from 88% of respondents in Mudzi District program areas to 100% in Binga District program areas.

Figure 8. Percent of respondents who correctly identified "fever/chills" as a symptom of malaria (2024)

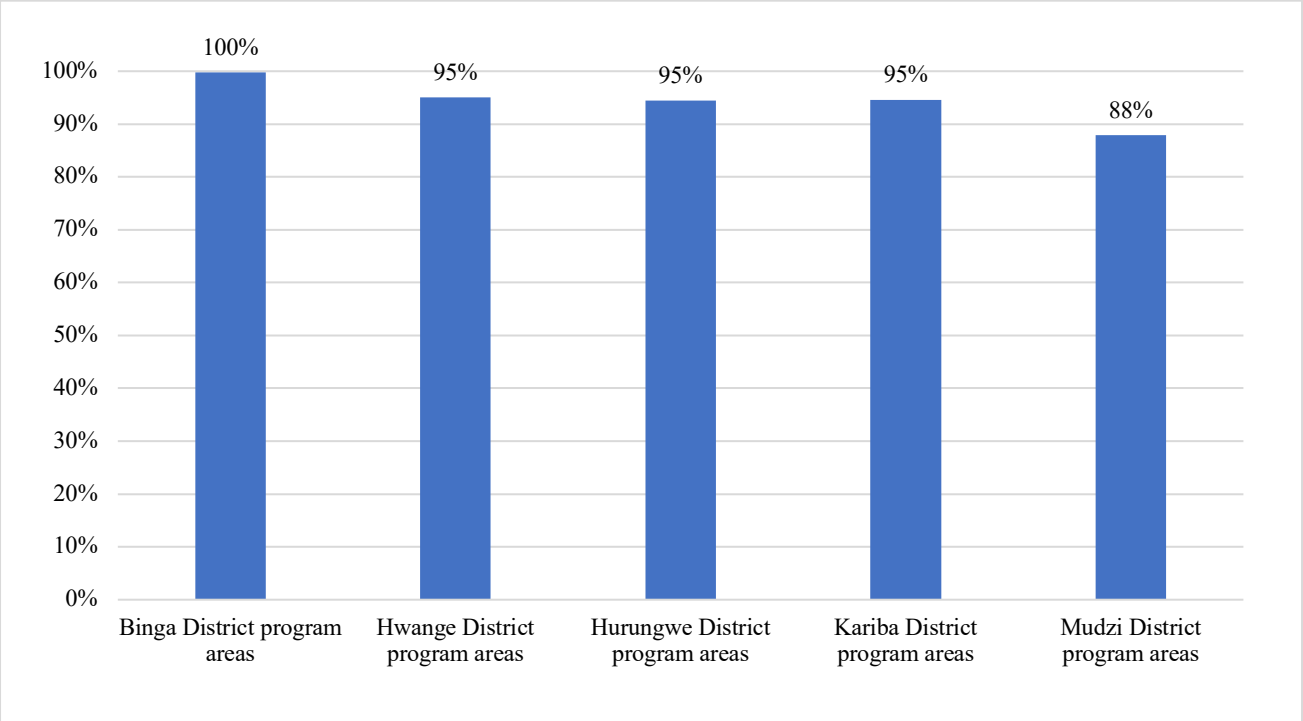
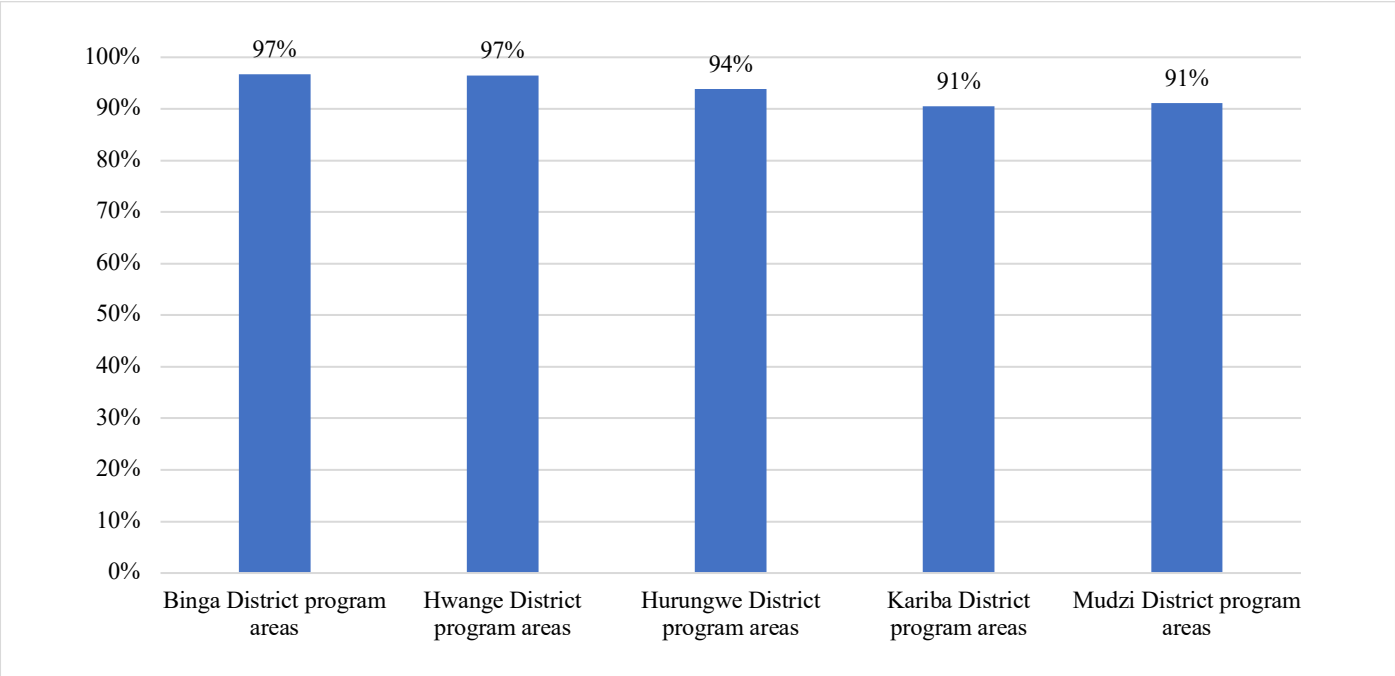


