

J.C. FLOWERS  
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# **Assessing malaria-related knowledge, attitudes, and practices among community members within the programme areas of the Isdell:Flowers Cross Border Malaria Initiative**

**Results from Zimbabwe Program Areas  
Data collected between 15 April and 8 May 2021**

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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
MCA	malaria control agent
MoHCC	Ministry of Health and Child Care
NMCP	National Malaria Control Programme
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 and the Methodist Church in Zimbabwe – Harare East District facilitate community engagement for malaria elimination in select border communities in Matabeleland North, Mashonaland West, and Mashonaland East provinces, in partnership with the Ministry of Health and Child Care (MoHCC) 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.

IFCBMI is conducting a study to understand malaria-related knowledge, attitudes, and practices (“KAP”) among community members living within program areas. This study collects data through a cross-sectional survey that is repeated yearly from 2021-2024, with the overall goal of informing programmatic decision-making and strategic action based on local and recently collected data. The study’s main areas of inquiry are to measure: use of and access to insecticide treated nets (ITNs); reported indoor residual spraying (IRS) coverage; uptake of 3+ doses of intermittent preventive treatment of malaria in pregnancy (IPTp); patterns of care-seeking behaviour for febrile children under the age of 5 years (<5); knowledge of the cause of malaria and its symptoms; and attitudes towards ITNs, IRS, and IPTp.

This report presents the key findings from the 2021 KAP Survey, with select datapoints from 2019 program monitoring data for comparison. 2021 KAP Survey results are representative of IFCBMI program areas and cannot be directly extrapolated to the District, Provincial, or National level. A full listing of the villages included in the sampling frame can be found in Appendix 1. A summary of the main findings is below:

### Indoor residual spraying (IRS)

- The percentage of households that reported receiving IRS within 12 months prior to the survey ranged from 88% in Mudzi District program areas to 94% in Kariba District program areas. At the Ward level, almost all IFCBMI Zimbabwe program areas reached the World Health Organization recommended IRS coverage of  $\geq 85\%$  of households.
- Among households that did not receive IRS in the 12 months prior to the survey, 66% of households said that they did not receive it because they were not at home at the time the spray team came to their household. Reported IRS refusals ranged from 0% in Hurungwe and Kariba District program areas to 9% in Hwange District program areas, among households that did not receive IRS in the past 12 months.

### Insecticide treated nets (ITNs)

- ITN Use (% of people who slept under an ITN the night before the survey) was relatively low, ranging from 18% in Mudzi District program areas) to 43% in Kariba District program areas in 2021.
- Though levels of ITN use among pregnant women and children <5 are relatively low, in most program areas these vulnerable groups used ITNs at higher levels than the average person, indicating that they are rightly being prioritized to sleep under an ITN when there are not enough ITNs to cover everyone in the household. The proportion of pregnant women who used an ITN the night before the survey ranged from 17% in Mudzi District program areas to 46% in Hurungwe District program areas. The proportion of children <5 years who used an ITN the night before the survey ranged from 22% in Mudzi District program areas to 47% in Kariba District program areas.
- Between 35%-49% of households own at least one ITN, but only between 7%-22% of households owned enough ITNs to cover all the people who sleep there (assuming that one ITN covers two people). Between 21%-39% of people in households had access to an ITN in their own household, on average. This means that there are not enough ITNs within households to cover everyone who sleeps there.
- Despite low ITN Ownership and ITN Access, most people who *do* have access to ITNs are using them. The ITN Use:Access Ratio, ranged from 0.90-1.12, meaning that people who have access to ITNs are using them. This indicates that the low overall ITN Use is likely due to lack of access to ITNs, and not due to people choosing not to sleep under them.

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

- The percent of mothers/caregivers who sought care for their febrile child from a health facility or CHW/VHW within 24 hours of the start of the fever ranged from 59% in Hurungwe District program areas to 68% in Kariba District program areas, meaning there are still many mothers/caregivers that are either not seeking care for their child’s fever from a health facility or CHW/VHW and/or not seeking care within 24 hours of the start of the fever.
- Among children with fever who sought care from a health facility or CHW/VHW, the percentage that received a malaria test ranged from 59% in Kariba District program areas to 87% in Mudzi District program areas.

### Intermittent preventive treatment of malaria in pregnancy (IPTp)

- The percentage of women who reported taking 3+ doses of IPTp during their pregnancy ranged from 63% in Mudzi District program areas to 83% in Hwange District program area. Of those women who gave birth in the past 12 months that did *not* take IPTp during their pregnancy, 90% said they did not take it because they were not offered it.

### Knowledge

- The large majority of participants know that malaria can be deadly if left untreated (96%-99%). Between 88% and 94% of respondents correctly identified fever/chills as a main symptom of malaria, and between 84 and 89% of respondents correctly identified mosquitoes as the cause of malaria transmission.

## **Section 2. Background**

Through the Isdell:Flowers Cross Border Malaria Initiative (IFCBMI), the Anglican Diocese of Matabeleland and the Methodist Church in Zimbabwe – Harare East District facilitate community engagement for malaria elimination in select border communities in Matabeleland North, Mashonaland West, and Mashonaland East provinces, in partnership with the Ministry of Health and Child Care (MoHCC) 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 Diocese of Matabeleland supports a network of approximately 200 village health workers (VHWs) and malaria control agents (MCAs) and the Methodist Church in Zimbabwe supports a network of approximately 50 community health workers (CHWs) who conduct community-based testing and treatment for malaria, where policy allows, and deliver malaria education and prevention services within their communities. Each VHW, MCA, and CHW supports between 20-50 households. Religious leaders, teachers, and other influential community leaders support the efforts of this cadre and deliver malaria education for sensitization within churches, schools, and the community as a whole.

The Isdell:Flowers Cross Border Malaria Initiative received approval from the Medical Research Council of Zimbabwe (MRCZ) and the Research Council of Zimbabwe (RCZ) to conduct a 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) measure the reported use of and access to insecticide treated nets (ITNs); acceptance of indoor residual spraying (IRS) coverage; uptake of 3+ doses of IPTp among women who gave birth in the past year; and patterns of care-seeking behaviour for febrile children under the age of 5 years
- 2) assess knowledge of the cause of malaria and its symptoms
- 3) understand attitudes toward ITNs and IRS

The KAP study collects data through a cross-sectional survey that is repeated yearly, 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 National Malaria Control Programme (NMCP), the Ministry of Health and Child Care (MoHCC), and the academic community to contribute to the body of knowledge on malaria in these communities in Zimbabwe.

