

J.C. FLOWERS
FOUNDATION



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 21 April and 26 May 2022**

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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 conducted a study to understand malaria-related knowledge, attitudes, and practices (“KAP”) among community members living within program areas through a yearly cross-sectional survey. The overall goal of is to inform programmatic decisions and strategic action based on local and recently collected data. This report presents the key findings from the 2022 KAP Survey, with select results from the 2021 KAP Survey for comparison. Results are representative of IFCBMI program areas and while they cannot be directly extrapolated to the Ward, District, Provincial, or National level, they can shed light on malaria realities among Wards, Districts, and Provinces of the program areas (full sampling frame area is located in Appendix 1). A summary of key findings from the 2022 KAP Survey follows:

Indoor residual spraying (IRS)

In areas targeted to receive IRS within the 12 months prior to the survey, 94% of households received IRS. Four out of five District program areas achieved or surpassed the World Health Organization (WHO) target of $\geq 85\%$ of households sprayed with IRS.

Across all Zimbabwe program areas, 91% of households reported receiving IRS within the previous 12 months. Among only households located in areas that were targeted to receive IRS within 12 months prior to the survey, 94% of households reported receiving IRS. Among program areas at the District level, household IRS coverage reached WHO-recommended levels ($\geq 85\%$) among program areas in Binga (98%), Hwange (99%), Hurungwe (98%), and Kariba (95%) Districts, with program areas in Mudzi nearly reaching this benchmark (84%).

Among households located in areas that were targeted to receive IRS within the previous 12 months but reportedly did not receive it, the most common reason given for not receiving IRS was “I was not at my household when the spray team came to offer IRS” (69/97 households), followed by “no one came to my household to conduct IRS” (19/97 households).

Insecticide treated nets (ITNs)

Households generally use the nets they have, but most program areas do not have access to ITNs.

Across all Zimbabwe program areas, the proportion of households that own at least one ITN decreased significantly from 39% in 2021 to 33% in 2022, $p < 0.001$). The proportion of people with access to an ITN within their own household also decreased significantly from 25% in 2021 to 23% in 2022, $p = 0.03$), as did the proportion of people who used an ITN the previous (from 24% in 2021 to 21% in 2022, $p = 0.035$). In general, results at the District level mirrored these overall trends, except program areas within Mudzi District which showed statistically significant increases in all three indicators.

Only 21% of people overall slept under an ITN the previous night. However, ITN use increased to 84% when looking only at households that own at least one ITN for every two people and further increased to 96% when looking only at households that own at least one good condition ITN for every two people. This suggests that access to good condition ITNs is a main driver of their use.

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

Only 62% of children <5 with fever in the two weeks prior to the survey sought care from a health facility or CHW/VHW within 24 hours of the start of the fever. Most children who sought care from a health facility or CHW/VHW were tested for malaria, and all children who tested positive received Coartem for malaria treatment.

Across all Zimbabwe program areas, only 62% (365/430) of children <5 with fever in the previous two weeks sought care from a health facility or CHW/VHW within 24 hours of the start of the fever. Among children who sought care from a health facility or CHW/VHW, 88% received a blood test for malaria. 17% (57/324) of those tested for malaria reported testing positive. 100% of children <5 who tested positive for malaria received Coartem for malaria treatment.

Intermittent preventive treatment of malaria in pregnancy (IPTp)

Many women who gave birth within 12 months prior to the survey reported taking three or more (3+) doses of IPTp during their pregnancy, though there is room for improvement.

Across all Zimbabwe program areas, 76% of women who gave birth in the previous 12 months reported taking 3+ doses of IPTp during their pregnancy, a significant increase from 67% in 2021 ($p = 0.005$). Among program areas in Binga and Kariba Districts, the proportion of women who gave birth in the previous 12 months that reported taking 3+ doses of IPTp during their pregnancy increased significantly from 76% in 2021 to 87% in 2022 ($p = 0.012$, Binga District program areas) and from 63% in 2021 to 87% in 2022 ($p = 0.045$, Kariba District program areas).

Knowledge

Malaria knowledge is high, and the vast majority believe that key malaria mitigation efforts (ITNs, IRS, and IPTp) do help to prevent malaria.

Across all Zimbabwe program areas, the proportion of respondents who identified “fever / feeling cold / chills” as a symptom of malaria increased significantly from 92% in 2021 to 95% in 2022 ($p < 0.001$) and the proportion of respondents who identified the mosquito as the cause of malaria, and listed nothing else incorrect, increased significantly from 87% in 2021 to 95% in 2022 ($p < 0.001$). Significant increases were also observed in the proportion of respondents who believed that IRS “helped a lot to prevent malaria” (from 82% in 2021 to 87% in 2022, $p < 0.001$) and in the proportion of respondents who believed that IPTp “helps a lot to prevent consequences of malaria in pregnancy” (from 91% in 2021 to 99% in 2022, $p < 0.001$).

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 80 community health workers (CHWs) and MCAs 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 approximately 50 households. Religious leaders, teachers, and other influential community leaders support the efforts of this cadre and deliver malaria education 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); reported household indoor residual spraying (IRS) coverage within the previous 12 months; reported uptake of intermittent treatment of malaria in pregnancy (IPTp) among women who gave birth in the previous 12 months; and the reported trajectory of care for children under five years with fever in the previous two weeks
- 2) assess knowledge of the cause of malaria, its symptoms, and its mitigation
- 3) understand attitudes toward ITNs, IRS, and IPTp

The KAP study collects data through a cross-sectional survey that is repeated yearly from 2021-2024, in order to understand change in the main areas of inquiry over time. The overall goal of this study is to guide 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 from the 2022 KAP Survey with select results from the 2021 KAP Survey for comparison. The results in this report are representative of IFCBMI Zimbabwe program areas and cannot be extrapolated to the Ward, District, Provincial, or National level, since IFCBMI program areas do not cover these administrative units in their entirety. A full listing of the program areas 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 2022 KAP Survey was all IFCBMI program areas in Zimbabwe (Appendix 1). The 2022 sample size was determined to be a minimum of 1,800 households, based on power calculations intending to achieve at least 80% power to detect annual “incremental improvements” in the primary outcome measures: the proportion of people who slept under an ITN the previous night, the proportion of households that received IRS within the prior 12 months, 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 previous two weeks who sought care from a health facility or CHW/VHW and did so within 24 hours of fever onset. Sample sizes for the 2021 KAP Survey were calculated in the same manner. Table 1 shows sample sizes from 2021-2022 KAP Surveys and Table 2 shows dates of data collection.

Table 1. Zimbabwe KAP Survey sample sizes (2021-2022)

Province	District	Sample sizes	
		2021	2022
Matabeleland North	Binga	675	792
	Hwange	285	232
Mashonaland West	Kariba	117	147
	Hurungwe	250	150
Mashonaland East	Mudzi	810	470
Total consenting participants		2137	1791
Response rate		99.9%	99.9%

Within Mudzi District, the IFCBMI program area expanded to two new wards in late 2021, after the 2021 KAP Survey was conducted. Since these new program areas were not surveyed in the 2021, results from the 2022 KAP Survey do not include these new areas in order to maintain a comparable sampling frame between 2021-2022 KAP Survey years. However, separate sample size calculations were conducted and a baseline KAP Survey was conducted in these new program areas in 2022. Methods and Results from the KAP Survey in these new program areas can be found in Appendix 2.

Table 2. Dates of KAP Survey data collection (2021-2022)

Data type	Data collection months
2021 KAP Survey	15 April – 8 May
2022 KAP Survey	21 April - 26 May

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.

Household selection

Household in each village were selected with the following “skip pattern”: 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. Households with at least one child <5 were prioritized; if the household selected with the skip pattern did not have a child <5, the next closest household with a child <5 was selected.

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 2021 and 2022 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

Table 3. Background characteristics, by program areas at the Province level (2022)

Background characteristic	Matabeleland North program areas (N=1024)	Mashonaland West program areas (N=297)	Mashonaland East program areas (N=470)	All Zimbabwe program areas (N=1791)
Average age of respondent (n)	30	30	32	31
Percent of households with at least 1 child under 5 who slept there the previous night (%)	75	75	98	81
Average number of children <5 in household the previous night, among households with at least one child <5 (n)	1.4	1.3	1.4	1.4
Percent of households with at least one pregnant woman who slept there the previous night (%)	48	54	10	39
Average number of people who slept in the household the previous night (n)	4.4	4.5	5.2	4.6
Average number of sleeping spaces (n)	2.6	2.7	2.4	2.6
Percent of households with surrounding standing water, per visual observation of data collector (%)	7	9	4.2	7

Table 4. Respondent education level, by program area at the Province level (2022)

Education level	Matabeleland North program areas (N=1024)	Mashonaland West program areas (N=297)	Mashonaland East program areas (N=470)	All Zimbabwe program areas (N=1791)
Never attended school (%)	7	7	4	6
Attended some primary school (%)	6	5	18	9
Completed primary school (%)	14	11	24	16
Attended some secondary school (%)	30	35	30	31
Completed secondary school (%)	40	40	23	35
Higher than secondary school (%)	4	0	1	3
Not sure (%)	0	9	0	0

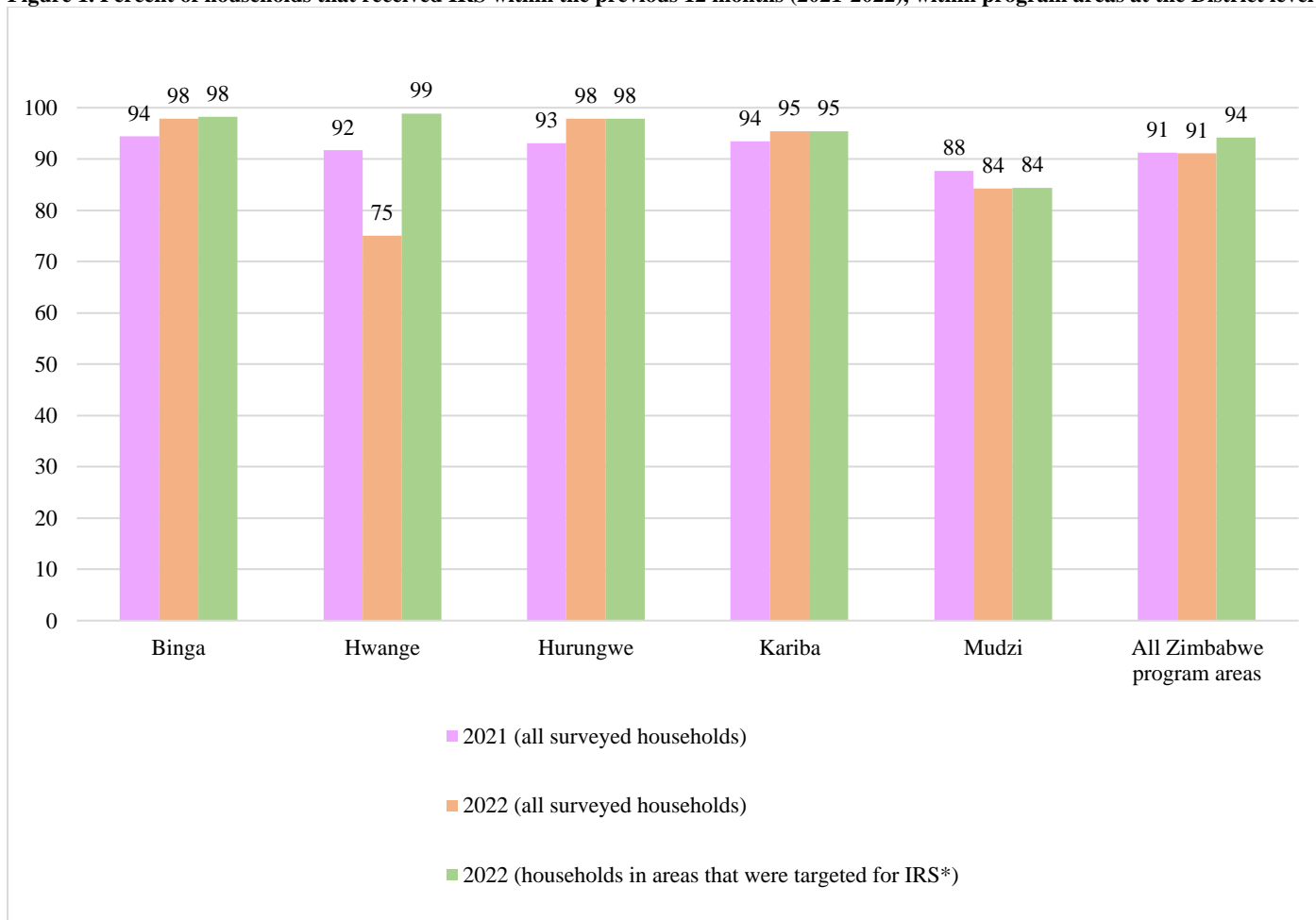
Indoor residual spraying (IRS)

Figure 1 shows the proportion of households that reported receiving IRS within with 12 months prior to the survey, among all surveyed households in 2021 and 2022 survey years. However, not all program areas were targeted to receive IRS as their primary form of vector control (program areas that were targeted to receive IRS within the 12 months prior to the survey can be found in Appendix 1). Therefore, a separate calculation was conducted for past-12 month household IRS coverage among only households located in areas that were targeted to receive IRS within 12 months prior to the 2022 KAP Survey. This calculation is not available for the 2021 KAP Survey.