Figure 9. shows the proportion of respondents who identified the mosquito as the cause of malaria and mentioned nothing else incorrect (such as eating unripe fruit or getting soaked in the rain). Correct knowledge of the mosquito being the cause of malaria transmission was high, ranging from 91% in Kariba and Mudzi District program areas to 97% in Binga and Hwange District program areas.

Figure 9. Percent of respondents who correctly identified the mosquito as the cause of malaria transmission (and mentioned nothing else incorrect) (2024)



Respondents were asked whether they believed that ITNs, IRS, and IPTp "helps a lot," "helps a little," or "does not help" to prevent malaria. Table 6. shows these results from 2023-2024 KAP Surveys. Results in Table X. are inclusive only of areas that were surveyed in both years (two newly wards within Mudzi District, Masarakufa and Mukota C, which were only surveyed in 2024 were excluded from this analysis). Statistically significant changes between 2023-2024 are denoted by bold font, arrows, and p-values. In general, most participants believed that all three of these interventions "help a lot" to prevent malaria. Between 2023-2024, the proportion of respondents who believed that IRS "helps a lot" to prevent malaria increased significantly, from 88% to 92% (p=<0.001), as did the proportion who believed that ITNs "help a lot" to prevent malaria, from 94% in 2023 to 97% in 2024 (p=<0.001).

