



Republic of Rwanda
Ministry of Health



Rwanda Malaria and Neglected Tropical Diseases

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Foreword

The Ministry of Health and Rwanda Biomedical Centre (RBC) would like to take this opportunity to express our deep gratitude and sincere thanks to everyone (Partners and Stakeholders) who contributed to the compilation of this FY 2024-2025 Annual Report of the Malaria and Other Parasitic Diseases Division (MOPDD) in Rwanda.

This report has been developed based on the Health Management Information System (HMIS) and Program Data and program activity reports from July 2024 to June 2025. It presents a comprehensive picture of the prevention, control, and management of Malaria and Neglected Tropical Diseases (NTDs) in Rwanda and is structured based on the National Malaria and NTDs Strategic Plans.

Actions needed to control the Malaria and NTDs burden in Rwanda require partnership and close collaboration between stakeholders in environmental control programs and strengthening the surveillance systems across all sectors at national and decentralized levels. These programs must be conducted using an innovative and evidence-based package of interventions for prevention, treatment, and support for patients, community health workers, and the communities where these strategies are implemented.

We remain entirely grateful for the inputs and support provided by our Partners in Malaria and NTDs Response.

Special thanks to the members of the Civil Society Organizations, Local and International Non-Governmental, Bilateral Organizations as well as the Rwandan Government institutions who fully supported the implementation of Malaria and NTDs control activities during this reporting period.

I would also like to thank all members of the Malaria and NTDs Technical Working Groups who reviewed and validated the content of this report. We thank you all for your support in the fight against Malaria and NTDs in Rwanda.

Prof. Claude M. MUVUNYI
Director General RBC

List of Abbreviations

ACT	Artemisinin-based Combination Therapy
AL	Artemether Lumefantrine
ANC	Ante-Natal Care
CDC	Center for Disease Control
CHW	Community Health Worker
CPDS	Coordinated Procurement and Distribution System
DQA	Data Quality Audit
EPI	Expanded Program on Immunization
EQA	External Quality Assurance
FY	Fiscal Year
GF	Global Fund
GoR	Government of Rwanda
HBM	Home Based Management
HMIS	Health Management Information System
HSSP IV	Third Health Sector Strategic Plan IV
iCCM	Integrated Community Case Management of Malaria
IRS	Indoor Residual Spraying
ITN	Insecticide Treated Net
IVM	Integrated Vector Management
LLINs	Long-Lasting Insecticide Nets
MDA	Mass Drug Administration
MoH	Ministry of Health
MOPDD	Malaria and Other Parasitic Diseases Division
MSP	Malaria Strategic Plan
MTEF	Mid-Term Expenditure Framework

NRL	National Reference Laboratory
NSP	National Strategic Plan
NTD	Neglected Tropical Diseases
PCR	Polymerase Chain Reaction
PMI	President's Malaria Initiative
PSM	Procurement and Supply chain Management
QC	Quality Control
QMIA	Quality Management Improvement Approach
RDT	Rapid Diagnostic Test
SBC	Social Behavior Change
SCH	Schistosomiasis
SOP	Sprayer Operators
STH	Soil-Transmitted Helminthiasis
TWG	Technical Working Group
UC	Universal Coverage
WHO	World Health Organization

Executive Summary

The **Malaria, Neglected Tropical Diseases, and Other Parasitic Diseases Division (MOPDD)** is a national technical unit responsible for coordinating efforts in the prevention, diagnosis, and treatment of malaria, Neglected Tropical Diseases (NTDs), and other parasitic diseases across Rwanda.

Despite sustained control interventions, Rwanda has experienced a resurgence of malaria. The **Annual Parasite Incidence (API)** increased from 45 cases per 1,000 persons in 2023–2024 to 76 cases per 1,000 persons in 2024–2025, representing a **69% rise**. Similarly, the **Slide Positivity Rate (SPR)** increased from 14% to 21% during the same period.

This increase in malaria incidence is driven by multiple factors, including climatic changes (rising temperatures, higher humidity, and heavier rainfall), as well as growing resistance of mosquitoes to insecticides and parasites to antimalarial drugs, which are undermining existing control measures.

Notably, **23 out of 30 districts** were able to maintain an API below 100 cases per 1,000 persons in FY 2024–2025.

- **Uncomplicated malaria cases** rose by **74%**, from 613,415 in FY 2023–2024 to 1,068,522 in FY 2024–2025. Currently, 50% of these cases are managed at the community level.
- **Severe malaria cases** more than doubled, increasing from 1,969 to 4,338 over the same period (**120% increase**).
- **Malaria deaths** rose from 67 in FY 2023–2024 to 87 in FY 2024–2025 (**30% increase**).

To support prevention, a total of **3,318,370 rectangular insecticide-treated nets (ITNs)** were procured in 2024–2025 with contributions from the Government of Rwanda (via RMS Ltd), the Global Fund, and PMI (through TRMS/GHSC-PSM). Distribution coverage for priority groups remained high:

- **Pregnant women:** 344,214 ITNs distributed out of 356,564 first ANC attendees (**96.5% coverage**).
- **Children under one year:** 298,516 ITNs distributed out of 309,174 receiving MR1 (**96.5% coverage**).

In addition, **70,251 ITNs** were distributed to special groups such as hospitals, prisons, and boarding schools.

To respond to the malaria upsurge in IRS districts, **Malaria Reactive Case Detection (RACD)** was implemented in Kigali City (Gasabo, Kicukiro, and Nyarugenge), as well as in Bugesera, Gisagara, and Nyagatare Districts. Malaria case investigations were also conducted in Nyagatare, Nyanza, Bugesera, Kicukiro, and Gasabo.

Targeted ITN distributions were undertaken in hotspot areas, with **470,823 ITNs** provided in Bugesera, Gisagara, and Nyagatare.