Across all Zimbabwe program areas, 91% of households reported receiving IRS within 12 months prior to the 2022 KAP Survey. Among only households located in areas that were targeted to receive IRS within 12 months prior to the 2022 KAP Survey, 94% of households reported receiving IRS. Past 12-month household IRS coverage reached WHO-recommended levels ($\geq 85\%$) within program areas in Binga (98%), Hwange (99%), Hurungwe (98%), and Kariba (95%) Districts, with program areas in Mudzi District nearly reaching this benchmark (84%).

From 2021-2022, household IRS coverage increased significantly in Binga program areas (from 94% to 98%, $p=0.001$). A significant decrease in household IRS coverage was seen within program areas in Hwange District when considering all surveyed households, from 92% in 2021 to 75% in 2022, $p<0.001$). However, this is likely due to several areas in Hwange having transitioned away from IRS as the primary form of vector control between 2021-2022. When only considering households located in program areas in Hwange that were targeted for IRS during the most recent campaign, household IRS coverage among Hwange program areas increased (from 92% in 2021 to 99% in 2022).

Figure 1. Percent of households that received IRS within the previous 12 months (2021-2022), within program areas at the District level*



*Program areas that were targeted to receive IRS within the 12 months prior to the survey can be found in Appendix 1.

Respondents who reported that their household did not receive IRS within the previous 12 months were asked why they did not receive it. Table 5 displays reported reasons why households did not receive IRS, among households located in areas that were targeted to receive IRS within 12 months prior to the survey but reportedly did not receive it. The most common reason given for not receiving IRS was “I was not at my household when the spray team came to offer IRS” (69/97 households), followed by “no one came to my household to conduct IRS” (19/97 households). There were only 5 households that reportedly did not receive IRS because they refused it, all within Mudzi District program areas.

Table 5. Reasons for not receiving IRS in the previous 12 months (number of households), among households that did not receive IRS within areas that were targeted to receive IRS in the most recent IRS campaign, within program areas at the District level (2022)

	Matabeleland North Province		Mashonaland West Province		Mashonaland East Province	All Zimbabwe program areas
	Binga District program areas	Hwange District program areas	Kariba District program areas	Hurungwe District program areas	Mudzi District program areas	
	n	n	n	n	n	n
Number of total households targeted to receive IRS in the most recent IRS campaign	776	176	147	150	462	1711
Number of households that did not receive IRS within the previous 12 months, among households within areas targeted for IRS	14	2	6	3	72	97
Number of respondents who gave the following reasons for not receiving IRS within the previous 12 months:						
I was not at my household when IRS was offered	11	1	5	2	50	69
No one came to my household to offer IRS	2	0	1	1	15	19
I refused IRS	0	0	0	0	5	5
My household is ineligible for IRS	0	1	0	0	2	3
Not sure	1	0	0	0	0	1

Insecticide treated nets (ITNs)

Participants were asked about their household ITN ownership and their use of ITNs the previous night. All respondents were asked questions about ITNs regardless of whether their household was located in an area that is targeted to receive ITNs as their main form of vector control.

Figure 2. shows the proportion of households that own at least one ITN, the proportion of households that own at least one ITN for every two people, the proportion of people who used an ITN the previous night, and the proportion of people with access to an ITN within their own household (assuming each ITN covers two people) from 2021-2022. Across all Zimbabwe program areas, the proportion of households that own at least one ITN decreased significantly from 39% in 2021 to 33% in 2022 ($p < 0.001$), the proportion of people with access to an ITN within their own household decreased significantly from 25% in 2021 to 23% in 2022 ($p = 0.03$), and the proportion of people who used an ITN the previous night decreased significantly from 24% in 2021 to 21% in 2022 ($p = 0.035$).

In general, results at the District level mirrored these overall trends, except for program areas in Mudzi District where the proportion of households that own at least one ITN increased significantly from 35% in 2021 to 49% in 2022 ($p < 0.001$), the proportion of people with access to an ITN increased from 21% in 2021 to 29% in 2022 ($p < 0.001$), and the proportion of people who used an ITN the previous night increased from 18% in 2021 to 25% in 2022 ($p = 0.002$).

Figure 2. ITN access, use, and ownership (%), by program areas at the District level (2021-2022)

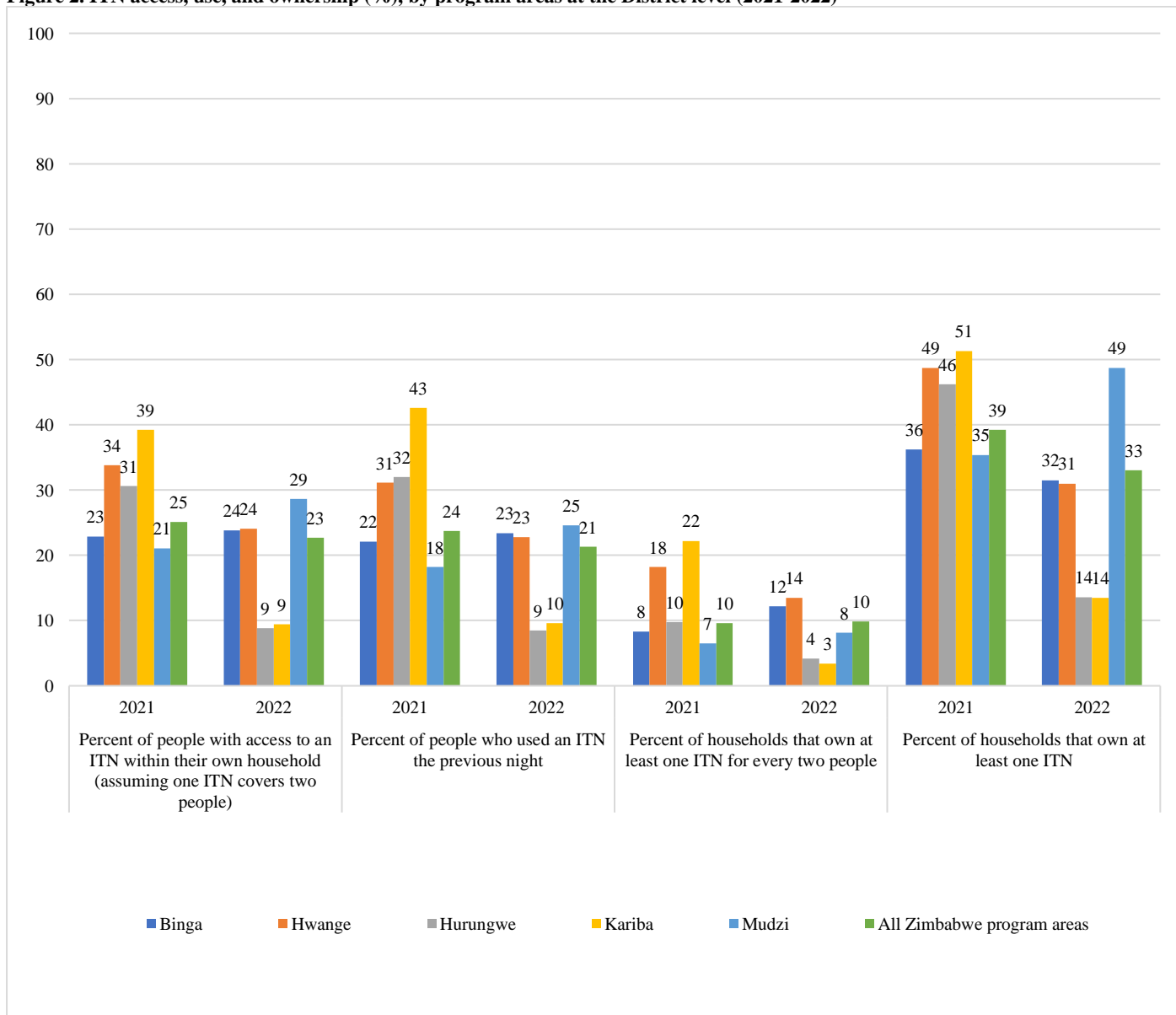


Figure 3. shows ownership of ITNs in 2022 among program areas at the District level. In general, household ownership of at least one ITN is low, ownership of enough ITNs to cover everyone in the household (assuming each ITN covers two people) is even lower, and very few households own enough ITNs in good condition to cover everyone in the household. “Good condition” ITNs were defined as not having any holes larger than a thumb. Condition of ITNs was reported only, not confirmed visually.

Across all program areas, 33% of households own at least one ITN but only 23% own at least one ITN in good condition. Even fewer households (10%) owned at least one ITN for every two people who slept in the household the previous night, and only 7% of households owned at least one ITN in good condition for every two people who slept in the household the previous night. This trend was mirrored within all District program areas. Program areas within Mudzi District had the highest ITN ownership levels, while program areas in Kariba District had the lowest.

Table 6. shows the average number of ITNs per household.

Figure 3. Household ownership of ITNs (%), by program areas at the District level (2022)

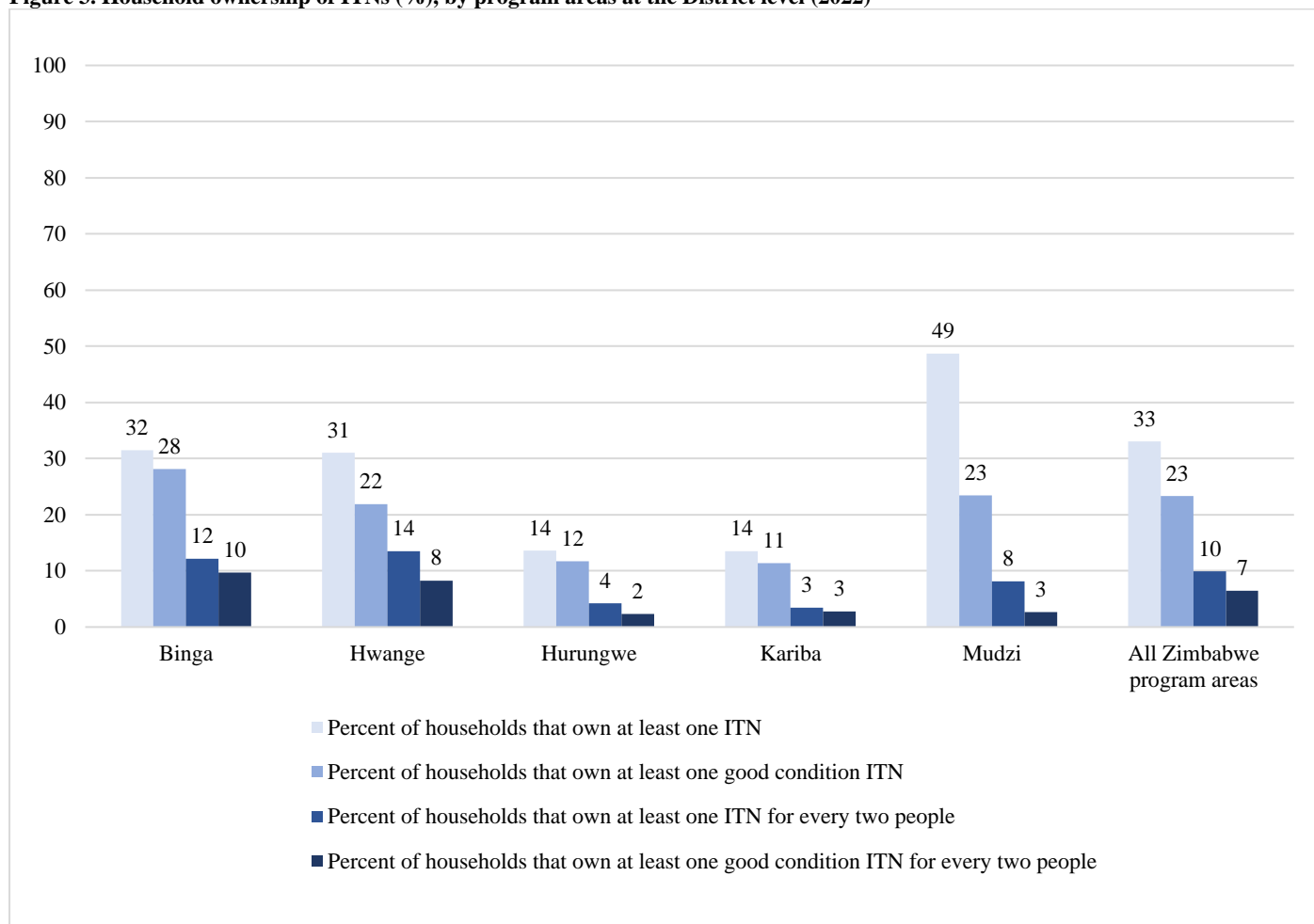


Table 6. Average number of ITNs per household, by District program areas (2022)