Table 6. Percent of respondents that believe that ITNs, IRS, and IPTp "help a lot" to prevent malaria, all program areas combined (2023-2024 KAP Surveys)

Attitude	2023	2024
Think that ITNs "help a lot" to prevent malaria	94%	**97%↑ (p=<0.001)**
Think that IRS "helps a lot" to prevent malaria	88%	**92%↑ (p=<0.001)**
Think that IPTp "helps a lot" to prevent consequences of malaria in pregnancy	94%	94%

Appendix 1. 2024 KAP Survey sampling frame (all IFCBMI Zimbabwe program areas)

Province	District	Ward	Village
Mashonaland West	Hurungwe	Kazangarare	Zuze
			Mhurupuru
			Kazangare
			Kaunda
			Masokoti
			Tafirenyika
		Dete	Maendaenda
			Nyachowe
			Chidimure
			Maendaenda B
			Mugwagwa
		Chibara	Raisi
			Nyatsona
			Makuni
			Musokeri
			Mutowa
		Chundu	Ranjisi Village 4
			Kanhuwa
			Chinhema
			Chipokeni
			Madhumba
		Masanga	Nyikadzino
			Nziramasanga
			Murisa
			Manguwe
			Mutemachani
		Nyamakate	Charlle
			Lima
			Golf A
			Papa
			31A
			Alpha A
			Murimbika
		Chirundu	Valley
			Heights
			Estates
		Deve	Musiiwa
			Mhosva
			Kapesa
			Matonhedze
	Kariba	Chalala	Village 9
			Chitenge
		Mola	Mangwara
			Dove
			Chiweshe
			Naboli
		Mayovhe	Mayovhw fishing camp
			Mazambuko
			Sianungu
			Jongola
		Negande	Seremwe
			Malaiti
			Guyu
			Kanyongo
			Chikumba
Matabeleland North	Binga North	Sinakoma	Matala
			Chivwetu
			Dongamuse
			Kalamba
			Nsungwale
			Nampande
			Chininga
			Sianyanga
		Chunga/22	Bbotela
			Njobola
			Sinamwenda
			Siakanchele
			Tyaba
		Lunga/1	Sinakatenge
			Sinamunsanga
			Lunga
			Nsengwa
			Chipampa
			Mujele
			Keja
		Sinansengwe/5	Mucheni

Province	District	Ward	Village
			Sikabinga
			Mbalule
			Zuka
			Makondo
			Chitete
			Mwenda
			Malinda
	Binga South	Manjolo	Siangwemu
			Manjolo
			Nalubuyu
		Simatelele	Chileya
			Masawu
			Zingozo
			Kasikili
			B/Kraal
			Lokola
		Siansundu	Siameja
			Chijalamatanga
			Sianjomwa
			Minsale
			Miimpo
			Siavwandu
			Kadika
			Mimbo
			Simwenge
			Milbizi
		Lubanda	Makunku
			Katete
			Chesamba
			Lubanda
		Saba	Kenjobo
			Siamusale
			Kamalumbu
			Sicimvwali
			Mupambe
			Chabumbulukwa
			Mabhonga
			Saba
		Siachilaba	Siantungwani
			Siamwinde 1
			Siamwinde 2
			Chumpamanda
			Siansise 1
			Siansise 2
			Sianoti
		Sikalenge	Msenampongo
			Sikalenge
			Damba
			Siabbanga
			Mangogo
			Delampuli
			Kelamenda
	Hwange	Dete	Bote 1
			Bote 2
			NRZ 1
			NRZ 2
			Soweto
			Mtuya 1
			Mtuya 2
		Kamativi	Chikanga & “B6” Section
			“A” Section
			“B” &“C” Section
			“CB” & “D” Section
			Village 21
			Chilonga
			Sena FM
			Ndumichenga
			Katete
			Village 22
			Sena
			Lwaanzi
		Mwemba	Shashachunda
			Mashala Top
			Kalisonde
			Mugambo
			Jejeti
			Mwemba
		Simangani	Simangani
			Makwa 1