Indoor residual spraying (IRS) was sustained at scale:

- **Blanket IRS** was implemented in 12 districts during FY 2024–2025.
- **Focal IRS** was carried out in 15 high-burden sectors across Rusizi, Gicumbi, Nyamagabe, Nyaruguru, and Gasabo Districts.

These IRS operations achieved **99.86% coverage** of targeted structures, providing protection to approximately **6,121,104 people**.

1. Introduction

Malaria and NTDs represent major public health problems in Rwanda and are considered among the leading causes of morbidity and mortality. Rwanda has made significant strides in controlling these diseases through the implementation of various control interventions including (1) Mass and routine distribution of Long-Lasting Insecticide Nets (LLINs), (2) Indoor Residual Spraying (IRS) in high endemic districts and hot spot sectors, (3) adoption of mandatory laboratory confirmation of malaria before the treatment, use of artemisinin-based combination therapies (ACTs) in the treatment of uncomplicated malaria cases, national scale-up of community-based management and improvement in routine surveillance, monitoring, and evaluation platforms, Mass Drug Administration (MDA) targeting Soil-Transmitted Helminthiasis (STH) and Schistosomiasis (SCH). Despite these combined efforts, Malaria and NTDs still represent a public health concern in Rwanda with millions of people affected every year.

The Rwanda Malaria and NTDs Strategic Plans build on National Policies and Strategies such as the Health Sector Strategic Plan IV (HSSP IV) which recognizes malaria and NTDs as major diseases that contribute to health and economic related burden. The vision of the Malaria and NTDs Strategic Plans is for Rwanda to become free from malaria and NTDs to contribute to socio-economic development. Reduction of malaria and NTDs burden will be achieved by strengthening and implementing appropriate control interventions and delivering quality health services. Achievement of Rwanda free from Malaria and NTDs vision will require a concerted and collaborative effort between the Government of Rwanda (GoR) and other partners.

Today, Malaria and NTDs control efforts are being implemented at all levels through evidence-based interventions to reduce the burden of both diseases in the population. This consists of effective implementation of high impact interventions, including countrywide MDA for NTDs chemoprophylaxis, LLINs mass and routine distribution, IRS using an effective insecticide in targeted high malaria endemic districts, early diagnosis and treatment at health facility and community level, environmental



management, Surveillance/Monitoring and Evaluation and Social Behavior Change Communication (SBCC).

The following report presents malaria and neglected tropical diseases (NTDs) control activities carried out between July 2024 and June 2025. These activities have been coordinated by the Malaria and Other Parasitic Diseases Division (MOPDD) of the Rwanda Biomedical Centre (RBC) with support from other GoR institutions, Health Facilities and Community Health Workers (CHWs) and implementing partners under the leadership of RBC, the Ministry of Health (MoH) and Partners.

Malaria Program Results per Strategic Plan Framework

Goal: By 2027, reduce malaria morbidity and mortality by at least 50% of the 2019 levels

Objective 1: By 2027, at least 90% of population at risk will be effectively protected with preventive interventions.

Objective 2: All suspected malaria cases are promptly tested and treated in line with the national guidelines.

Objective 3: By 2027, strengthen surveillance and reporting in order to provide complete, timely and accurate information for appropriate decision making at all levels.

Objective 4: Strengthen coordination, collaboration, procurement & supply management and effective program management at all levels.

Objective 5: By 2027, 85% of the population will have correct and consistent practices and behaviors towards effective malaria control.

PART I: MALARIA PREVENTION

Key Achievements

During the fiscal year 2024/2025, the funding and execution of Indoor Residual Spraying (IRS) enabled the spraying of over 1,611,699 structures/houses (coverage rate of 99.86%) across 12 districts as a blanket coverage, along with targeted IRS in hotspot sectors of Rusizi, Nyamagabe, Nyaruguru, Gicumbi, and Gasabo.

This effort provided protection to a total population of 6,121,104 in high malaria-endemic areas, including 686,347 children under the age of five and 71,331 pregnant women.

Key Challenges

Issues with the use of ITNs among the population. Delay in the procurement processes at District Hospital level especially at Nyamata DH where IRS was implemented during the peak of malaria transmission.

Delay in the transfer of funds for operation costs for both OB and GF to the implementing hospitals which resulted in the late payment of services and personnel involved in IRS campaigns. Lack of funds to conduct IRS in all identified sectors with high malaria burden as focal IRS strategy.

Malaria upsurge in some sectors within IRS districts linked to outdoor transmission, where entomological data shows a high rate of *Anopheles gambiae* s.l. outdoor biting in IRS districts, 78.65% for the quality control of IRS with Entomology Monitoring and 69.28% for routine entomology surveillance data.

Way forward

Increase sensitization on regular use of ITNs.

Improve the procurement and fund transfer processes for a timely IRS implementation, mobilize funds for IRS implementation to reach all high burden sectors and add supplemental vector control

Objective 1: By 2027, at least 90% of the population at risk will be effectively protected with preventive interventions

Strategy 1. Sustain and Expand IRS in High Malaria Incidence Districts

1. Introduction

Vector control interventions are crucial for the effective control of malaria and other vector-borne diseases. The WHO identifies two core vector-control interventions that have been implemented in Rwanda: Indoor Residual Spraying (IRS) and Long-Lasting Insecticidal Nets (LLINs). IRS involves applying residual insecticide to the interior surfaces of houses, targeting mosquitoes that rest indoors¹. To ensure maximum efficacy, IRS is conducted with high coverage of targeted structures, ideally before the peak malaria transmission seasons. First introduced in Kigali City's three districts in 2007, IRS was extended to rural districts with a high malaria burden by 2011.