This document presents results primarily from the 2021 KAP Survey. In addition to the formal 2021 KAP Survey research results, select internal program monitoring data from 2019 is included for reference, but is not part of the formal research study. **The results in this report are representative of IFCBMI Zimbabwe program areas and cannot be extrapolated to the District, Provincial, or National level. A full listing of the villages included in the sampling frame can be found in Appendix 1.**

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

### **Section 3. Methodology**

#### **Sampling frame and sample size**

The sampling frame for the KAP Survey was all IFCBMI program areas in Zimbabwe (Appendix 1). The 2021 sample size was determined to be a minimum of 2000 households, based on power calculations intending to achieve at least 80% power to detect annual “incremental improvements” in the primary outcome measures: ITN use, IRS acceptance, 3+ doses of IPTp, and appropriate care-seeking behaviour for children <5 with fever. Sample sizes were calculated at the village level in proportion to their sizes relative to the total program area, meaning the data is representative of all IFCBMI program areas in Zimbabwe. Data cannot, however, be directly extrapolated to the Ward, District, Provincial, or National level since IFCBMI program areas do not cover entire Wards/Districts/Provinces. Table 1 shows actual sample sizes from 2021 KAP Survey data collection. Table 2 shows the sample size of the 2019 internal program monitoring data. Dates of data collection for both the 2021 KAP Survey and 2019 program monitoring data are displayed in Table 3.

**Table 1. Zimbabwe KAP Survey sample sizes (2021)**

<b>Province</b>	<b>District</b>	<b>2021 Sample size</b>
Matabeleland North	Binga	675
	Hwange	285
Mashonaland West	Kariba	117
	Hurungwe	250
Mashonaland East	Mudzi	810
Total consenting participants		2137
Response rate		99.9%

**Table 2. Zimbabwe IFCBMI internal program monitoring data sample size (2019)**

<b>Province</b>	<b>District</b>	<b>2019 Sample size</b>
Matabeleland North	Binga	618
	Hwange	389
Mashonaland West	Kariba	169
	Hurungwe	565
Mashonaland East	Mudzi	1026
Total community members		2767

**Table 3. Data collection timeframe for 2019 program monitoring data and 2021 KAP Survey**

<b>Data type</b>	<b>Data collection months</b>
2019 program monitoring data	February – March 2019
2021 KAP Survey	15 April – 8 May 2021

#### **Survey respondents**

All survey participants were female, 18 years old or older, and provided written consent. If a household selected for the survey included more than one eligible woman, preference was given to the mother or caretaker of the youngest child. Women were surveyed because they are typically the main caretakers of children <5 and therefore are most likely to answer questions about care-seeking behaviour for their children accurately.

#### **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.

#### **Data analysis**

Descriptive statistics were calculated for all indicators for 2021 KAP Survey data. Descriptive statistics weighted each household to account for its inverse probability of being included in the sample. Data was analysed in STATA v 14.2. No tests were conducted to assess statistical significance between program areas for the same year, nor were there tests conducted to assess statistical significance between 2019 program monitoring data and 2021 KAP Survey data (since the 2019 program monitoring data was not part of the formal research study and is just included for reference).

## Section 4. Results

**Table 4. Respondent demographics and household information**

2021 KAP Survey data

Indicator	Binga District program areas	Hwange District program areas	Kariba District program areas	Hurungwe District program areas	Mudzi District program areas	All Zimbabwe program areas
Sample size	675	285	117	250	810	2137
Average age of respondent	29.8	32.7	27.9	28.1	31.0	30.3
% of households with at least 1 child under 5	75%	74%	83%	77%	98%	85%
Average number of children under 5 years old in household, among households with children under 5	1.5	1.3	1.4	1.3	1.3	1.4
% of households with at least one pregnant woman	51%	36%	30%	50%	10%	31%
Average # of people who slept in the household last night	5.2	4.7	4.5	4.9	5.2	5.1
Average # of sleeping spaces	3.2	2.8	2.4	2.6	2.5	2.8
% of households with surrounding standing water (per visual observation of data collector)	14%	15%	15%	14%	3%	10%

**Table 5. Respondent education level**

2021 KAP Survey data

Education level	Binga District program areas	Hwange District program areas	Kariba District program areas	Hurungwe District program areas	Mudzi District program areas	All Zimbabwe program areas
Sample size	665	281	117	248	810	2121
% never attended school	14%	8%	10%	4%	4%	8%
% attended some primary school	17%	14%	19%	15%	12%	14%
% completed primary school	24%	22%	22%	16%	29%	25%
% completed some secondary school	26%	23%	27%	34%	36%	31%
% completed secondary school	17%	29%	22%	28%	19%	21%
% higher than secondary school	3%	3%	2%	2%	1%	2%

## Indoor residual spraying (IRS)

Figure 1 shows the percentage of participants who reported that their household received indoor residual spraying (IRS) in the 12 months prior to the survey. Results reflect the IRS campaign from the previous year, due to the timing of data collection. It is important to note that IFCBMI Zimbabwe program areas do not cover entire Districts or Wards, so these results are not directly extrapolatable to the entire District or Ward level. A full listing of villages included in the KAP Survey is in Appendix 1.

Within IFCBMI Zimbabwe program areas, the percentage of surveyed households that reported receiving IRS in the 12 months prior to the survey ranged from 88% in Mudzi District program areas to 94% in Kariba and Binga District program areas. Compared to 2019 internal program monitoring data from the same areas, reported IRS coverage improved in all program areas at the District level between 2019-2021.