	Matabeleland North Province		Mashonaland West Province		Mashonaland East Province	All Zimbabwe program areas
	Binga District program areas	Hwange District program areas	Kariba District program areas	Hurungwe District program areas	Mudzi District program areas	
Average number of ITNs per household	0.5	0.5	0.2	0.2	0.7	0.5

Figure 4. shows ITN use by pregnant women the previous night from 2021-2022. The proportion of pregnant women who slept under an ITN the previous night decreased significantly in Hurungwe program areas (from 46% in 2021 to 13% in 2022, $p < 0.001$) and in Kariba program areas (from 37% in 2021 to 17% in 2022, $p = 0.035$).

Across all Zimbabwe program areas in 2022, ITN use by pregnant women (26%) is higher than ITN use by the general population (21%, shown in Figure 2), indicating that, in general, pregnant women are being prioritized to sleep under ITNs when there are not enough ITNs in the household to cover everyone. However, though ITN use by pregnant women is higher than ITN use by the general population, ITN use by pregnant women is still very low overall. Among program areas at the District level, pregnant women are sleeping under ITNs at higher levels than the general population in all program areas except those in Mudzi District, where pregnant women used ITNs at lower levels compared to the general population (20% versus 25%).

Figure 4. Percent of pregnant women who slept under an ITN the previous night, by program areas at the District level (2021-2022)

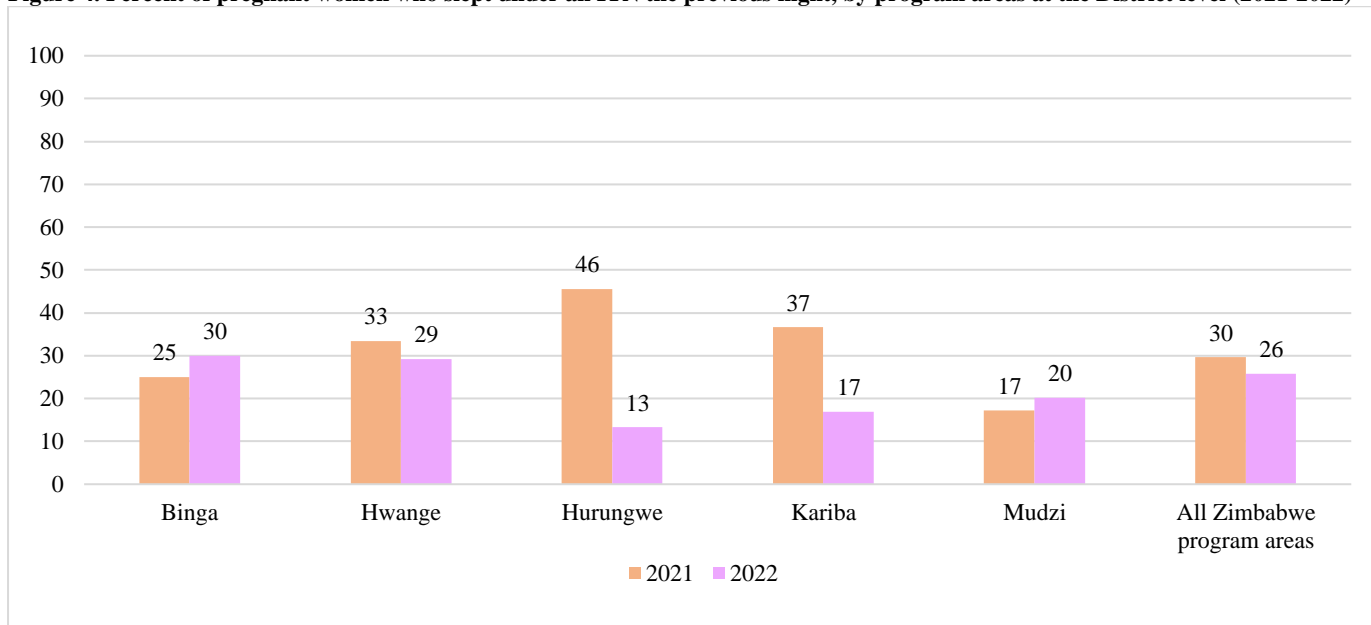


Figure 5. shows ITN use by children <5 the night before the survey from 2021-2022. ITN use by children <5 the previous night decreased significantly in Hwange program areas (from 40% in 2021 to 26% in 2022, $p = 0.004$), in Hurungwe program areas (from 38% in 2021 to 9% in 2022, $p < 0.001$), and in Kariba program areas (from 47% in 2021 to 11% in 2022, $p < 0.001$), but increased significantly among program areas in Mudzi District (from 22% in 2021 to 30% in 2022, $p = 0.002$).

Across all Zimbabwe program areas in 2022, ITN use by children <5 (27%) is higher than ITN use by the general population (21%, shown in Figure 2), indicating that, in general, children <5 are being prioritized to sleep under ITNs when there are not enough ITNs in the household to cover everyone. However, though ITN use by children <5 is higher than ITN use by the general population, ITN use by children <5 is still very low overall. Among program areas at the District level, children <5 are sleeping under ITNs at higher levels than the general population in Binga program areas (31% versus 23%), Hwange program areas (26% versus 23%), and in Mudzi program areas (30% versus 21%), but at the same or lower levels than the general population in Hurungwe program areas (9% versus 9%) and Kariba program areas (11% versus 9%).

Figure 5. Percent of children <5 who slept under an ITN the previous night, by program areas at the District level (2021-2022)

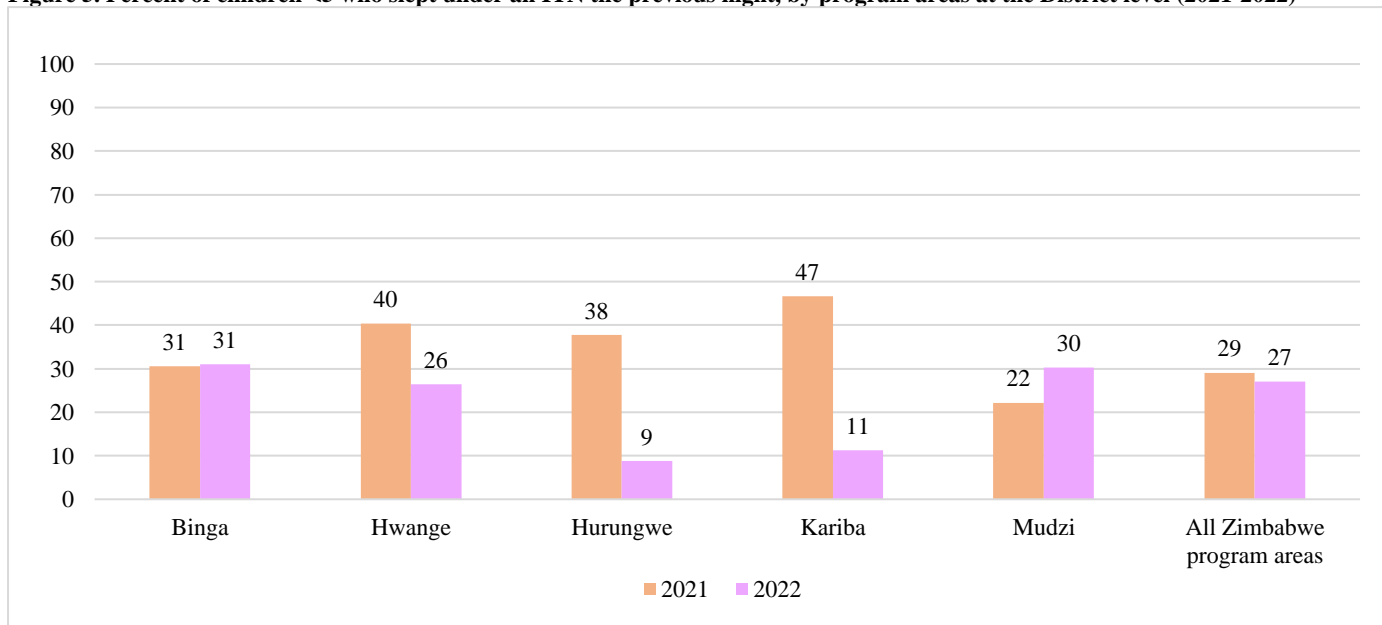
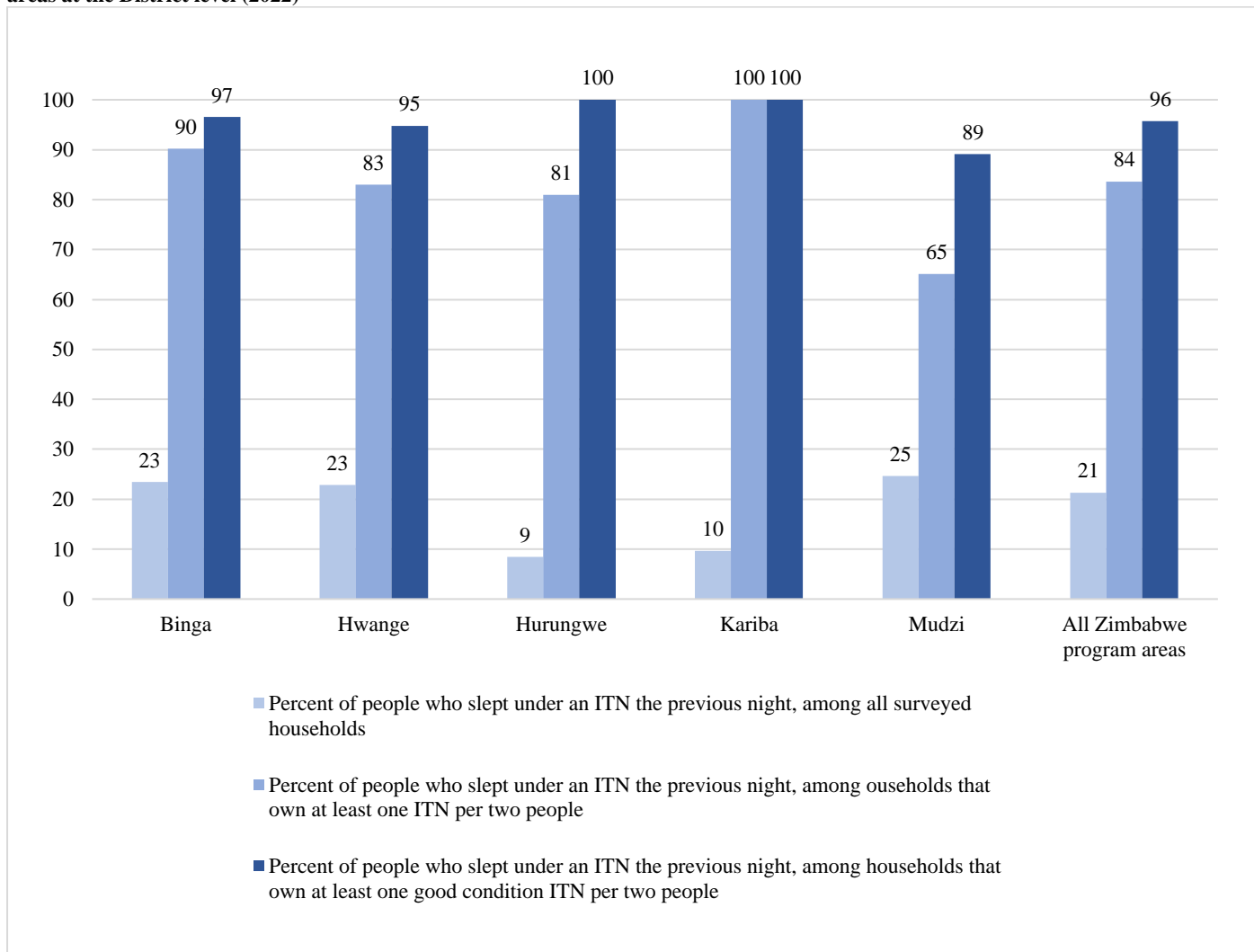


Figure 6 shows the proportion of people who slept under an ITN the previous night among all households, among only households that own at least one ITN for every two people, and among only households that own at least one good condition ITN for every two people. While only 21% of people used an ITN the previous night among all surveyed households, ITN use increased to 84% when looking only at households that own at least one ITN for every two people and increased further to 96% when looking only at households that own at least one good condition ITN for every two people. This suggests that access to ITNs is a main driver of their use; people will use ITNs if they have access to them. This general trend was seen in all program areas at the District level. ITN use among households with at least one good condition ITN for every two people was lowest among Mudzi District program areas (89%).