Since 2008, these core interventions have been progressively supplemented with additional innovative measures. These include larval source management using bio-larvicides, environmental management, the use of mosquito repellents, and the introduction of larvivorous fish in water dams. These measures aim to address the aquatic stages of mosquito life cycles, reducing the vector population before it reaches maturity. To ensure the sustainability and success of these efforts, Integrated Vector Management (IVM) was introduced in Rwanda. IVM is based on five key pillars: (i) advocacy and social mobilization to engage communities, (ii) collaboration among various sectors and partners, (iii) capacity building to enhance local expertise, (iv) an integrated approach that combines different interventions, and (v) evidence-based decision-making to guide strategies and interventions.

To support this approach, entomological surveillance is conducted annually to gather local evidence on vector bionomics, ecology, and transmission patterns. This surveillance includes monitoring mosquito species composition and density, assessing biting and resting behavior, evaluating vector susceptibility to insecticides, and determining the infection rate of mosquitoes with the *Plasmodium* parasite. Additionally, the

¹ WHO 2018, Malaria terminology, Global Malaria Programme, Geneva-Switzerland. 38 pp

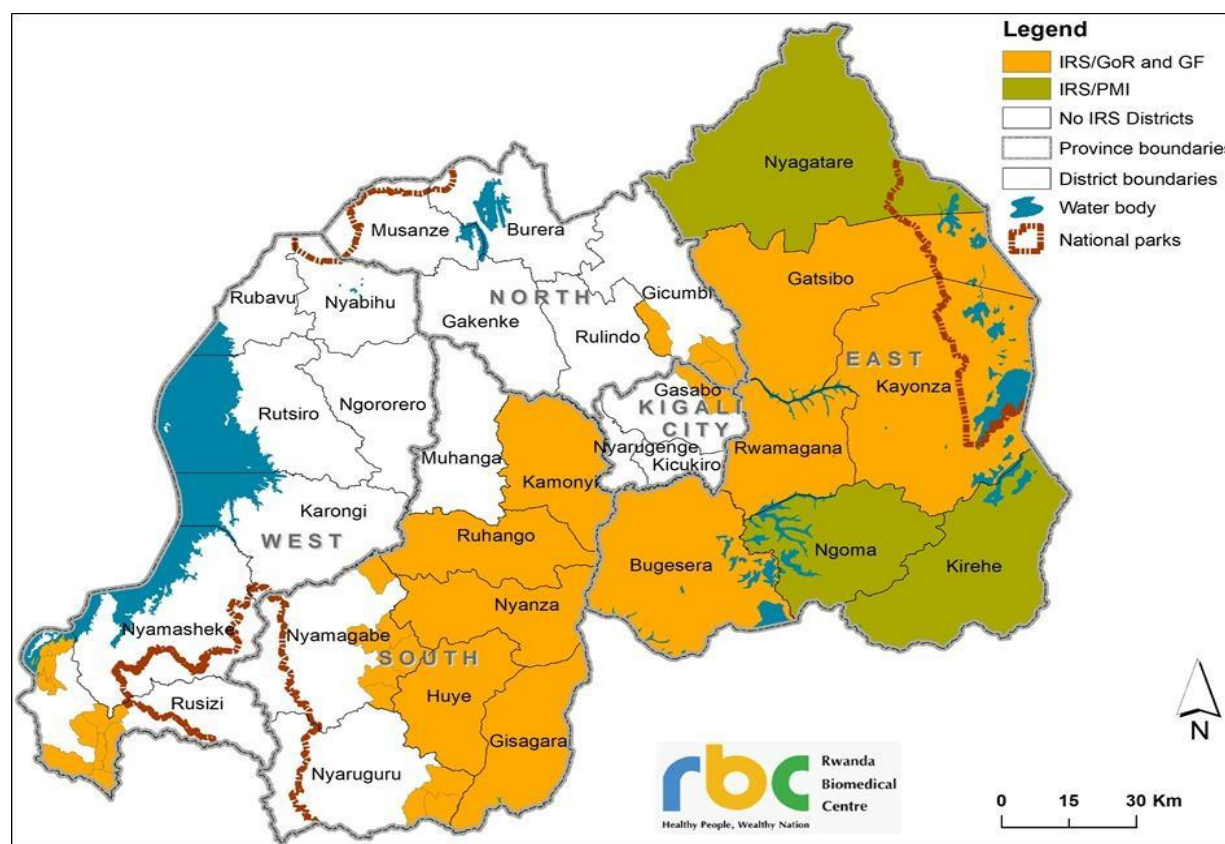
entomological inoculation rate is estimated each fiscal year. The coverage, usage, quality, and durability of vector-control products and interventions are also regularly monitored in collaboration with key partners to ensure continued effectiveness in controlling malaria.

2. Indoor Residual Spraying

As in last FY (2023/2024), all 15 targeted districts were successfully sprayed with Indoor Residual Spraying (IRS) during FY 2024/2025. Three out of the above districts (Nyagatare, Kirehe, and Ngoma) were supported by PMI/VectorLink project implemented by Abt Associates. The remaining 12 districts received the support from The Global Funds and Rwanda Government (GF/GoR) with blanket coverage of IRS: Bugesera, Gatsibo, Kayanza, Rwamagana in Eastern Province; Gisagara, Huye, Nyanza, Ruhango, Kamonyi districts.

In additional 15 sectors with high malaria burden received focal IRS (Figure 1) with nine sectors (Gikundamvura, Gitambi, Bugarama, Nyakabuye, Muganza, Kamembe, Nkanka, Gihundwe and Nzahaha) in Rusizi district (Western Province) and six sectors in Nyamagabe District namely Cyanika, Gasaka, Kamegeri, Kibumbwe, Mbazi, Musange while three sectors Ngera, Ngoma and Nyagisozi of Nyaruguru district (Southern Province). Furthermore, four sectors Bukure, Giti, Mutete, and Rwamiko in Gicumbi District (Northern Province) received also IRS and two sectors in Gasabo District (Gikomero and Rutunga) in the City of Kigali were also sprayed.