**Figure 1. Households that received IRS in the previous 12 months within IFCBMI District program areas**

2019 program monitoring data & 2021 KAP Survey data

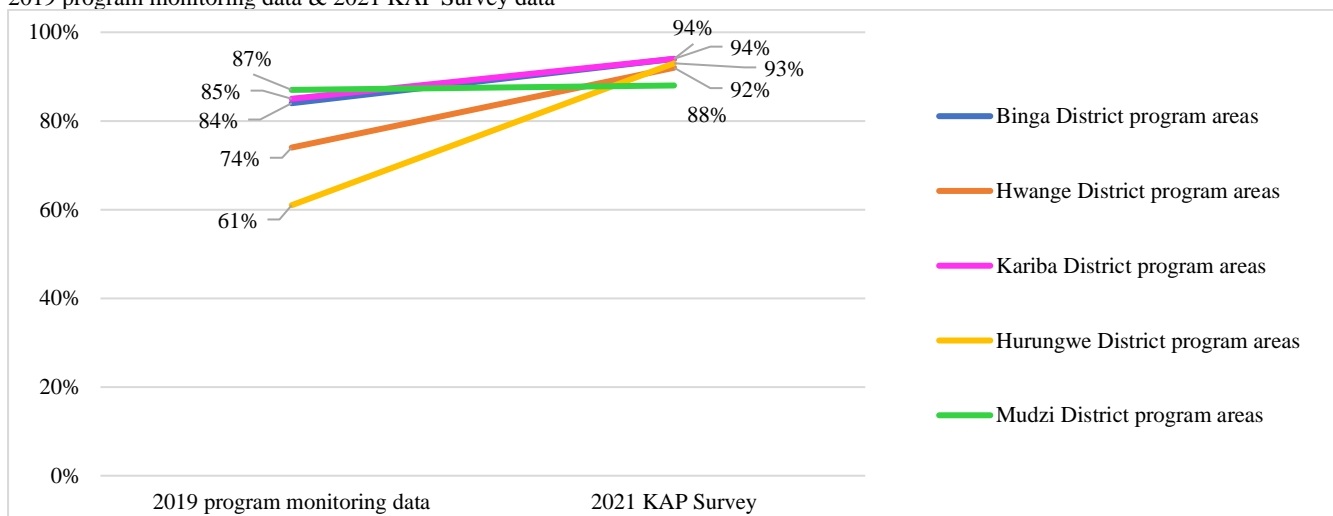


Table 6 shows the percentage of surveyed households that reported receiving IRS in the 12 months prior to the survey, at the Ward level. Almost all IFCBMI program areas at the Ward level reached the WHO-recommended IRS coverage of  $\geq 85\%$ . Only three IFCBMI Ward program areas did not reach this benchmark: Goronga A (82%) and Mukota D (84%) Ward program areas in Mudzi District and Deve (70%) Ward program areas in Hurungwe District.

**Table 6. Households that received IRS in the previous 12 months within IFCBMI Ward program areas**

2021 KAP Survey data

Province	District	Ward	Reported past 12 month IRS coverage % (# of HH received IRS in the past 12 months / total # of HH surveyed)
Mashonaland East	Mudzi	Chikwizo A	91% (183/202)
		Goronga A	82% (220/267)
		Goronga B	96% (166/173)
		Mukota D	84% (141/168)
Mashonaland West	Hurungwe	Kazangare	93% (31/33)
		Dete	94% (29/31)
		Chibara	97% (25/26)
		Chundu	88% (28/32)
		Masanga	96% (44/46)
		Nyamakate	100% (48/48)
		Chirundu	100% (14/14)
	Deve	70% (14/20)	
	Kariba	Chalala	92% (27/29)
		Mola	96% (21/22)
Mayovhe		94% (34/36)	
Negande		93% (27/29)	
Matabeleland North	Binga North	Sinakoma	92% (75/82)
		Chunga/22	97% (61/63)
		Lunga/1	95% (92/97)
		Sinansengwe/5	96% (70/73)
	Binga South	Manjole	90% (28/31)
		Simatelele	94% (75/80)
		Siansundu	99% (77/78)
		Lubanda	92% (22/24)
		Saba	93% (49/53)
		Siachilaba	88% (20/23)
	Sikalenge	96% (68/71)	
	Hwange	Dete	85% (40/47)
		Kamativi	96% (7/10)
Mwemba		92% (41/45)	
Simangani		93% (47/51)	
Jambezi	92% (58/63)		



Though reported IRS coverage in 2021 within IFCBMI Zimbabwe program areas was high overall, there were still some households that reported not receiving IRS in the 12 months prior to the survey. Figure 5 shows reported reasons why households did not receive IRS. Among those respondents whose households did not receive IRS in the previous 12 months, the most common reason for not receiving it was because no one was at home when the spray team came to the household (ranging from 42% in Hurungwe District program areas to 72% in Binga District program areas giving this response). Among households that reported not receiving it in the past 12 months, between 2% (Binga District program areas) to 9% (Hwange District program areas) of households reportedly refused IRS. Kariba and Hurungwe District program areas reported zero IRS refusals.

**Figure 2. Reasons why households did not receive IRS in the past 12 months within IFCBMI Zimbabwe program areas**  
2021 KAP Survey data