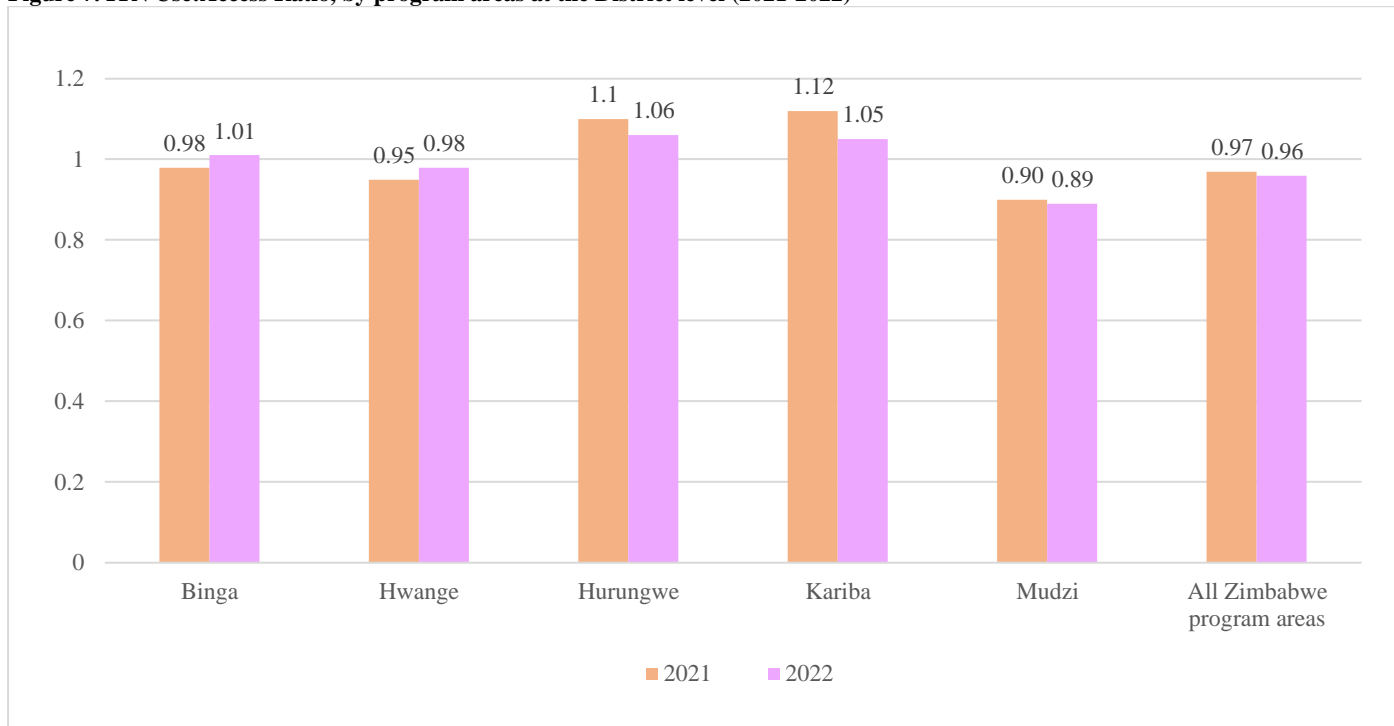
Figure 6. Percent of people who slept under an ITN the previous night (household average) by household ITN ownership, by program areas at the District level (2022)



The ITN Use:Access Ratio (Koenker and Kilian 2014) is a recommended indicator to better understand whether low ITN use is due to a behavioral issue (i.e. not sleeping under ITNs that the household already owns) or due to lack of access to an ITN within the household. ITN use is affected by many factors, but several authors have pointed out that the main reason for non-use is lack of access to a net (Eisele, et al. 2009) and having enough nets for everyone in the household (Hetzel, et al. 2012). Ratios of use to access above 1.0 indicate that more than two people are sharing a net, on average. Ratios above 0.80 indicate that there is likely only a small amount of room for improvement in net use behavior.

Figure 7 shows the ITN Use:Access Ratio for program areas at the District level from 2021-2022. Across all Zimbabwe program areas, ITN Use:Access Ratios have remained high with no significant changes, despite a significant decrease in ITN ownership from 2021-2022 (shown in Figure X). This indicates that the desired behavior of sleeping under an ITN is high; in general, people will use ITNs if they have them. This again suggests that the main driver of ITN use is access to ITNs.

Figure 7. ITN Use:Access Ratio, by program areas at the District level (2021-2022)



Care-seeking behaviour

There are several key steps in the ideal trajectory of care for malaria infection in children under five years (<5): go to a health facility or community health worker/village health worker (CHW/VHW) and do so within 24 hours of fever onset, receive a malaria test, receive treatment if positive for malaria, and take the full course of the medication (three days). Each step in the trajectory of care presents an opportunity for children to be “missed” and therefore for malaria infections to be left untreated and possibly transmitted to others. While all these steps depend on both individual behavior choices and health system services, some steps rely more heavily on individual behavior (such as seeking care within 24 hours of fever onset) and others rely more heavily on the health system (such as giving a malaria test to a febrile child). The trajectory of care cascade, shown in Figure 8, helps to visualize where the gaps are in ideal care-seeking trajectory for children <5 with fever.

Respondents were asked if they were a mother or caregiver of a child <5, if their child <5 had a fever within the previous two weeks, and details about the trajectory of care for that child with fever. Figure 8 shows the number of children <5 with fever at each step in the trajectory of care, which helps to illuminate the gaps in care. Across all Zimbabwe program areas, the largest gap in the trajectory of care was seeking care for the child’s fever from a health facility or CHW/VHW within 24 hours of the start of the fever. Among the 430 respondents whose children <5 had a fever in the previous two weeks, only 265 (62%) sought care from a health facility or CHW/VHW within 24 hours of the start of the child’s fever. The second largest gap in the trajectory of care was seeking care at all for that child’s fever, regardless of timing in relation to the onset of the fever; 87% (374/430) of respondents whose child <5 had a fever in the previous two weeks sought care for that child’s fever.

Figure 8. Number of children <5 with fever in the previous two weeks at each step of the trajectory of care, within all Zimbabwe program areas (2022)

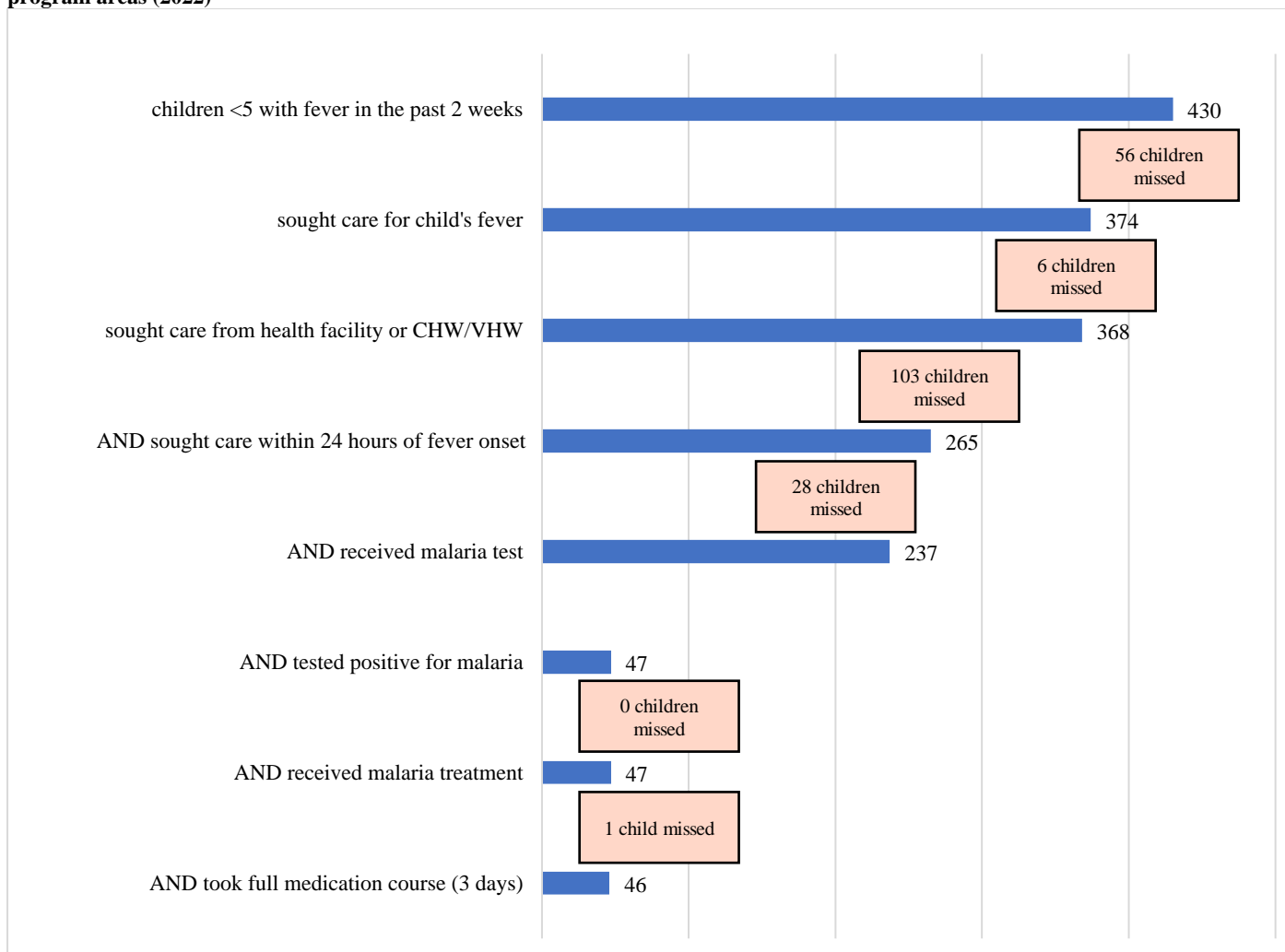


Table 7. shows key indicators in the trajectory of care for children <5 with fever in the previous two weeks by District program areas.

Table 7. Key indicators of trajectory of care for children <5 with fever in the previous two weeks, by program areas at the District level (2022)

		Number of respondents whose child <5 had a fever in the previous two weeks	Number of mothers/ caregivers who sought care for their child from a health facility or CHW/VHW and did so within 24 hours of the start of their child's fever	Number of children <5 with fever who sought care from a health facility or CHW/VHW (regardless of timing in relation to fever)	Number of children who received a malaria test from a health facility or CHW/VHW	Number of children who tested positive for malaria	Number of children who received malaria treatment, among those who tested positive for malaria
Province	District	n	n	n	n	n	n
Matabeleland North	Binga	118	102	117	105	28	28
	Hwange	30	23	27	24	3	3
Mashonlanad West	Kariba	19	16	17	17	7	7
	Hurungwe	27	23	27	24	3	3
Mashonaland East	Mudzi	187	104	182	157	16	16
All Zimbabwe program areas		430	265	368	324	57	57

Figure 9 shows the proportion of children <5 with fever who sought care within 24 hours among program areas at the District level. In 2022, the proportion of children <5 with fever in the previous two weeks who sought care from a health facility or CHW/VHW within 24 hours of the start of the fever increased significantly within program areas in Binga District (from 64% in 2021 to 87% in 2022, $p < 0.001$) but decreased significantly among program areas in Mudzi District (from 61% in 2021 to 45% in 2022, $p < 0.001$). Changes between 2021-2022 in all other areas were non-significant, likely due in part to smaller sample sizes of the subsample of respondents with children <5 with fever in the previous two weeks.