Figure 1: Indoor Residual Spraying Districts, FY2024/2025



Over the FY 2024-2025, a total number of 1,611,699 out of 1,613,905 structures were sprayed making a coverage rate of 99.86%. The PMI/VectorLink project sprayed 369,699 out of 370,508 structures found with a coverage of 99.78% while the support from GF/GoR covered 1,242,000 out of 1,243,397 found structures with a coverage of 99.89%. The support from the GF/GoR represented 77.06% and 22.94% from PMI/VectorLink Project. In the targeted districts, the IRS intervention was performed with blanket coverage in a total of 12 districts (153 over 153 administrative sectors) and focal IRS in five districts (24 over 85 administrative sectors) implemented in Rusizi (50% of the total sectors, n=18), Gicumbi (19%, n=21), Gasabo (13%, n=15), Nyamagabe (35%, n=17) and Nyaruguru (21%, n=14) (table 1).

In terms of rooms covered, 5,634,141 were sprayed from 5,699,952 rooms found with a coverage of 98.85%.

The total population protected was 6,121,104 out of 6,127,992 targeted populations with an estimated population coverage of 99.89% in IRS districts. Among the population

protected, 71,331 were pregnant women (1.17%) and 686,347 were children below five years (11.21%). The total insecticide used was 1,173,893 sachets of Fludora Fusion.

The quantity of 258,097 sachets of Fludora Fusion procured by PMI, while the quantity of 915,796 of Fludora Fusion was procured by GOR/GF (Table 2).

In terms of performance, one sprayer operator (SOP) performed an average of 8.23 structures per day, with 8.67 and 8.11 structures per SOP per Day in districts supported by PMI and GF/GoR respectively.

The highest performance was observed in Ngoma District with 9.72 structures sprayed per SOP per day. The average rooms per sprayed structure were 3.53 and ranging from 3.10 in Ruhango and 4.09 in Rusizi. In average, 1.37 structures were sprayed by one sachet of insecticide with 1.43 structures in districts supported by PMI and 1.36 structures in districts supported by GF/GoR and ranging from 1.45 in Nyagatare and Ruhango districts to 1.30 structures in Nyanza district (Figure 2).

Regarding the sources of funds for IRS operational cost, in total, 3,684,988,881 RFW were disbursed from GF/GOR and transferred to the district hospitals, with 3,069,110,132 RFW (83.29%) from GF, 615,878 RFW (16.71%) from GoR.

The GoR also contributed 2,915,793,321Frw (13.03%) to procure insecticides, whereas the GF contributed 19,457,093,801Frw (86.97%).

Figure 2: Performance of IRS (Coverage, Structures per SOP per Day and per Sachet)