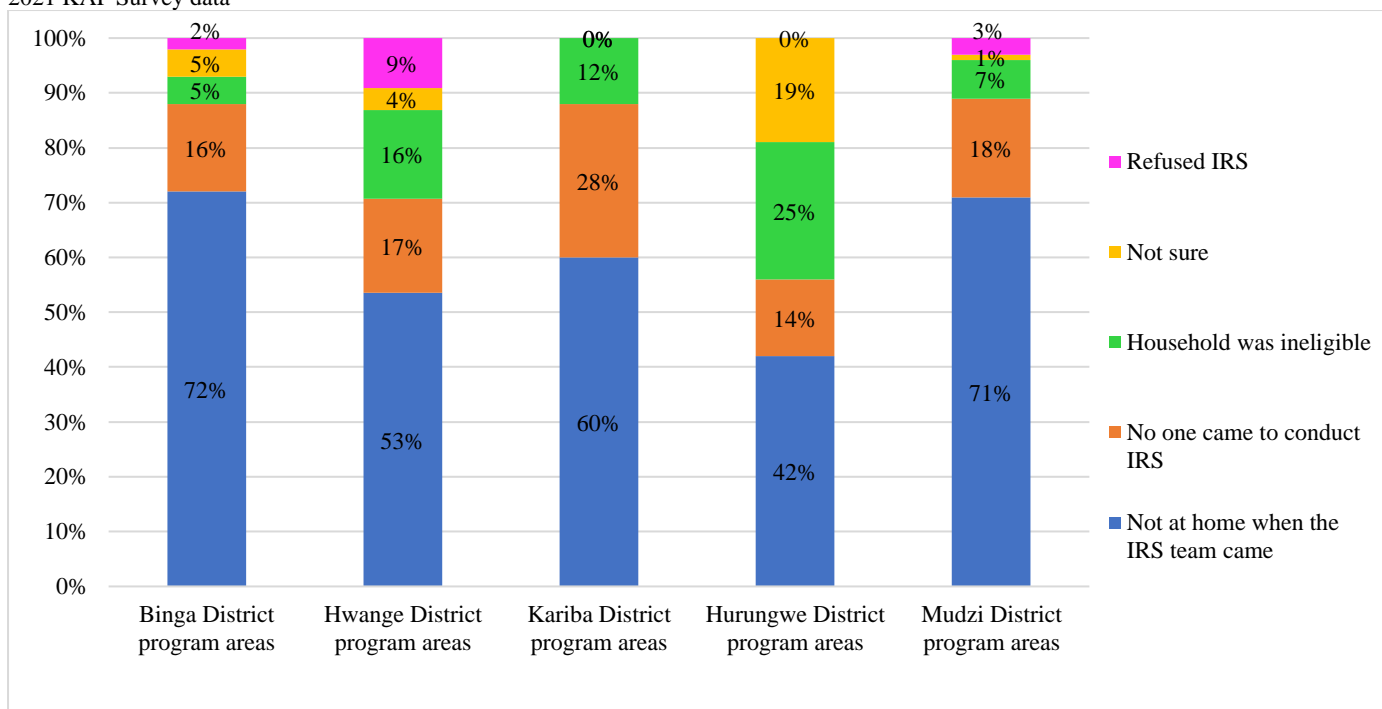


Table 7. shows the reasons for not receiving IRS in the past 12 months at the Ward level, for the three Wards that did not reach  $\geq 85\%$  of reported IRS coverage. In Goronga A and Mukota D Ward program areas (in Mudzi District), the most common reason for not receiving IRS was not being home at the time of spraying. In Deve Ward program areas (in Hurungwe District), the most common reason for not receiving IRS was “I don’t know.”

**Table 7. Reasons why households did not receive IRS in the past 12 months, for Wards that did not reach  $\geq 85\%$  reported IRS coverage**

Ward n=number of HHs that did not receive IRS	Not at home when the spray team came	No one came to my household to conduct IRS	Household was ineligible for IRS	I don't know why my household did not receive IRS	Refused IRS
Goronga A n=47	71% (33/47)	13% (6/47)	8% (4/47%)	2% (1/47)	6% (3/47)
Mukota D n=30	81% (25/30)	19% (5/30)	0%	0%	0%
Deve n=6	17% (1/6)	17% (1/6)	17% (1/6)	50% (3/6)	0%

## Insecticide treated nets (ITNs)

Several indicators were calculated to assess ownership, access, and use of insecticide treated nets (ITNs):

1. **ITN Ownership:** % of households (HH) with at least 1 ITN
2. **ITN Adequate Ownership:** % of households with at least 1 ITN for every 2 people in the household
3. **ITN Use:** % of people in the household who slept under an ITN the night before the survey (average of each household's %)
4. **ITN Use among pregnant women:** % of pregnant women in households who slept under an ITN the night before the survey
5. **ITN Use among children under age 5 years (<5):** % of children <5 in households who slept under an ITN the night before the survey
6. **ITN Access:** % of people in a household with access to an ITN in their own household, assuming 1 ITN covers two people (average of each household's percentage)
7. **ITN Use: Access Ratio:** ratio of % of people who slept under an ITN the night before the survey to the % of people with access to an ITN (average of each household's ratio)

Though ITNs are not recommended as part of government strategy across all IFCBMI Zimbabwe program areas, questions about ITN use, access, and ownership were asked to all survey participants. Therefore, ITN results presented in this report are from both areas that are targeted for ITNs and those that are not. In future years, analysis can be conducted so that results reflect only those from areas that are targeted for ITNs.

Table 8 shows measures of ITN use within IFCBMI Zimbabwe program areas, with 2019 internal program monitoring data for comparison. In 2021, the percent of people in households who slept under an ITN the night before the survey ("ITN Use") ranged from 18% in Mudzi District program areas to 43% in Kariba District program areas. The percent of pregnant women who slept under an ITN the night before the survey ranged from 17% in Mudzi District program areas to 46% in Hurungwe District program areas. The percent of children under age 5 (<5) who slept under an ITN the night before the survey ranged from 22% in Mudzi District program areas to 47% in Kariba District program areas. Pregnant women slept under ITNs at higher levels than the average person in Binga, Hwange, and Hurungwe District program areas, and children <5 slept under ITNs at higher levels than the average person in all program areas; this indicates that these vulnerable groups are rightly being prioritized to sleep under ITNs when there aren't enough ITNs to cover everyone in the household.

**Table 8. ITN use within IFCBMI Zimbabwe program areas**  
2019 program monitoring data & 2021 KAP Survey data

Indicator	Binga District program areas		Hwange District program areas		Kariba District program areas		Hurungwe District program areas		Mudzi District program areas	
	2019 program monitoring data	2021 KAP Survey	2019 program monitoring data	2021 KAP Survey	2019 program monitoring data	2021 KAP Survey	2019 program monitoring data	2021 KAP Survey	2019 program monitoring data	2021 KAP Survey
ITN Use (% of all people in the household who slept under an ITN the previous night)	31%	22%	46%	31%	22%	43%	25%	32%	27%	18%
% of pregnant women in the household who slept under an ITN the previous night	31%	25%	62%	33%	38%	37%	32%	46%	91%	17%
% of children <5 in the household who slept under an ITN the previous night	41%	31%	59%	40%	30%	47%	30%	38%	80%	22%

In order to use an ITN, one must have access to an ITN in their household. Table 9 shows results for ITN Access and ITN Ownership within IFCBMI Zimbabwe program areas in 2021. The percent of households that had at least one ITN (“ITN Ownership”) ranged from 35% in Mudzi District program areas to 51% in Kariba District program areas. The percent of households that have enough ITNs to cover everyone sleeping in the household, which is defined as at least one ITN for every two people in the household, (“ITN Adequate Ownership”) is much lower, ranging from 7% in Mudzi District program areas to 22% in Kariba District program areas. On average, between 21%- 39% of people had access to an ITN within their own household (“ITN Access”). In summary, a small proportion of households own enough ITNs to cover everyone who sleeps there, meaning that most people do not have access to ITNs.