Figure 9. Percent of children <5 with fever who sought care from a health facility or CHW/VHW within 24 hours of the start of the fever, by program areas at the District level (2021-2022)

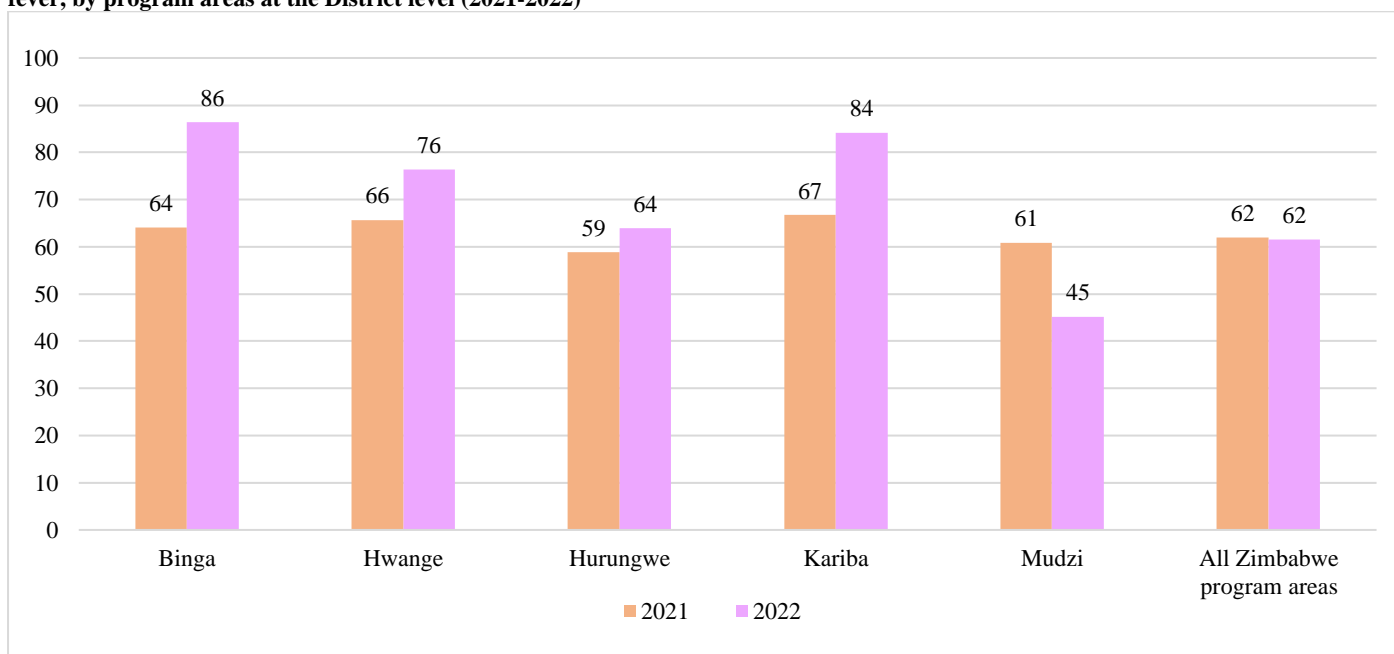
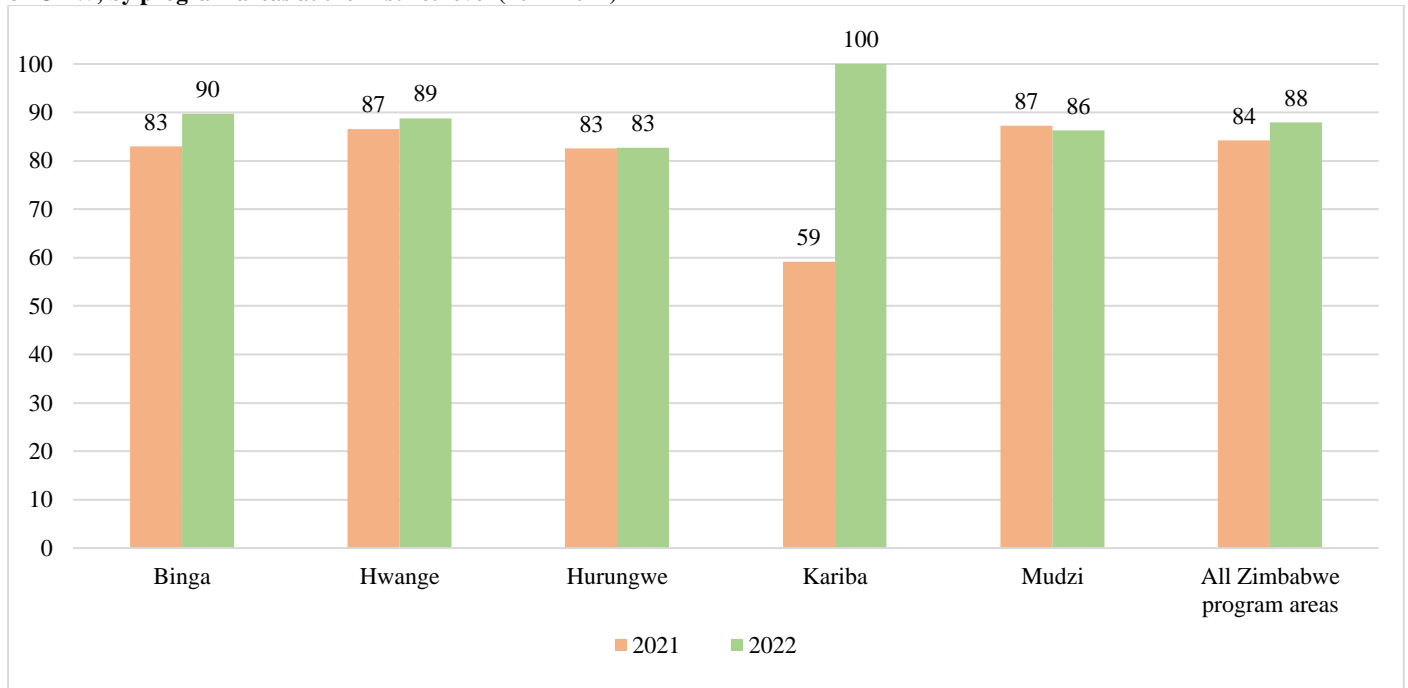


Figure 10. shows the percent of children <5 who received a blood test for malaria, among those who sought care from a health facility or CHW/VHW. Across all Zimbabwe program areas in 2022, 88% of children <5 with fever in the previous two weeks who sought care from a health facility or CHW/VHW received a blood test for malaria (a non-significant increase from 84% in 2021). Among program areas at the District level, a significant increase in the proportion of children <5 with fever who sought care from a health facility or CHW/VHW that received a blood test was observed in Kariba program areas (from 59% in 2021 to 100% in 2022, $p<0.001$). No other changes among program areas at the District level were statistically significant, likely due in part to small sample sizes of the subsample of children <5 with fever who sought care from a health facility or CHW/VHW.

Figure 10. Percent of children <5 with fever who received a blood test for malaria, among those who sought care from a health facility or CHW, by program areas at the District level (2021-2022)



Across all Zimbabwe program areas in 2022, among children who were tested for malaria by a health facility or CHW/VHW, 17% tested positive for malaria. Among those children who tested positive for malaria, 100% received Coartem for malaria treatment in both 2021 and 2022 survey years.

Intermittent preventive treatment of malaria in pregnancy (IPTp)

Figure 11 shows the proportion of women who gave birth in the previous 12 months that took three or more (3+) doses of IPTp during their pregnancy. Across all Zimbabwe program areas in 2022, 76% of women who gave birth in the previous 12 months reported taking 3+ doses of IPTp during their pregnancy, a significant increase from 67% in 2021 (p=0.005). Among program areas at the District level, the proportion of women who gave birth in the previous 12 months that took 3+ doses of IPTp increased significantly from 2021-2022 among Binga program areas (from 76% in 2021 to 87% in 2022, p=0.012) and Kariba program areas (from 63% in 2021 to 87% in 2022, p=0.045). All other changes at the District level were non-significant, likely due in part to smaller subsamples of respondents who gave birth in the previous 12 months. Table 8 shows the number of women who reported giving birth in the previous 12 months, and the numbers of women who took zero, one, two, three or more doses, and who took some IPTp but not sure how many doses.

Figure 11. Percent of women who gave birth in the 12 months prior to the survey that took 3+ doses of IPTp during their pregnancy, by program areas at the District level (2021-2022)

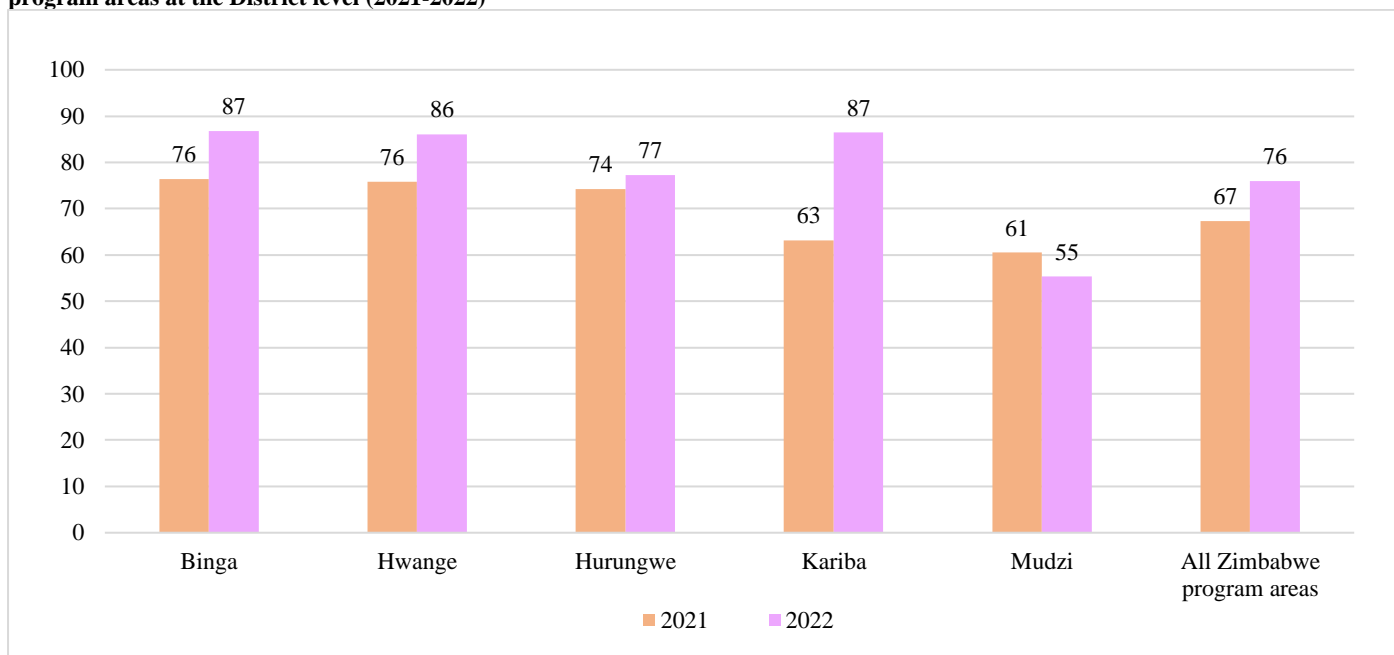


Table 8. IPTp history among women who gave birth in the previous 12 months, by program areas at the District level (2022)

Province	District	Number of women who reported giving birth in the previous 12 months	Number of women who took 3+ doses of IPTp	Number of women who took 2 doses of IPTp	Number of women who took one IPTp dose	Number of women who did not take any IPTp during their pregnancy	Number of women who took some IPTp but aren't sure how many doses
		n	n	n	n	n	n
Matabeleland North	Binga	140	121	13	6	0	0
	Hwange	50	43	7	0	0	0
Mashonlanad West	Kariba	29	25	4	0	0	0
	Hurungwe	32	26	4	2	0	0
Mashonaland East	Mudzi	114	63	16	25	10	0
All Zimbabwe program areas		365	278	44	33	10	0

Knowledge and attitudes

Respondents were asked several questions pertaining to their knowledge of fever as a symptom of malaria, malaria transmission, the possibility of death if malaria is left untreated, and the possibility of being infected with malaria without having symptoms.