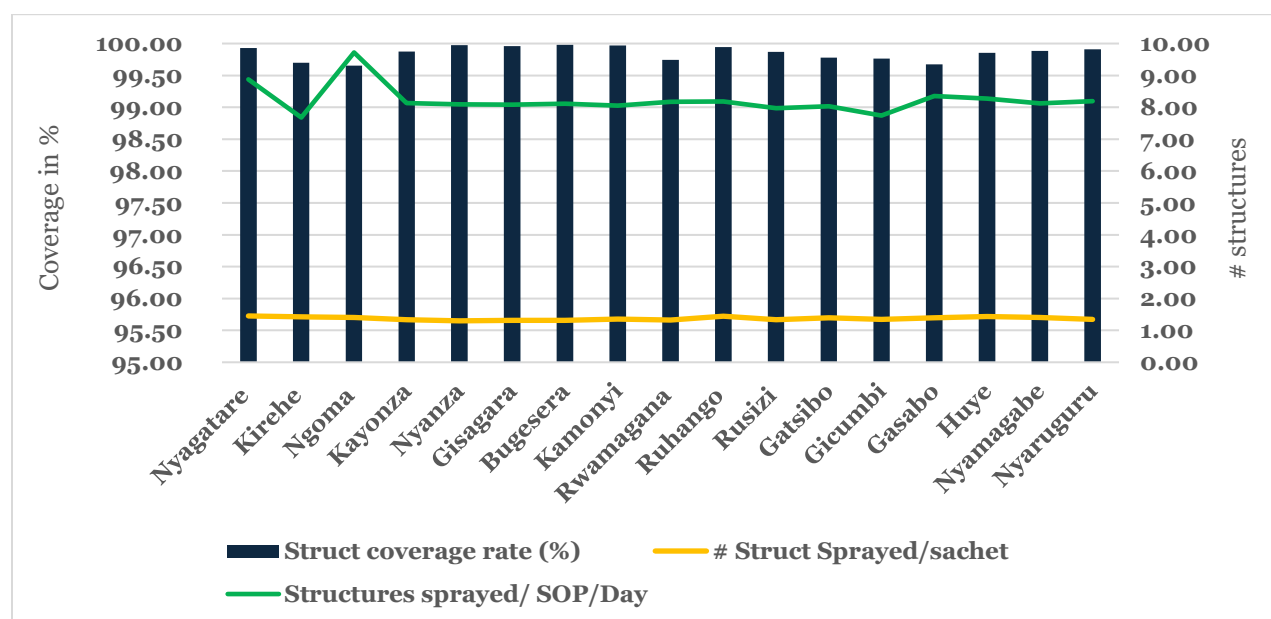


Table 1:IRS Coverage per Partner and per District, FY 2024/2025

S/ N	District	Month	Year	IRS start date	IRS end date	# structures targeted	# structures found	# structures sprayed	Structure coverage rate	# SOPs	# structure s sprayed / SOP/Day
1	Nyagatare	9	2 024	19.08.2024	13.09.2024	151 834	154 261	154 149	99.93	868	8.88
2	Kirehe	9	2 024	19.08.2024	13.09.2024	111 249	113 847	113 503	99.70	739	7.68
3	Ngoma	9	2 024	19.08.2024	13.09.2024	101 807	102 400	102 047	99.66	525	9.72
Covered by PMI						364 890	370 508	369 699	99.78	2 132	8.67
4	Kamonyi	10	2 024	07.10.2024	29.10.2024	122 983	123 896	123 858	99.97	769	8.05
5	Gisagara	10	2 024	30.09.2024	22.10.2024	113 910	115 059	115 014.00	99.96	712	8.08
6	Kayonza	10	2 024	17.10.2024	08.11.2024	123 380	125 588	125 431	99.87	771	8.13
7	Rwamagana	10	2 024	08.10.2024	04.11.2024	115 828	118 687	118 382	99.74	724	8.18
8	Nyanza	10	2 024	17.10.2024	08.11.2024	101 229	102 512	102 487	99.98	633	8.10
9	Bugesera	11	2 024	04.11.2024	26.11.2024	113 910	120 862	120 840	99.98	745	8.11
10	Ruhango	2	2 025	17.02.2025	11.03.2025	112 153	114 771	114 710	99.95	701	8.18
11	Rusizi	2	2 025	17.02.2025	11.03.2025	69 583	69 323	69 232	99.87	434	7.98
12	Gatsibo	2	2 025	17.02.2025	11.03.2025	157 953	158 859	158 510	99.78	987	8.03
13	Gicumbi	2	2 025	17.02.2025	11.03.2025	22 610	22 049	21 997	99.76	142	7.75
14	Gasabo	2	2 025	17.02.2025	11.03.2025	11 139	11 571	11 533	99.67	69	8.36
15	Huye	2	2 025	17.02.2025	11.03.2025	105 644	109 003	108 844	99.85	658	8.27
16	Nyamagabe	2	2 025	17.02.2025	11.03.2025	32 860	33 332	33 293	99.88	205	8.12
17	Nyaruguru	2	2 025	17.02.2025	11.03.2025	17 310	17 885	17 869	99.91	109	8.20
Covered by GF/GoR						1 220 492	1 243 397	1 242 000	99.89	7 659	8.11
General Total						1 585 382	1 613 905	1 611 699	99.86	9 791	8.23

Table 2: Population Protected, Room Coverage and Insecticide Used per IRS District

S/N	District	Population targeted	Total Pop protected	Pregnant Women	< 5year protected	Rooms sprayed	Sprayed Rooms (%)	Quantity of insecticides used	# structures sprayed per sachet of Fludora Fusion
1	Nyagatare	569 451	569 040	7 326	71 185	501 089	98.42	106 065	1.45
2	Kirehe	453 860	452 564	5 846	58 590	416 941	98.52	79 651	1.43
3	Ngoma	392 871	391 653	4 347	46 371	398 026	98.79	72 381	1.41
Covered by PMI		1 416 182	1 413 257	17 519	176 146	1 316 056	98.57	258 097	1.43
4	Kamonyi	412 431	412 294	4 379	44 928	410 287	99.24	91 526	1.35
5	Gisagara	421 880	421 710	5 489	53 419	426 230	99.35	87 580	1.31
6	Kayanza	451 162	450 644	5 973	56 121	422 875	98.95	94 208	1.33
7	Rwamagana	406 076	405 238	4 364	44 951	411 386	98.29	89 637	1.32
8	Nyanza	360 084	359 975	3 936	39 436	332 712	99.25	78 837	1.30
9	Bugesera	481 249	481 178	5 681	53 794	425 197	100.98	92 244	1.31
10	Ruhango	403 784	403 668	3 656	38 374	351 413	98.90	79 099	1.45
11	Rusizi	353 128	352 808	4 908	37 262	277 329	97.88	51 849	1.34
12	Gatsibo	618 830	617 694	7 254	63 149	558 765	98.66	113 478	1.40
13	Gicumbi	89 499	89 326	822	8 668	80 102	98.81	16 308	1.35
14	Gasabo	45 477	45 329	429	4 192	43 741	100.71	8 262	1.40
15	Huye	447 611	447 428	4 791	44 347	390 520	98.05	75 803	1.44
16	Nyamagabe	139 324	139 299	1 266	13 066	117 403	96.88	23 682	1.41
17	Nyaruguru	81 275	81 256	864	8 494	70 125	98.69	13 283	1.35
Covered by GF/GoR		4 711 810	4 707 847	53 812	510 201	4 318 085	98.93	915 796	1.36
General Total		6 127 992	6 121 104	71 331	686 347	5 634 141	98.85	1 173 893	1.37

Key achievements

During the fiscal year 2024/2025, the funding and execution of Indoor Residual Spraying (IRS) enabled the spraying of over 1,611,699 structures/houses (99.86%) across 12 districts as a blanket coverage, along with targeted IRS in hotspot sectors of Rusizi, Nyamagabe, Nyaruguru, Gicumbi, and Gasabo. This effort provided protection to a total population of 6,121,104 in high malaria-endemic areas, including 686,347 children under the age of five and 71,331 pregnant women.

Key Challenges

- Delays in the procurement processes at implementing hospitals, particularly in Bugesera District, resulted in implementation occurring in November instead of the planned timeline of September and October. This hindered efforts to control the peak of malaria transmission during the critical period of November and December. For the rest of the districts where IRS was implemented there was a general improvement in the timing of IRS implementation compared to the previous fiscal year.
- Delays in the transfer of funds for operational costs impacted the implementation of IRS at hospitals in some districts. Specifically, Gitwe DH in Ruhango, Mibilizi DH in Rusizi, Kabutare in Huye District and nine targeted hotspot sectors and Kiziguro DH in Gatsibo District and six targeted hotspot sectors. Those implementing hospitals experienced delays in receiving Global Funds (RBF Malaria) for IRS planned in February–March 2025 which resulted in the late payment of personnel and suppliers involved in IRS operations.