**Table 9. ITN Ownership, ITN Adequate Ownership, & ITN Access within IFCBMI Zimbabwe program areas**  
2021 KAP Survey data

Indicator	Binga District program areas	Hwange District program areas	Kariba District program areas	Hurungwe District program areas	Mudzi District program areas
ITN Access (% of people with access to an ITN within their own household, on average, assuming one ITN covers two people)	23%	34%	39%	31%	21%
ITN Ownership (% of households that have at least one ITN)	36%	49%	51%	46%	35%
ITN Adequate Ownership (% of households that have at least one ITN for every two people)	8%	18%	22%	10%	7%

Among people who do have access to an ITN, nearly everyone used it the night before the survey. The ITN Use:Access Ratio describes whether those with access to ITNs are using them (Table 10). The ITN Use:Access Ratio in 2021 ranges from 0.90 in Mudzi District program areas to 1.12 in Kariba program areas, meaning that, on average, almost everyone who had access to an ITN used it the night before the survey. Ratios above 1.0 indicate that more than two people are sleeping under an ITN, on average. This indicates that people will use ITNs if they have them; the low overall ITN Use is likely due to lack of access to ITNs, and not due to people choosing not to sleep under an ITN.

**Table 10. ITN Use:Access Ratio within IFCBMI Zimbabwe program areas**  
2021 KAP Survey data

Indicator	Binga District program areas	Hwange District program areas	Kariba District program areas	Hurungwe District program areas	Mudzi District program areas
ITN Use:Access Ratio (ratio of ITN Use to ITN Access)	0.98	0.95	1.12	1.10	0.90

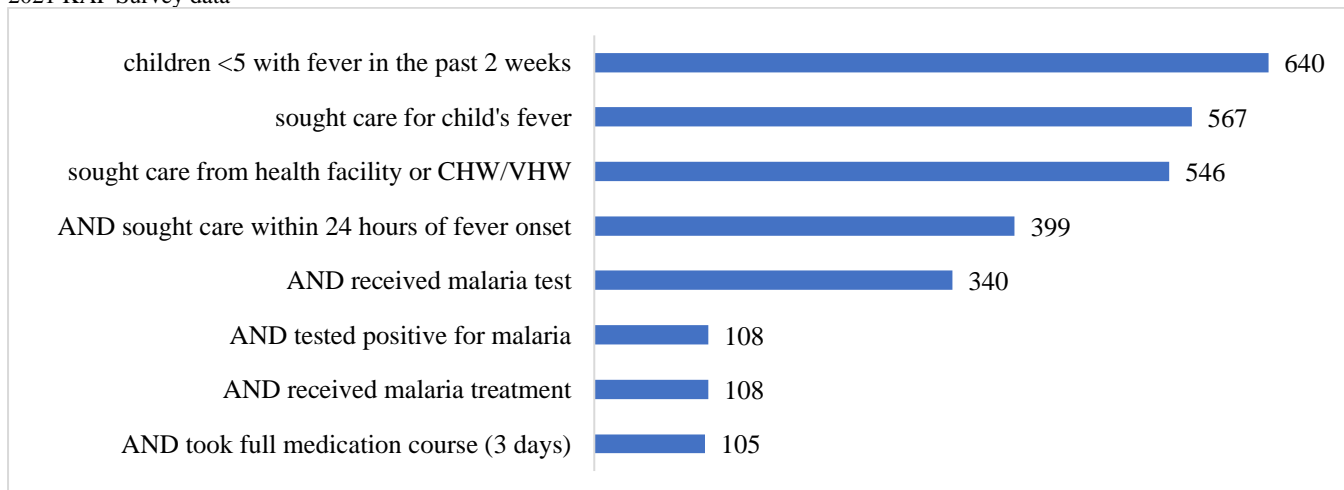
## Care-seeking behaviour

There are several key steps in the ideal trajectory of care-seeking behaviour for malaria infection in children under 5 years old (<5): (1) go to a health facility or village health worker (VHW) / community health worker (CHW) and do so within 24 hours of fever onset, (2) receive a malaria test, (3) receive treatment if positive for malaria, and (4) take the full course of the medication (three days). Each step in the care-seeking trajectory presents an opportunity for malaria infections to be missed, transmitted, or inappropriately treated.

Figure 3 shows the numbers of mothers/caretakers and their febrile children in the care-seeking behaviour trajectory. Among all Zimbabwe survey respondents who self-identified as a mother or caregiver of a child <5, 36% (640/1794) reported their child had a fever in the past two weeks. Among those mothers/caregivers whose child <5 had a fever in the past two weeks, 85% (546/640) sought care from a health facility or CHW/VHW. However, only 62% (399/640) of mothers/caregivers whose child <5 had a fever sought care from a health facility or CHW/VHW and did so within 24 hours of the start of the child's fever. 85% (340/399) of children who sought care from a health facility or CHW/VHW and did so within 24 hours of fever onset received a malaria test, and 32% of those tested (108/340) had a positive malaria test. All children who tested positive for malaria received malaria treatment, and almost all children who were given malaria treatment reported taking the full medication dose (3 days).

**Figure 3. Care-seeking behaviour cascade among all IFCBMI Zimbabwe program areas**

2021 KAP Survey data



Two key indicators of ideal care of febrile children <5 are shown in Table 11: 1) the percent of mothers/caregivers who sought care from a health facility or CHW/VHW and did so within 24 hours of the start of their child's fever ("appropriate care"), and 2) the percent of febrile children who received a malaria test, among those who sought care from a health facility or CHW/VHW. The percent of mothers/caregivers who sought "appropriate care" for their febrile child <5 ranged from 59% in Hurungwe District program areas to 68% in Kariba District program areas. This means that there are still many mothers/caregivers that are either not seeking care for their child's fever from the correct place (either from a health facility or CHW/VHW) and/or not seeking care promptly (within 24 hours of the start of the fever).