Figure 12. shows the proportion of respondents who identified “fever” or “feeling cold/chills” as a symptom of malaria. Across all Zimbabwe program areas, the proportion of respondents who identified “fever” or “feeling cold/chills” as a symptom of malaria increased significantly from 92% in 2021 to 95% in 2022 ($p < 0.001$). Significant increases were also seen at the following District level program areas: Binga (from 94% to 98%, $p = 0.001$), Hwange (from 89% to 98%, $p < 0.001$), Hurungwe (from 89% to 99%, $p = 0.003$), and Kariba (from 92% to 99%, $p = 0.017$). However, a significant decreased was observed within Mudzi District program areas, from 93% in 2021 to 87% in 2022 ($p = 0.001$).

Figure 12. Percent of respondents who identified “fever” or “feeling cold/chills” as a symptom of malaria, by program areas at the District level (2021-2022)

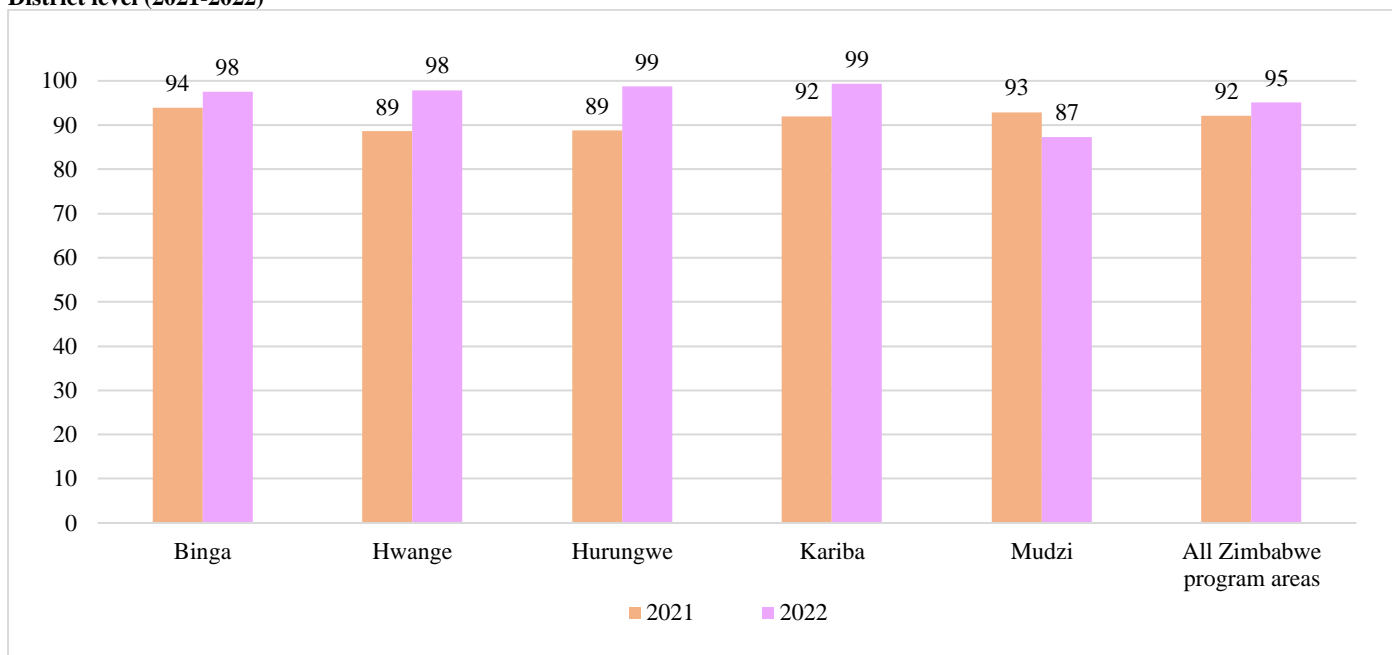
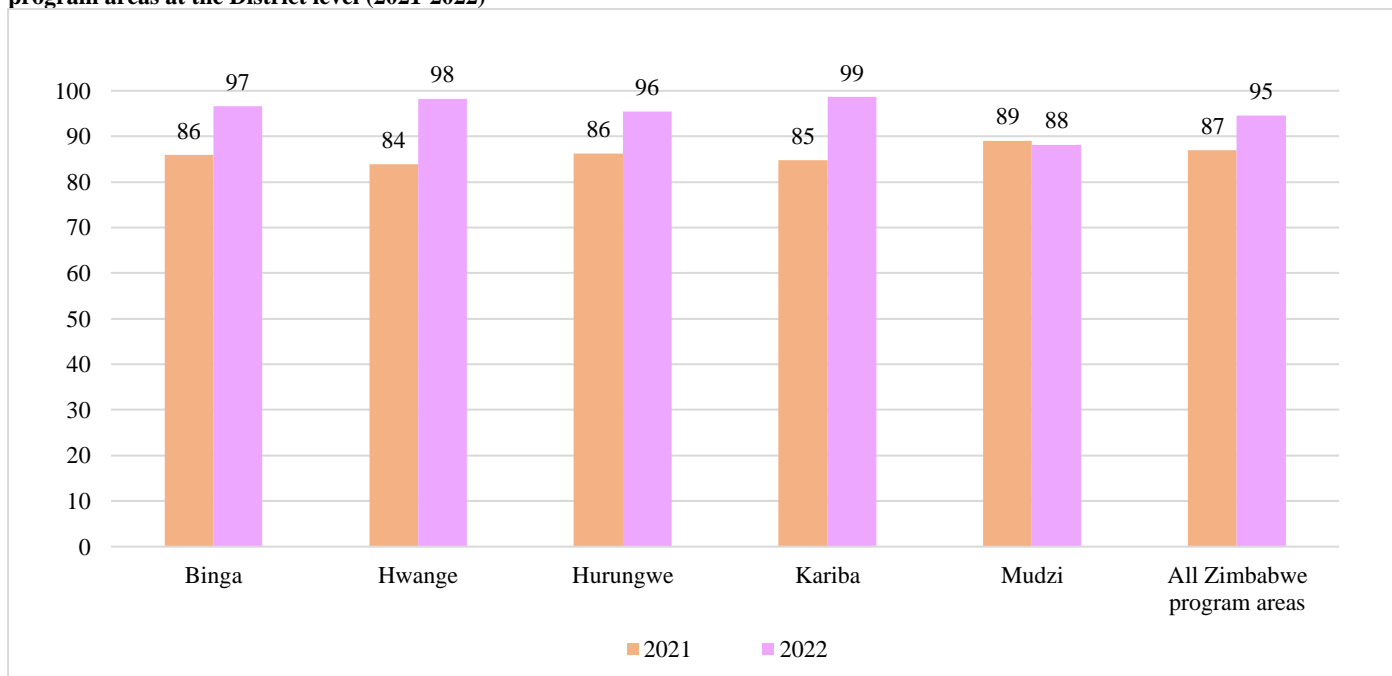


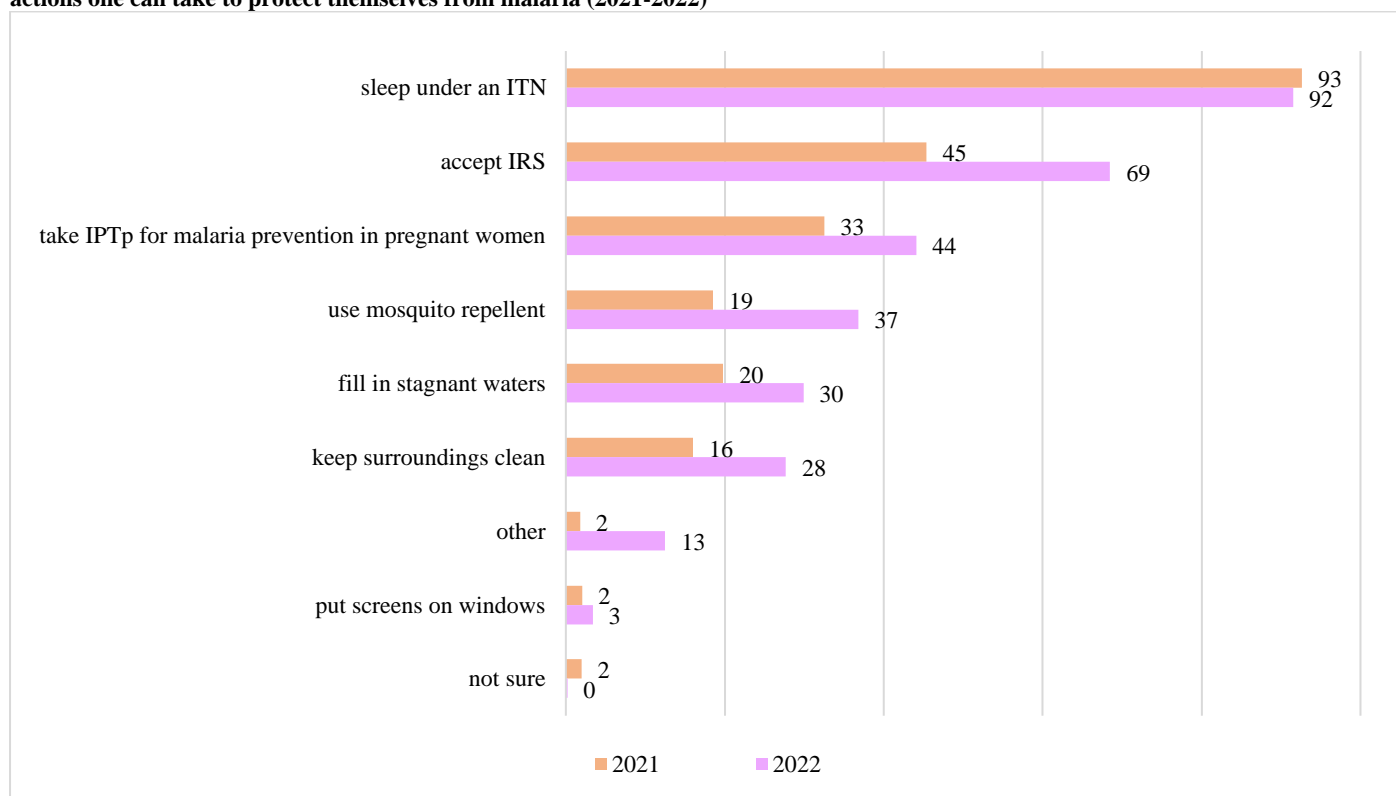
Figure 13. shows the proportion of respondents who identified the mosquito as the cause of malaria transmission and listed nothing else incorrect (e.g., getting soaked in the rain, eating unripe fruit, etc.). Across all Zimbabwe program areas in 2022, the proportion of respondents who identified the mosquito as the cause of malaria, and listed nothing else incorrect, increased significantly from 87% in 2021 to 95% in 2022 ($p < 0.001$). Significant increases were also seen at the following District level program areas: Binga program areas (from 86% in 2021 to 97% in 2022, $p < 0.001$), Hwange program areas (from 84% in 2021 to 98% in 2022, $p < 0.001$), Hurungwe program areas (from 86% in 2021 to 96% in 2022, $p = 0.005$), and Kariba program areas (89% in 2021 to 99% in 2022, $p = 0.001$).

Figure 13. Percent of respondents who identified the mosquito as the cause of malaria transmission, and listed nothing else incorrect, by program areas at the District level (2021-2022)



To shed light on knowledge of malaria prevention, respondents were asked if there were things one could do to protect oneself from malaria (95% believed there were). If the participant believed that there were things one could do to protect oneself from malaria, they were then asked to list off what came to mind as personal protective measures against malaria. Figure 14 shows the percent of respondents who reported various actions to protect oneself from malaria, among those respondents who did believe there were things one could do to prevent malaria. Among these respondents, 92% mentioned “sleep under ITNs,” 69% mentioned “indoor residual spraying,” and 44% mentioned “IPTp for pregnant women.”