3. Insecticide Resistance Monitoring

3.1. Biological Resistance

From July 2024 to June 2025, the biological resistance tests were performed in 30 sentinel sites selected for insecticide resistance surveillance. The tests were conducted using WHO guidelines with cylindrical tubes method² for the seven insecticides belonging to the five classes: Carbamates (Bendiocarb 0.1%); Organophosphates (Fenitrothion 1%, and Pirimiphos methyl 0.25%); Organochlorines (DDT 4%); Pyrethroids (Deltamethrin 0.05%, Permethrin 0.75%, and Alphacypermethrin 0.05%); CDC bottles (CDC, 2018)³ for the two new classes of pyrrole (Chlorfenapyr 100µg) and Neonicotinoid (clothianidin 4µg).

Thus, larvae collections of *Anopheles* genus were performed using the dipping method as described by the WHO⁴. Mosquito larvae were subsequently reared using field insectarium established at each sentinel site following the standard conditions of temperature (26-28°C) and relative humidity (70-80%). The susceptibility test was carried out on adult *Anopheles gambiae* s.l aged 3 to 5 days and fed on glucose. A minimum of 100 mosquitoes were used for testing in 4 replicates with 25 females per insecticide for WHO method and 5 replicates of 20 female mosquitoes with CDC bottles. Each test had two control replicates of 50 mosquitoes.

The mosquitoes were exposed to the standard dose of insecticide for one hour to measure the knock down test and then observed for 24 hours' post-exposure for assessment of direct mortality and up to 72 hours for delayed mortality, especially for the two new insecticides (Chlorfenapyr 100µg and clothianidin 4µg). The mortality was calculated as the proportion of dead mosquitoes over the total number exposed. A mortality rate between 98% and 100% indicates fully susceptibility; 90-97% mortality for the possible resistance that needs to be confirmed. The mortality under 90% indicates the confirmed resistance. It was found that the resistance status to pyrethroid insecticide was more prevailing in malaria endemic districts of low land areas than in high land (Figure 3). The resistance was confirmed more to pyrethroid insecticide than other classes of insecticides

² WHO (2013). Test procedures for insecticide resistance monitoring in malaria vector mosquitoes

³ CDC (2018): Manual for Evaluating Insecticide Resistance Using the CDC Bottle Bioassay. 31 pp

⁴ WHO (2013) Malaria entomology and vector control – Learner's Guide

with respectively Permethrin 0.75% for 90%, Alpha-cypermethrin 0.05% for 90%, and Deltamethrin 0.05% for 73% of the total sites surveyed (n=30). The highest susceptibility was found respectively to Clothianidin 4µg (100%), Chlorfenapyr 100µg (80%), Bendiocarb 0.1% (77%) and Pirimiphos methyl 0.25% (60%) (Figure).