Among children with fever who sought care from a health facility or CHW/VHW, the percentage of febrile children that received a malaria test ranged from 59% in Kariba District program areas to 87% in Mudzi District program areas. This means that there are still many febrile children <5 that are seen at the health facility or CHW/VHW but are not getting a malaria test.

**Table 11. Key care-seeking indicators within IFCBMI Zimbabwe program areas**

2021 KAP Survey data

Indicator	Binga District program areas	Hwange District program areas	Kariba District program areas	Hurungwe District program areas	Mudzi District program areas
Appropriate care (% of mothers/caregivers who sought care from a health facility or CHW/VHW and did so within 24 hours of the start of their child's fever)	65%	66%	68%	59%	63%
% of children who received a malaria test, among those febrile children who sought care from a health facility or CHW/VHW	84%	87%	59%	83%	87%

## Intermittent preventive treatment of malaria in pregnancy (IPTp)

Respondents who said that they gave birth in the past 12 months were asked whether they took IPTp during their pregnancy. If they said they did take IPTp, they were asked to recall the number of times they took IPTp throughout their pregnancy (Table 12). In 2021, the percentage of women who reported taking 3 or more (3+) doses of IPTp during their pregnancy ranged from 63% in Mudzi District program areas to 83% in Hwange District program areas. When compared to 2019 program monitoring data, the proportion of women who gave birth in the past 12 months that reported taking 3+ doses of IPTp in 2021 increased in all program areas, with the greatest increase seen in Hwange District program areas.

Of those women who gave birth in the past 12 months that did not take IPTp at all during their pregnancy, 90% said they did not take it because they were not offered it.

**Table 12. Reported history of taking IPTp during pregnancy, among women who reported giving birth in the past 12 months**  
2019 program monitoring data & 2021 KAP Survey data

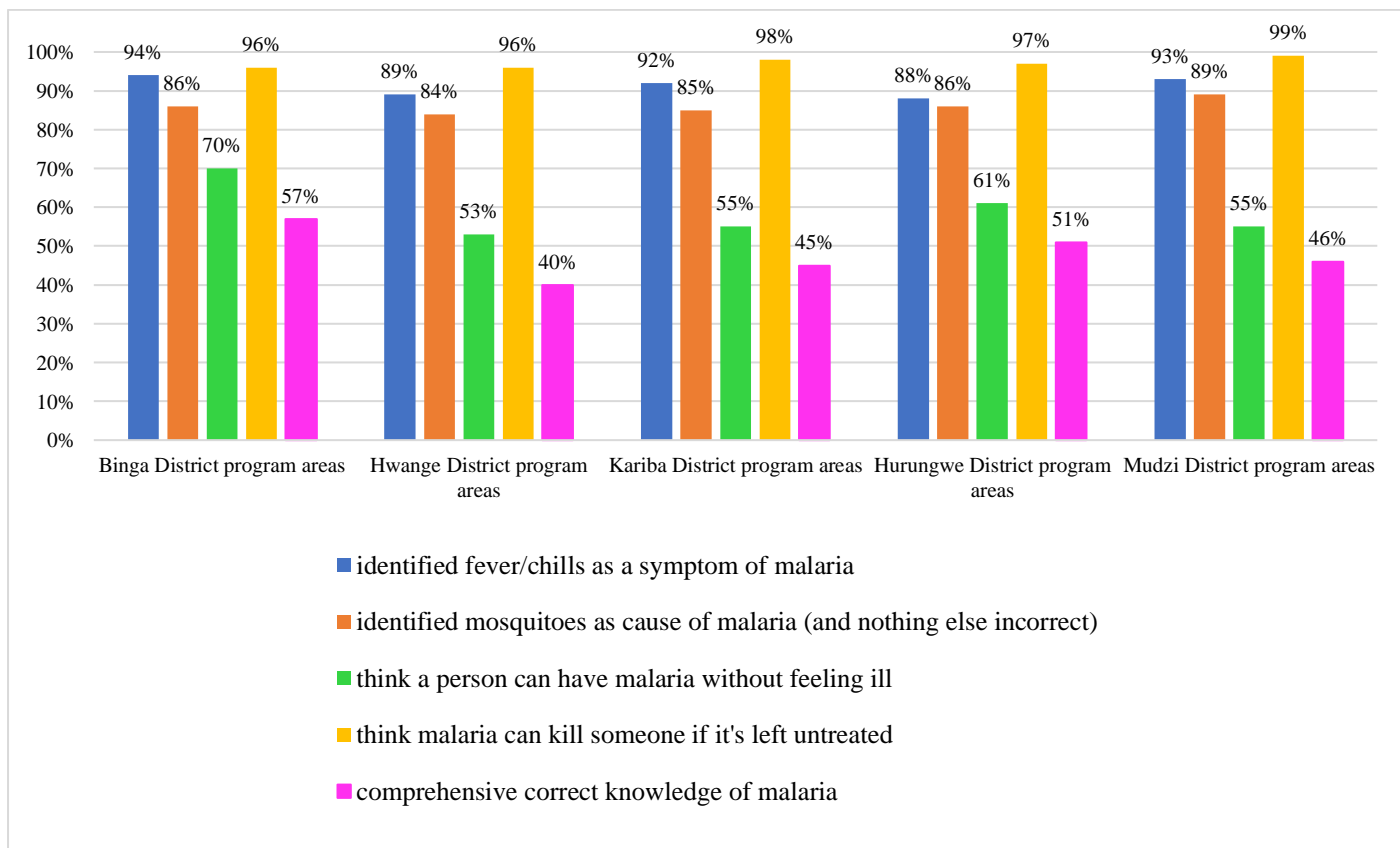
Indicator	Binga District program areas		Hwange District program areas		Kariba District program areas		Hurungwe District program areas		Mudzi District program areas	
	2019 program monitoring data n=133	2021 KAP Survey n=138	2019 program monitoring data n=98	2021 KAP Survey n=72	2019 program monitoring data n=53	2021 KAP Survey n=37	2019 program monitoring data n=210	2021 KAP Survey n=60	2019 program monitoring data n=1026	2021 KAP Survey n=248
Took IPTp 0 times	4%	3%	7%	1%	17%	0%	16%	5%	19%	9%
Took IPTp at least once	96%	97%	93%	99%	83%	100%	84%	95%	81%	91%
Took IPTp at least twice	90%	91%	79%	94%	68%	76%	63%	95%	72%	76%
Took IPTp three or more times	71%	79%	59%	83%	53%	65%	41%	75%	51%	63%