Figure 14. Percent of respondents who reported various actions to protect oneself from malaria, among those who believe there are actions one can take to protect themselves from malaria (2021-2022)



Respondents were asked whether they felt that ITNs, IRS, and IPTp “helps a lot,” “helps a little,” or “does not help” to prevent malaria. Table 9. shows the proportions of respondents who believed that ITNs, IRS, and IPTp “help a lot” to prevent malaria. Across all Zimbabwe program areas, significant increases were seen in the proportion of respondents in 2022 who believed that IRS “helped a lot to prevent malaria” (from 82% in 2021 to 87% in 2022, $p < 0.001$) and in the proportion of respondents who believed that IPTp “helps a lot to prevent consequences of malaria in pregnancy” (from 91% in 2021 to 99% in 2022, $p < 0.001$).

Table 9. Percent of respondents that believe ITNs, IRS, and IPTp “help a lot” to prevent malaria, program areas at the District level (2021-2022)

Province	District	Percent of respondents who believe that ITNs “help a lot” to prevent malaria		Percent of respondents who believe that IRS “helps a lot” to prevent malaria		Percent of respondents who believe that IPTp “helps a lot” to prevent consequences of malaria in pregnancy	
		2021	2022	2021	2022	2021	2022
Matabeleland North	Binga	96	99	91	93	91	99
	Hwange	95	99	87	95	94	99
Mashonaland West	Kariba	94	99	77	99	93	97
	Hurungwe	97	99	94	97	96	99
Mashonaland East	Mudzi	95	89	71	66	88	89
All Zimbabwe program areas		95	96	82	87	91	96

Appendix 1. 2021-2022 KAP survey sampling frame (IFCBMI Zimbabwe program areas)

Province	District	Ward	Village	Targeted to receive IRS within 12 months prior to 2022 KAP Survey
Mashonaland East	Mudzi	Chikwizo A	Amoni	Yes – Dec 2021
			Arongani	Yes – Dec 2021
			Chakuposhiwa	Yes – Dec 2021
			Chando	Yes – Dec 2021
			Chikuyeni	Yes – Dec 2021
			Dakati	Yes – Dec 2021
			Dick	Yes – Dec 2021
			Gasani	Yes – Dec 2021
			Joromani	Yes – Dec 2021
			Kajawo	Yes – Dec 2021
			Kamutoto	Yes – Dec 2021
			Kanyoka 1	Yes – Dec 2021
			Kanyoka 3	Yes – Dec 2021
			Kanyoka 4	Yes – Dec 2021
			Kudyakunopeta	Yes – Dec 2021
			Machisa	Yes – Dec 2021
			Manyangarirwa	Yes – Dec 2021
			Maonera	Yes – Dec 2021
			Marusi	Yes – Dec 2021
			Masewo	Yes – Dec 2021
			Mazonde	Yes – Dec 2021
			Mubweza	Yes – Dec 2021
			Mupingiza	Yes – Dec 2021
			Mutize	Yes – Dec 2021
			Muyembe	Yes – Dec 2021
			Nyabanga	Yes – Dec 2021
			Nyambo	Yes – Dec 2021
			Nyamukacha	Yes – Dec 2021
		Nyandoro	Yes – Dec 2021	
		Tembo	Yes – Dec 2021	
		Tubu	Yes – Dec 2021	
		Zambezi	Yes – Dec 2021	
		Zano	Yes – Dec 2021	
		Zinhu	Yes – Dec 2021	
		Gorongongwa A	Botso	Yes – Oct 2021
			Charambadeya	Yes – Oct 2021
			Chikungwa	Yes – Oct 2021
			Josi	Yes – Oct 2021
			Kasuso	Yes – Oct 2021
			Katakura	Yes – Oct 2021
			Makosa	Yes – Oct 2021
			Marovha	Yes – Oct 2021
			Mavhura	Yes – Oct 2021
			Mbwadzi	Yes – Oct 2021
			Mudzimu	Yes – Oct 2021
			Mukombwe	Yes – Oct 2021
			Mukuramimba	Yes – Oct 2021
			Mutamangira	Yes – Oct 2021
			Mutekede	Yes – Oct 2021
			Mutesva	Yes – Oct 2021
			Mutoko	Yes – Oct 2021
			Muvhiza	Yes – Oct 2021
			Nyahuna	Yes – Oct 2021
			Nyakupata	Yes – Oct 2021
Tsonga	Yes – Oct 2021			
Tsonga A	Yes – Oct 2021			
Tsonga B	Yes – Oct 2021			
Gorongongwa B	Chingwena	Yes – Oct 2021		
	Gorohoro	Yes – Oct 2021		
	Jeke	Yes – Oct 2021		
	Kanobata	Yes – Oct 2021		
	Kasuso 2	Yes – Oct 2021		
	Mafuta	Yes – Oct 2021		
	Mavhura	Yes – Oct 2021		
	Mupatiseni	Yes – Oct 2021		
	Mututa	Yes – Oct 2021		
	Muwadzi	Yes – Oct 2021		
Tangi	Yes – Oct 2021			
Tizora	Yes – Oct 2021			
Mukota D	Barichoro	Yes – Nov 2021		
	Bvunzawabaya	Yes – Nov 2021		
	Chamburuka	Yes – Nov 2021		

Province	District	Ward	Village	Targeted to receive IRS within 12 months prior to 2022 KAP Survey
Mashonaland East	Mudzi	Mukota D	Charamba	Yes – Nov 2021
			Chibedura	Yes – Nov 2021
			Chigan'a	NO
			Chimuramba	Yes – Nov 2021
			Chimutsanya	Yes – Nov 2021
			Jigu	Yes – Nov 2021
			Kambeva	Yes – Nov 2021
			Kamburanyanga	Yes – Nov 2021
			Kanyimo	Yes – Nov 2021
			Kungwengwe	Yes – Nov 2021
			Kurima	Yes – Nov 2021
			Magohoto	Yes – Nov 2021
			Maruza	Yes – Nov 2021
			Mombemuriwo	Yes – Nov 2021
			Murapura	Yes – Nov 2021
			Musau	Yes – Nov 2021
			Mususa	Yes – Nov 2021
			Mutinha	Yes – Nov 2021
			Nyamande	Yes – Nov 2021
			Nyamudandara	NO
			Nyamutin'a	Yes – Nov 2021
			Ranja	Yes – Nov 2021
			Rupiya	Yes – Nov 2021
			Saizi	Yes – Nov 2021
			Takuranaho	Yes – Nov 2021
		Tsabora	Yes – Nov 2021	
		Zongoro	Yes – Nov 2021	
		Mukota A	Rongani	Yes – Dec 2021
			Chiringa	Yes – Dec 2021
			Zhuwau 1	Yes – Dec 2021
			Zhuwau 2	Yes – Dec 2021
			Nyabonde	Yes – Dec 2021
			Katena 1	Yes – Dec 2021
			Katena 2	Yes – Dec 2021
			Katena 3	Yes – Dec 2021
			Katena 4	Yes – Dec 2021
			Mbeko	Yes – Dec 2021
			Kamutondore	Yes – Dec 2021
			Nyamhimvu A	Yes – Dec 2021
			Nyamhimvu B	NO
			Chikoko	Yes – Dec 2021
			Dzidzi	Yes – Dec 2021
			Madzinga	Yes – Dec 2021
			Kachepa	Yes – Dec 2021
			Kasere 1	Yes – Dec 2021
			Karumba 1	Yes – Dec 2021
			Makaza 1	Yes – Dec 2021
			Makaza 2	Yes – Dec 2021
			Chanetsa 1	Yes – Dec 2021
			Nyarongo	Yes – Dec 2021
Magohoto 2	Yes – Dec 2021			
Magohoto 3	Yes – Dec 2021			
Masahwa	Zano masahwa	Yes – Dec 2021		
	Tsekese	Yes – Dec 2021		
	chimwara	Yes – Dec 2021		
	Kambanje	Yes – Dec 2021		
	Bvunzawabaya	Yes – Dec 2021		
	Mushonga	Yes – Dec 2021		
	Tembo	Yes – Dec 2021		
	Makanjera	Yes – Dec 2021		
	Champion	Yes – Dec 2021		
	Mare	Yes – Dec 2021		
	Chibanzu	Yes – Dec 2021		
	Chiwaka	Yes – Dec 2021		
	Takwanisa	Yes – Dec 2021		
	Chiringa	Yes – Dec 2021		
	Chinogurei	Yes – Dec 2021		
Nyakutira	Yes – Dec 2021			
Nyamhanza	Yes – Dec 2021			
Tambudze	Yes – Dec 2021			
Gatakata	Yes – Dec 2021			
Ngwaru	Yes – Dec 2021			
Sarauchirehwa	Yes – Dec 2021			

Province	District	Ward	Village	Targeted to receive IRS within 12 months prior to 2022 KAP Survey	
			Chikona	Yes – Dec 2021	
			Revai	Yes – Dec 2021	
			Tigere	Yes – Dec 2021	
			Panganai	Yes – Dec 2021	
			Solomon	Yes – Dec 2021	
			Marikopo	Yes – Dec 2021	
			Katsande	Yes – Dec 2021	
			Kachara	Yes – Dec 2021	
			Muocha	Yes – Dec 2021	
Mashonaland West	Hurungwe	Kazangare	Zuze	Yes – Oct/Nov 2021	
			Mhurupuru	Yes – Oct/Nov 2021	
			Kazangare	Yes – Oct/Nov 2021	
			Kaunda	Yes – Oct/Nov 2021	
			Masokoti	Yes – Oct/Nov 2021	
		Dete	Maendaenda	Yes – Oct/Nov 2021	
			Nyachowe	Yes – Oct/Nov 2021	
			Chidimure	Yes – Oct/Nov 2021	
			Maendaenda B	Yes – Oct/Nov 2021	
		Chibara	Mugwagwa	Yes – Oct/Nov 2021	
			Raisi	Yes – Oct/Nov 2021	
			Nyatsona	Yes – Oct/Nov 2021	
			Makuni	Yes – Oct/Nov 2021	
			Musokeri	Yes – Oct/Nov 2021	
		Chundu	Chigwida	Yes – Oct/Nov 2021	
			Mutowa	Yes – Oct/Nov 2021	
			Ranjisi Village 4	Yes – Oct/Nov 2021	
			Kanhuwa	Yes – Oct/Nov 2021	
			Chinhema	Yes – Oct/Nov 2021	
		Masanga	Chipokeni	Yes – Oct/Nov 2021	
			Madhumba	Yes – Oct/Nov 2021	
			Nyikadzino	Yes – Oct/Nov 2021	
			Nziramasa	Yes – Oct/Nov 2021	
		Nyamakate	Murisa	Yes – Oct/Nov 2021	
			Manguwe	Yes – Oct/Nov 2021	
			Mutemachani	Yes – Oct/Nov 2021	
			Charlle	Yes – Oct/Nov 2021	
			Lima	Yes – Oct/Nov 2021	
		Chirundu	Golf A	Yes – Oct/Nov 2021	
			Papa	Yes – Oct/Nov 2021	
			31A	Yes – Oct/Nov 2021	
			Alpha A	Yes – Oct/Nov 2021	
			Murimbika	Yes – Oct/Nov 2021	
		Deve	Valley	Yes – Oct/Nov 2021	
			Heights	Yes – Oct/Nov 2021	
			Estates	Yes – Oct/Nov 2021	
			Musiwa	Yes – Oct/Nov 2021	
		Kariba	Chalala	Mhosva	Yes – Oct/Nov 2021
				Kapesa	Yes – Oct/Nov 2021
				Matonhedze	Yes – Oct/Nov 2021
			Mola	Village 9	Yes – Oct/Nov 2021
				Chitenge	Yes – Oct/Nov 2021
			Mayovhe	Mangwara	Yes – Oct/Nov 2021
				Dove	Yes – Oct/Nov 2021
				Mayovhw fishing camp	Yes – Oct/Nov 2021
Negande	Mazambuko		Yes – Oct/Nov 2021		
	Sianungu		Yes – Oct/Nov 2021		
	Jongola	Yes – Oct/Nov 2021			
	Seremwe	Yes – Oct/Nov 2021			
Matabeleland North	Binga North	Sinakoma	Malaiti	Yes – Oct/Nov 2021	
			Guyu	Yes – Oct/Nov 2021	
			Matala	Yes – Oct/Nov 2021	
			Chivwetu	Yes – Oct/Nov 2021	
			Dongamuse	Yes – Oct/Nov 2021	
			Kalamba	Yes – Oct/Nov 2021	
			Nsungwale	Yes – Oct/Nov 2021	
			Nampande	Yes – Oct/Nov 2021	
		Chunga/22	Chininga	Yes – Oct/Nov 2021	
			Sianyanga	Yes – Oct/Nov 2021	
			Bbotela	Yes – Oct/Nov 2021	
			Njobola	Yes – Oct/Nov 2021	
			Sinamwenda	Yes – Oct/Nov 2021	
			Siakanchele	Yes – Oct/Nov 2021	