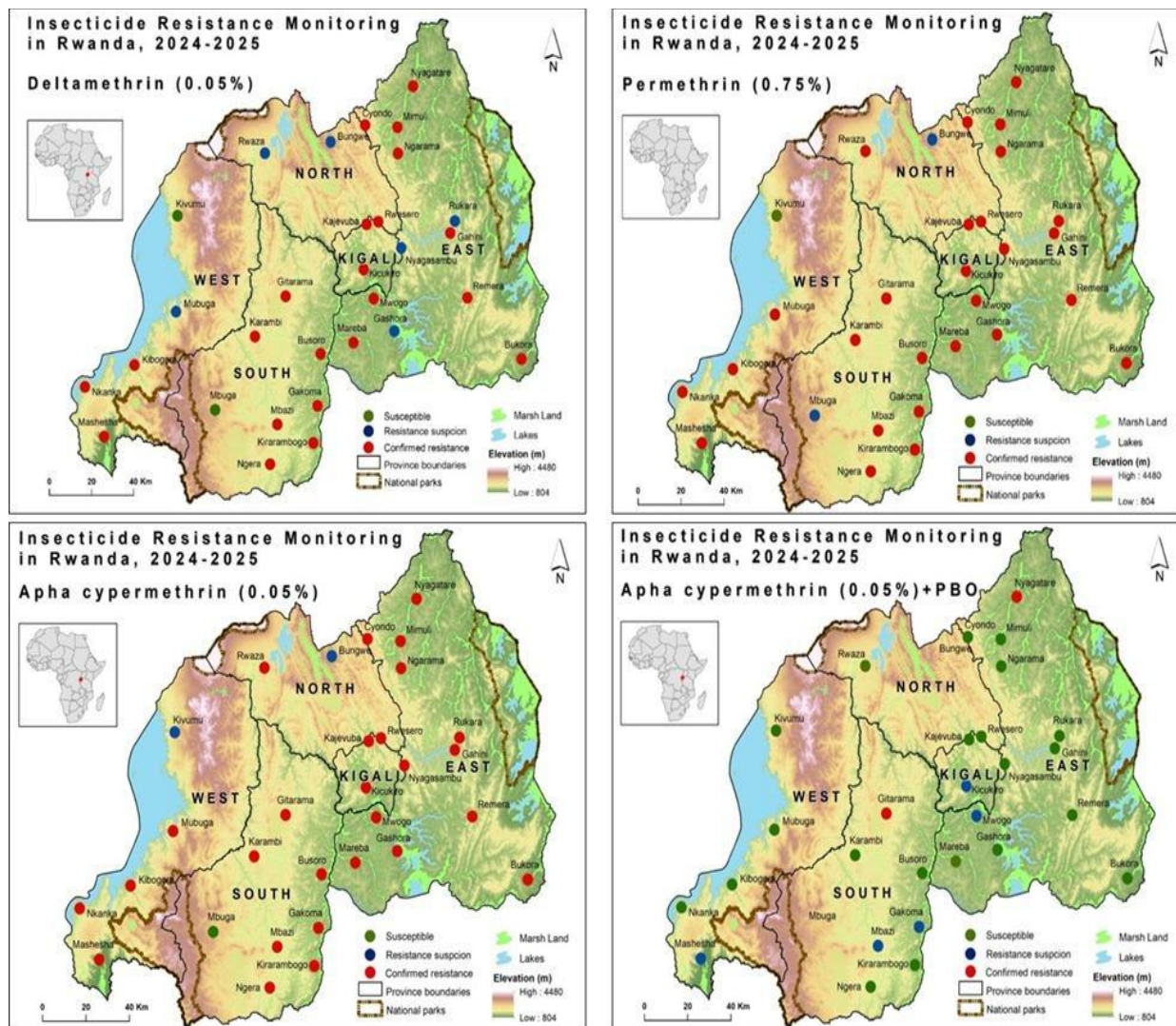
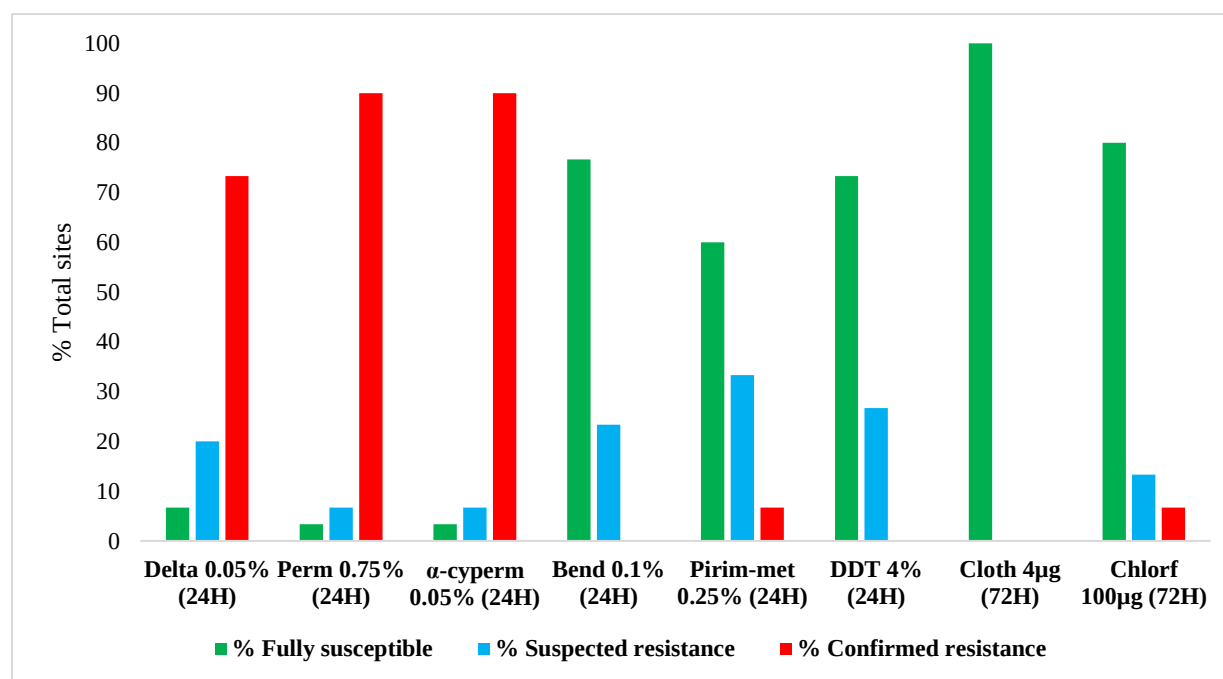


Figure 4: Levels of insecticide resistance per insecticide product, FY 2024/2025



3.2 Resistance Mechanisms

In sites with confirmed resistance to pyrethroid insecticides, the addition of the synergist piperonyl butoxide (PBO) significantly restored susceptibility: 66.67% for Deltamethrin 0.05%, 62.96% for Permethrin 0.75% and 75% for Alphacypermethrin 0.05%. This suggests that metabolic resistance mechanisms may play a key role in pyrethroid resistance among malaria vectors in the surveyed sites. However, the fact that susceptibility was not fully restored for all the pyrethroids insecticides indicates the potential presence of other resistance mechanisms that necessitate further investigation (Table 3).

Table 3: Results of Resistance Tests for Insecticides (with PBO) Performed, 2024 - 2025

Susceptibility Status	Product Name					
	Delta. 0.05% +PBO		Perm. 0.75% + PBO		α-cyperm.0.05% + PBO	
	# Sites (n = 21)	%	# Sites (n = 27)	%	# Sites (n = 28)	%
Confirmed resistance	2	9.52	5	18.52	2	7.14
Suspected resistance	5	23.81	5	18.52	5	17.86
Susceptibility restored	14	66.67	17	62.96	21	75.00

3.3. Resistance intensity using WHO Susceptibility Test Kits

The analysis of insecticide efficacy reveals varied intensity levels across the surveyed sites where the resistance at diagnostic doses was confirmed to pyrethroid insecticides. Deltamethrin at 0.25% (5x), Permethrin 3.75% and Alpha cypermethrin 0.25% exhibited low intensity in 5%, 15% and 11% of sites, showing $\geq 98\%$ mortality respectively, while the 0.5% (10x) concentration showed moderate intensity with 33% for Deltamethrin at 0.25% (5x) and Permethrin 3.75%, and 68% for Alpha cypermethrin 0.25% with the sites achieving $\geq 98\%$ mortality.