## Knowledge and attitudes

Figure 4 shows the percent of respondents who correctly answered knowledge questions about malaria symptoms, the cause of malaria, the possibility of malaria infections without symptoms, and possibility of death if malaria infection is left untreated. An indicator called “comprehensive correct knowledge” was also calculated, which is the percent of participants who answered all four malaria-related knowledge questions correctly. The large majority of participants (96%-99%) knew that malaria can be deadly if it is left untreated. Between 88% and 94% of respondents correctly identified fever/chills as a main symptom of malaria, and between 84 and 89% of respondents correctly identified mosquitoes as a cause of malaria. A smaller proportion of respondents (53% to 70%) knew that it is possible for a person to be infected with malaria without symptoms (knowledge of low-density infections).

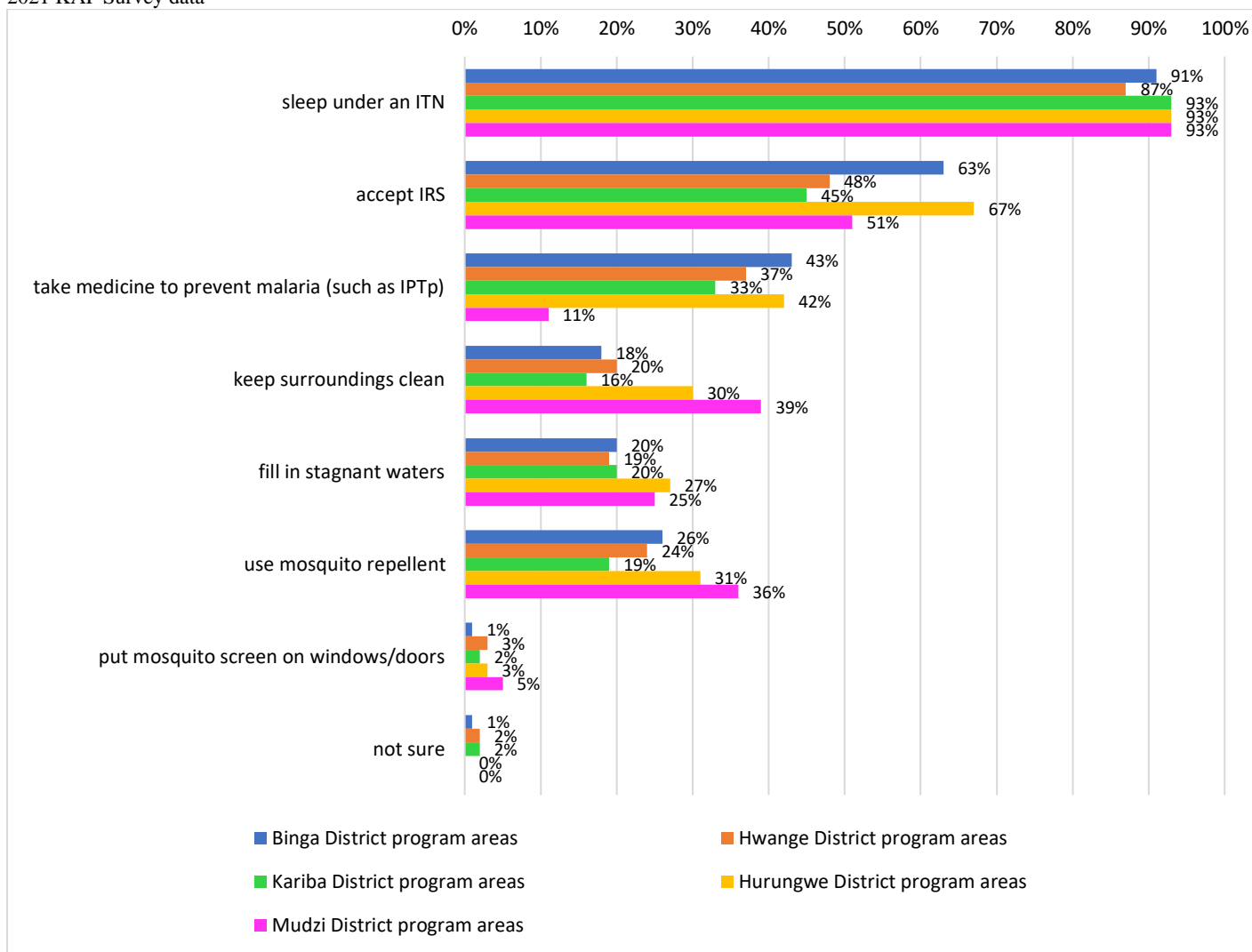
**Figure 4. Malaria knowledge within IFCBMI program areas**

2021 KAP Survey data



To shed light on knowledge of malaria prevention, respondents were asked if there were things one could do to protect oneself from malaria and then asked to list off what came to mind as personal protective measures against malaria. 97% of participants (2063/2136) believed that there are things one can do to help protect oneself from malaria. Figure 5 shows the responses that respondents listed off when asked what those personal protective measures are. The most common response by far was to “sleep under an ITN” (87% to 93%). Responses varied by district, however the second most common response, in general, was “accept IRS” (45% to 67%).