Province	District	Ward	Village	Targeted to receive IRS within 12 months prior to 2022 KAP Survey
		Lunga/1	Tyaba	Yes – Oct/Nov 2021
			Sinakatenge	Yes – Oct/Nov 2021
			Sinamunsanga	Yes – Oct/Nov 2021
			Lunga	Yes – Oct/Nov 2021
			Nsengwa	Yes – Oct/Nov 2021
			Chipampa	Yes – Oct/Nov 2021
			Mujele	Yes – Oct/Nov 2021
		Keja	Yes – Oct/Nov 2021	
		Sinansengwe/5	Mucheni	Yes – Oct/Nov 2021
			Sikabinga	Yes – Oct/Nov 2021
			Mbalule	Yes – Oct/Nov 2021
			Zuka	Yes – Oct/Nov 2021
			Makondo	Yes – Oct/Nov 2021
			Chitete	Yes – Oct/Nov 2021
	Mwenda		Yes – Oct/Nov 2021	
	Binga South	Manjolo	Siangwemu	Yes – Oct/Nov 2021
			Manjolo	Yes – Oct/Nov 2021
			Nalubuyu	Yes – Oct/Nov 2021
		Simatelele	Chileya	Yes – Oct/Nov 2021
			Masawu	Yes – Oct/Nov 2021
			Zingozo	Yes – Oct/Nov 2021
			Kasikili	Yes – Oct/Nov 2021
			B/Kraal	Yes – Oct/Nov 2021
			Lokola	Yes – Oct/Nov 2021
		Siansundu	Siameja	Yes – Oct/Nov 2021
			Chilalamatanga	Yes – Oct/Nov 2021
			Sianjomwa	Yes – Oct/Nov 2021
			Minsale	Yes – Oct/Nov 2021
			Miimpo	Yes – Oct/Nov 2021
			Siavwandu	Yes – Oct/Nov 2021
			Kadika	Yes – Oct/Nov 2021
			Mimbo	Yes – Oct/Nov 2021
			Simwenge	Yes – Oct/Nov 2021
			Milbizi	Yes – Oct/Nov 2021
		Lubanda	Makunku	Yes – Oct/Nov 2021
			Katete	Yes – Oct/Nov 2021
			Chesamba	Yes – Oct/Nov 2021
			Lubanda	Yes – Oct/Nov 2021
		Saba	Kenjobo	Yes – Oct/Nov 2021
			Siamusale	Yes – Oct/Nov 2021
			Kamalumbu	Yes – Oct/Nov 2021
			Sicimvwali	Yes – Oct/Nov 2021
			Mudambe	Yes – Oct/Nov 2021
			Chabumbuluka	Yes – Oct/Nov 2021
		Siachilaba	Saba	NO
			Siantungwani	Yes – Oct/Nov 2021
			Siamwinde	Yes – Oct/Nov 2021
Sikalenge		Sianoti	Yes – Oct/Nov 2021	
		Msenampongo	Yes – Oct/Nov 2021	
		Sikalenge	Yes – Oct/Nov 2021	
		Damba	Yes – Oct/Nov 2021	
	Siabbanga	Yes – Oct/Nov 2021		
	Mangogo	Yes – Oct/Nov 2021		
Hwange	Dete	Delampuli	Yes – Oct/Nov 2021	
		Kelamenda	Yes – Oct/Nov 2021	
		Bote 1	NO	
		Bote 2	NO	
		NRZ 1	NO	
		NRZ 2	NO	
		Soweto	NO	
		Mtuya 1	NO	
		Mtuya 2	NO	
		Matabeleland North	Hwange	Kamativi
“A” Section	Yes – Oct/Nov 2021			
“B” & “C” Section	Yes – Oct/Nov 2021			
“CB” & “D” Section	Yes – Oct/Nov 2021			
Village 21	Yes – Oct/Nov 2021			
Ndumichenga (Mulonga)	Yes – Oct/Nov 2021			
Sena FM	Yes – Oct/Nov 2021			
Ndumichenga	Yes – Oct/Nov 2021			
Katete	Yes – Oct/Nov 2021			
Village 22	Yes – Oct/Nov 2021			

Province	District	Ward	Village	Targeted to receive IRS within 12 months prior to 2022 KAP Survey
			Sena	Yes – Oct/Nov 2021
		Mwemba	Shashachunda	Yes – Oct/Nov 2021
			Mashala Top	Yes – Oct/Nov 2021
			Kalisonde	Yes – Oct/Nov 2021
			Mugambo	Yes – Oct/Nov 2021
			Jejeti	Yes – Oct/Nov 2021
			Mwemba	Yes – Oct/Nov 2021
		Simangani	Simangani	Yes – Oct/Nov 2021
			Makwa 1	Yes – Oct/Nov 2021
			Makwa 2	Yes – Oct/Nov 2021
			chezya	Yes – Oct/Nov 2021
		Jambezi	Chenje 1	Yes – Oct/Nov 2021
			Tamuka	Yes – Oct/Nov 2021
			Nyikanyoro	Yes – Oct/Nov 2021
			Zhulandangalilo 2	Yes – Oct/Nov 2021
			Jambezi centre	Yes – Oct/Nov 2021
			Chenje 2	Yes – Oct/Nov 2021
			Chenjiri	Yes – Oct/Nov 2021
			Bupenyubwamangwana	Yes – Oct/Nov 2021
			Manono	Yes – Oct/Nov 2021
			Chikamba	Yes – Oct/Nov 2021
		Zhulandangalilo 1	Yes – Oct/Nov 2021	

Appendix 2. 2022 KAP Survey Results for new IFCBMI program areas within Mudzi District

Background and methods

In late 2021, new program areas were established within Mukota A and Masahwa Wards of Mudzi District, Mashonaland East Province. Since these program areas were not surveyed in 2021, the 2022 KAP Survey served as their baseline and first year of data collection. The sample sizes for the new program areas were determined with the aim of accurately estimating measurements for the following indicators: the proportion of households with at least one unused net and one uncovered person, the proportion of women who gave birth in the previous 12 months that took 3+ doses of intermittent treatment of malaria in pregnancy (IPTp), and the proportion of children <5 with fever in the previous two weeks who sought care from a health facility or CHW within 24 hours of the start of the fever. Standard sample size calculations for dichotomous outcomes were performed based on expert opinion regarding the likely true population proportions of the indicators in the new areas and desired margins of error around each planned estimate. The largest resulting sample size amongst the three indicators was selected as the required minimum sample size. All other background and methodology for the 2022 KAP Survey in these new program areas is the same as described in Sections 2 and 3 of this report.

Results

Table 1. Sample sizes (2022)

Province	District	Ward	Sample size
Matabeleland East	Mudzi	Mukota A	158
		Masahwa	148

Table 2. Background characteristics (2022)

Background characteristic	Mukota A Ward program areas	Masahwa Ward program areas
Average age of respondent (n)	33	30
Percent of households with at least 1 child under 5 who slept there the previous night (%)	98	99
Average number of children <5 in household the previous night, among households with at least one child <5 (n)	1.3	1.5
Percent of households with at least one pregnant woman who slept there the previous night (%)	6	9
Average number of people who slept in the household the previous night (n)	5.4	5.2
Average number of sleeping spaces (n)	2.5	2.5
Percent of households with surrounding standing water (per visual observation of data collector) (%)	1	2

Table 4. Respondent education level (2022)

Education level (%)	Mukota A Ward program areas	Masahwa Ward program areas
Never attended school	3	1
Attended some primary school	24	9
Completed primary school	23	22
Attended some secondary school	27	31
Completed secondary school	22	36
Higher than secondary school	1	1
Not sure	0	0

Table 5. Results for indoor residual spraying (IRS)

Indicator	Mukota A Ward program areas		Masahwa Ward program areas	
	Percent	Number	Percent	Number
Households that received IRS within the previous 12 months, among those located in areas that were targeted to receive IRS in the most recent vector control campaign	84	133	78	116
Households that gave the following reasons for not receiving IRS within the previous 12 months, among households located in areas that were targeted for IRS but did not receive it with the previous 12 months:				
I was not at my household when IRS was offered	48	12	54	17
No one came to my household to offer IRS	49	12	42	14
I refused IRS	3.8	1	3	1
My household is ineligible for IRS	0	0	0	0
Not sure	0	0	0	0

Table 6. Results for insecticide treated nets (ITNs)

Indicator	Mukota A Ward program areas	Masahwa Ward program areas
Ownership of ITNs		
Percent of households that own at least one ITN (%)	57	48
Percent of households that own at least one ITN for every two people that slept in the household the previous night (%)	11	8
Percent of households that own at least one ITN in good condition (%)	31	24
Percent of households that own at least one ITN for every two people that slept in the household the previous night (%)	3	3
Average number of ITNs per household (n)	0.9	0.8
Access to ITNs		
Percent of people with access to an ITN within their own household (assuming each ITN covers two people) (%)	35	29
Percent of people with access to a good condition ITN within their own household (assuming each ITN covers two people) (%)	16	13
Use of ITNs		
Percent of people who slept under an ITN the previous night (%)	29	26
Percent of pregnant women who slept under an ITN the previous night (%)	21	16
Percent of children <5 who slept under an ITN the previous night (%)	36	35
Percent of people who slept under an ITN the previous night, among households that own at least one ITN per two people (%)	60	51
Percent of people who slept under an ITN the previous night, among households that own at least one good condition ITN per two people (%)	35	77
ITN Use:Access Ratio (n)	0.85	0.99

Table 7. Results for care-seeking behavior of children <5 with fever in the previous two weeks

Indicator	Mukota A Ward program areas		Masahwa Ward program areas	
	Percent	Number	Percent	Number
Respondents with children <5 who had fever in the previous two weeks	48	74	49	72
Respondents who sought care for their child <5 with fever from a health facility or CHW	85	63	82	59
Respondents who sought care for their child <5 with fever from a health facility or CHW within 24 hours of the start of the fever	47	35	46	33
Children who received a malaria test, among those who sought care from a health facility or CHW (regardless of timing in relation to fever onset)	88	55	85	48
Children who tested positive for malaria, among those who were tested for malaria by a health facility of CHW	19	10	8	4
Children who received Coartem for malaria treatment, among those who tested positive for malaria	100	10	100	4

Table 8. Results for uptake of intermittent preventive treatment of malaria in pregnancy (IPTp) among respondents who gave birth in the previous 12 months

Indicator	Mukota A Ward program areas		Masahwa Ward program areas	
	Percent	Number	Percent	Number
Respondents who gave birth in the previous 12 months	22	34	27	40
Respondents who took 3+ doses of IPTp during their pregnancy	68	23	59	23
Respondents who took 2 doses of IPTp during their pregnancy	11	4	14	6
Respondents who took 1 dose of IPTp during their pregnancy	0	0	10	4
Respondents who did not take any IPTp during their pregnancy	18	6	15	6
Respondents who took some IPTp, but do not remember how many doses	3	1	2	1

Table 9. Results for malaria-related knowledge and attitudes toward ITNs, IRS, and IPTp

Indicator	Mukota A Ward program areas	Masahwa Ward program areas
	Percent	Percent
Respondents who identified “fever” or “feeling cold/chills” as a symptom of malaria	86	91
Respondents who identified the mosquito as the cause of malaria transmission, and listed nothing else incorrect	88	87
Respondents who believe that malaria can be deadly if left untreated	99	97
Respondents who believe that it’s possible to be infected with malaria without having symptoms	50	51
Composite knowledge indicator (respondents who answered all four knowledge questions correctly)	36	39
Respondents who believe that ITNs “help a lot” to prevent malaria	88	84
Respondents who believe that IRS “helps a lot” to prevent malaria	73	66
Respondents who believe that IPTp “helps a lot” to prevent the consequences of malaria in pregnancy	84	86

Appendix 3. References

- Eisele, Thomas, Joseph Keating, Megan Littrell, and Kate Macintyre. 2009. "Assessment of insecticide-treated bednet use among children and pregnant women across 15 countries using standardized national surveys." *Am J Trop Med Hyg* 80(2): 209-14.
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- 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.