Province	District	Ward	Village
			Makwa 2
			Chezya
		Jambezi	Chenje 1
			Tamuka
			Nyikanyoro
			Zhulandangalilo 2
			Jambezi centre
			Chenje 2
			Chenjiri
			Bupenyubwamangwana
			Manono
			Chikamba
			Zhulandangalilo 1
			Ndimakule
			Takazupila
Mashonaland East	Mudzi	Chikwizo A	Amoni
			Arongani
			Chakuposhiwa
			Chando
			Chikuyeni
			Dakati
			Dick
			Gasani
			Joromani
			Kajawo
			Kamutoto
			Kanyoka 1
			Kanyoka 3
			Kanyoka 4
			Kudyakunopeta
			Machisa
			Manyangarirwa
			Maonera
			Marusi
			Masewo
			Mazonde
			Mubweza
			Mupingiza
			Mutize
			Muyembe
			Nyabanga
			Nyambo
			Nyamukacha
			Nyandoro
			Tembo
			Tubu
			Zambezi
			Zano
			Zinhu
		Goronga A	Botso
			Charambadeya
			Chikungwa
			Josi
			Kasuso
			Katakura
			Makosa
			Marovha
			Mbwadzi
			Mudzimu
			Mukombwe
			Mukuramimba
			Mutamangira
			Mutekede
			Mutesva
			Mutoko
			Muvhiza
			Nyahuna
			Nyakupata
			Tsonga
			Tsonga A
			Tsonga B
		Goronga B	Chingwena
			Gorohoro
			Jeke
			Kanobata
			Kasuso 2
			Mafuta
			Mavhura
			Mupatiseni

Province	District	Ward	Village
			Mututa
			Muwadzi
			Tangi
			Tizora
		Mukota D	Barichoro
			Bvunzawabaya
			Chamburuka
			Charamba
			Chibedura
			Chigan'a
			Chimuramba
			Chimutsanya
			Jigu
			Kambeva
			Kamburanyanga
			Kanyimo
			Kungwengwe
			Kurima
			Magohoto
			Maruza
			Mombemuriwo
			Murapura
			Musau
			Mususa
			Mutinha
			Nyamande
			Nyamudandara
			Nyamutin'a
			Ranja
			Rupiya
			Saizi
			Takuranaho
			Tsabora
			Zongoro
		Mukota A	Rongani
			Chiringa
			Zhuwau 1
			Zhuwau 2
			Nyabonde
			Katena 1
			Katena 2
			Katena 3
			Katena 4
			Mbeko
			Kamutondore
			Nyamhimvu A
			Nyamhimvu B
			Chikoko
			Dzidzi 1
			Dzidzi 2
			Madzinga
			Kachepa
			Kasere 1
			Karumba 1
			Makaza 1
			Makaza 2
			Chanetsa 1
			Nyarongo
			Magohoto 2
			Magohoto 3
		Masahwa	Zano masahwa
			Tsekese
			chimwara
			Kambanje
			Bvunzawabaya
			Mushonga
			Tembo
			Makanjera
			Champion
			Mare
			Chibanzu
			Chiwaka
			Takwanisa
			Chiringa
			Chinogurei
			Nyakutira
			Nyamhanza
			Tambudze
			Gatakata

Province	District	Ward	Village
			Ngwaru
			Sarauchirehwa
			Chikona
			Revai
			Tigere
			Panganai
			Solomon
			Marikopo
			Katsande
			Kachara
			Muocha
			Kakore
		Chikwizo B	Musaruro
			Navhaya
			Mazowe
			Kapoto
			Tera
			Chiwaka
			Mudapakati
			Spanera
			Teketeke1
			Teketeke2
			Teketeke3
			Ndamba
			Kanofema
			Chimango
			Taona
			Mutedza
			Kamumbarazina
			Mupaso
			Matasva
			Mushamba
			Zavhedo1
			Zavhedo 2
			Chikonyora
			Nyamusa
			Chamburuka
		Masarakufa	Tapfuma
			Tsuro
			Tsanga
			Tsungu
			Kahuni
			Chinzeti
			Chitai
			Machemedze
			Chesango
			Chingwena
			magauze
			Mukwaira
			Karonga
			Nyahuni
			Marodza
			Manemwe
			Manduza
			Masika
			Nyagupe
			Mujayi
			Manyengere
		Mukota C	Chatima
			Masembura
			Zondo
			Chokufuna
			Mbudzi
			Shoriwa
			Mapundu
			Sajeni
			Chiwaka
			Chimunhu
			Kunyima

Appendix 2. References

Koenker, Hannah, and Albert Kilian. 2014. "Recalculating the Net Use Gap: A Multi-Country Comparison of ITN Use versus ITN Access." *PLoS One* 9(5): e97496.