**Figure 5. Self-reported actions to protect oneself from malaria within IFCBMI program areas (multi-select)**  
2021 KAP Survey data



Respondents were also asked about their attitudes toward ITNs, IRS, and IPTp through the question of whether they think ITNs/IRS/IPTp “helps a lot”, “helps a little”, or “does not help” to prevent malaria (Table 13). Overall, attitudes toward ITNs, IRS, and IPTp were favourable. Nearly all respondents (95%-97%) believed that ITNs “helped a lot” to prevent malaria. The percent of respondents who believed IRS helped a lot differed by district, with those in Hurungwe feeling most positive about IRS (94%), and those in Mudzi feeling least positive about IRS (71%). The majority of respondents across all districts believed that that IPTp “helps a lot” (between 88% and 96%).

**Table 13. Attitudes toward ITNs, IRs, and IPTp within IFCBMI Zimbabwe program areas**

2021 KAP Survey data

Indicator	Binga District program areas	Hwange District program areas	Kariba District program areas	Hurungwe District program areas	Mudzi District program areas
Think that ITNs “help a lot” to prevent malaria	96%	95%	94%	97%	95%
Think that IRS “helps a lot” to prevent malaria	90%	87%	77%	94%	71%
Think that IPTp “helps a lot” to prevent consequences of malaria in pregnancy	91%	94%	93%	96%	88%

**Appendix 1. 2021 KAP survey sampling frame (IFCBMI Zimbabwe program areas)**

Province	District	Ward	Village
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	
		Gorongona A	Botso
			Charambadeya
			Chikungwa
			Josi
			Kasuso
			Katakura
			Makosa
			Marovha
			Mavhura
			Mbwadzi
			Mudzimu
			Mukombwe
			Mukuramimba
			Mutamangira
			Mutekede
			Mutesva
			Mutoko
			Muvhiza
Nyahuna			
Nyakupata			
Tsonga			
Tsonga A			
Tsonga B			
Gorongona B	Chingwena		
	Gorohoro		
	Jeke		
	Kanobata		
	Kasuso 2		
	Mafuta		
	Mavhura		
	Mupatiseni		
	Mututa		
	Muwadzi		
Tangi			
Tizora			
Mukota D	Barichoro		
	Bvunzawabaya		
	Chamburuka		
	Charamba		



Province	District	Ward	Village
Mashonaland East	Mudzi	Mukota D	Chibedura
			Chimuramba
			Chimutsanya
			Jigu
			Kambeva
			Kamburanyanga
			Kanyimo
			Kungwengwe
			Kurima
			Magohoto
			Maruza
			Mombemuriwo
			Murapura
			Musau
			Mususa
			Mutinha
			Nyamande
			Nyamutin'a
			Ranja
			Rupiya
Saizi			
Takuranaho			
Tsabora			
Zongoro			
Mashonaland West	Hurungwe	Kazangare	Zuze
			Mhurupuru
			Kazangare
			Kaunda
		Dete	Masokoti
			Maendaenda
			Nyachowe
			Chidimure
		Chibara	Maendaenda B
			Mugwagwa
			Raisi
			Nyatsona
			Makuni
		Chundu	Musokeri
			Chigwida
			Mutowa
			Ranjisi Village 4
		Masanga	Kanhuwa
			Chinhema
			Chipokeni
	Madhumba		
	Nyamakate	Nyikadzino	
		Nziramasanga	
		Murisa	
		Manguwe	
		Mutemachani	
	Chirundu	Charlle	
		Lima	
		Golf A	
		Papa	
	Deve	31A	
		Alpha A	
		Murimbika	
	Kariba	Valley	
		Heights	
		Estates	
		Musiiwa	
	Chalala	Mhosva	
		Kapesa	
	Mola	Matonhedze	
		Village 9	
	Mayovhe	Chitenge	
		Mangwara	
		Dove	
		Mayovhw fishing camp	
	Negande	Mazambuko	
		Sianungu	
		Jongola	
		Seremwe	
	Matabeleland North	Binga North	Sinakoma
Guyu			
			Matala

Province	District	Ward	Village
			Chivwetu
			Dongamuse
			Kalamba
			Nsungwale
			Nampande
			Chininga
		Sianyanga	
		Chunga/22	Bbotela
			Njobola
			Sinamwenda
			Siakanchele
		Lunga/1	Tyaba
			Sinakatenge
			Sinamunsanga
			Lunga
			Nsengwa
			Chipampa
		Sinansengwe/5	Mujele
			Keja
	Mucheni		
	Sikabinga		
	Mbalule		
	Zuka		
	Makondo		
	Binga South	Manjolo	Chitete
			Mwenda
			Malinda
		Manjolo	Siangwemu
			Manjolo
			Nalubuyu
		Simatelele	Chileya
			Masawu
			Zingozi
			Kasikili
			B/Kraal
			Lokola
		Siansundu	Siameja
			Chilalamatanga
			Sianjomwa
			Minsale
			Miimpo
			Siavwandu
			Kadika
			Mimbo
Simwenge			
Lubanda		Milbizi	
		Makunku	
		Katete	
		Chesamba	
Saba		Lubanda	
		Kenjobo	
		Siamusale	
		Kamalumbu	
		Sicimvwali	
		Mudambe	
		Chabumbuluka	
		Saba	
Siachilaba	Siantungwani		
	Siamwinde		
	Sianoti		
Sikalenge	Msenampongo		
	Sikalenge		
	Damba		
	Siabanga		
	Mangogo		
	Delampuli		
Hwange	Kelamenda		
	Bote 1		
	Bote 2		
	NRZ 1		
	NRZ 2		
	Soweto		
	Mtuya 1		
Matabeleland North	Hwange	Kamativi	Mtuya 2
			Chikanga & "B6" Section "A" Section

Province	District	Ward	Village
			"B" & "C" Section
			"CB" & "D" Section
			Village 21
			Ndumichenga (Mulonga)
			Sena FM
			Ndumichenga
			Katete
			Village 22
			Sena
			Shashachunda
			Mashala Top
		Mwemba	Kalisonde
			Mugambo
			Jejeti
			Mwemba
			Simangani
		Simangani	Makwa 1
			Makwa 2
			chezya
			Chenje 1
			Tamuka
			Nyikanyoro
			Zhulandangalilo 2
			Jambezi centre
		Jambezi	Chenje 2
			Chenjiri
			Bupenyubwamangwana
			Manono
			Chikamba
			Zhulandangalilo 1