Deltamethrin at 0.25% (5x) showed moderate intensity, with 95% of sites achieving $< 98\%$ mortality, same with Permethrin 3.75% (5x) in 85% and Alpha cypermethrin 0.25% (5x) in 89%. Deltamethrin 0.5% (10x) concentration indicated high intensity in 67% of sites with mortality rate $< 98\%$ same as permethrin 7.5% (10x), and Alpha cypermethrin 0.5% in 32% of surveyed sites.

Table 4 : Insecticide Resistance Intensity in Confirmation of Resistance Areas

Insecticides Tested and concentration	#sites surveyed	# sites with mortality <98%	# sites with mortality ≥ 98%	% sites with mortality <98%	% sites with mortality ≥ 98%
Deltamethrin 0.25% (5x)	21	20	1	95	5
Deltamethrin 0.5% (10x)	21	14	7	67	33
Permethrin 3.75% (5x)	27	23	4	85	15
Permethrin 7.5% (10x)	27	18	9	67	33
Alphacypermethrin 0.25% (5x)	28	25	3	89	11
Alphacypermethrin 0.5% (10x)	28	9	19	32	68

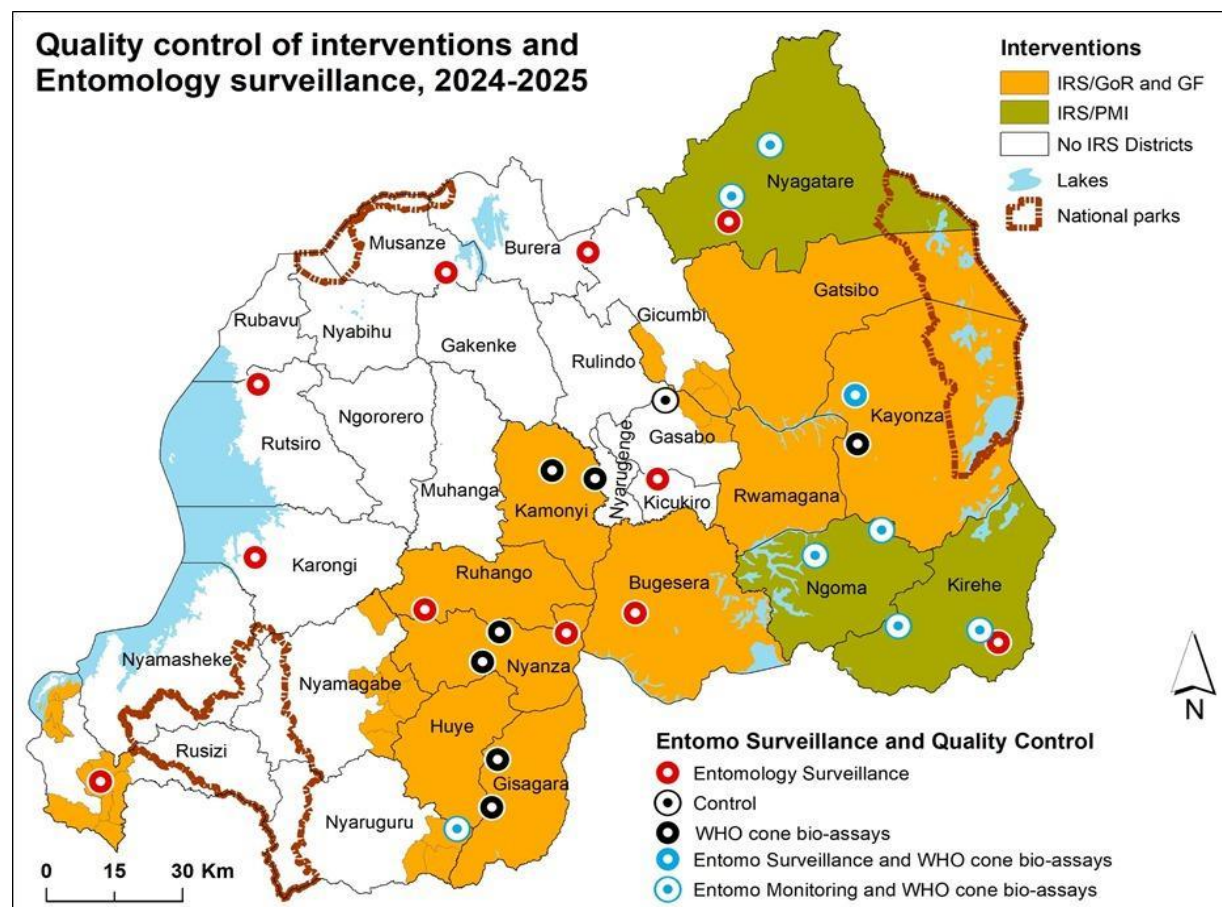
Remark: (5x ≥ 98% mortality = low intensity, < 98% mortality = moderate intensity; 10x ≥ 98% mortality = moderate intensity, < 98% mortality = high intensity)

4. 4. Quality Control of Interventions and Entomology Surveillance

4.1. Quality Control of IRS using Wall Bioassays

IRS quality control (wall bioassays) was performed one-week post IRS as well as monthly to determine the residual efficacy of the insecticide on sprayed house walls. The IRS campaigns were performed in different periods as indicated earlier. The districts were sampled for IRS Quality Control as following: Gisagara, Kamonyi, Kayonza, Kirehe, Ngoma, Nyagatare and Nyanza.

**Figure 5: Quality control of interventions and entomology surveillance
2024-2025**



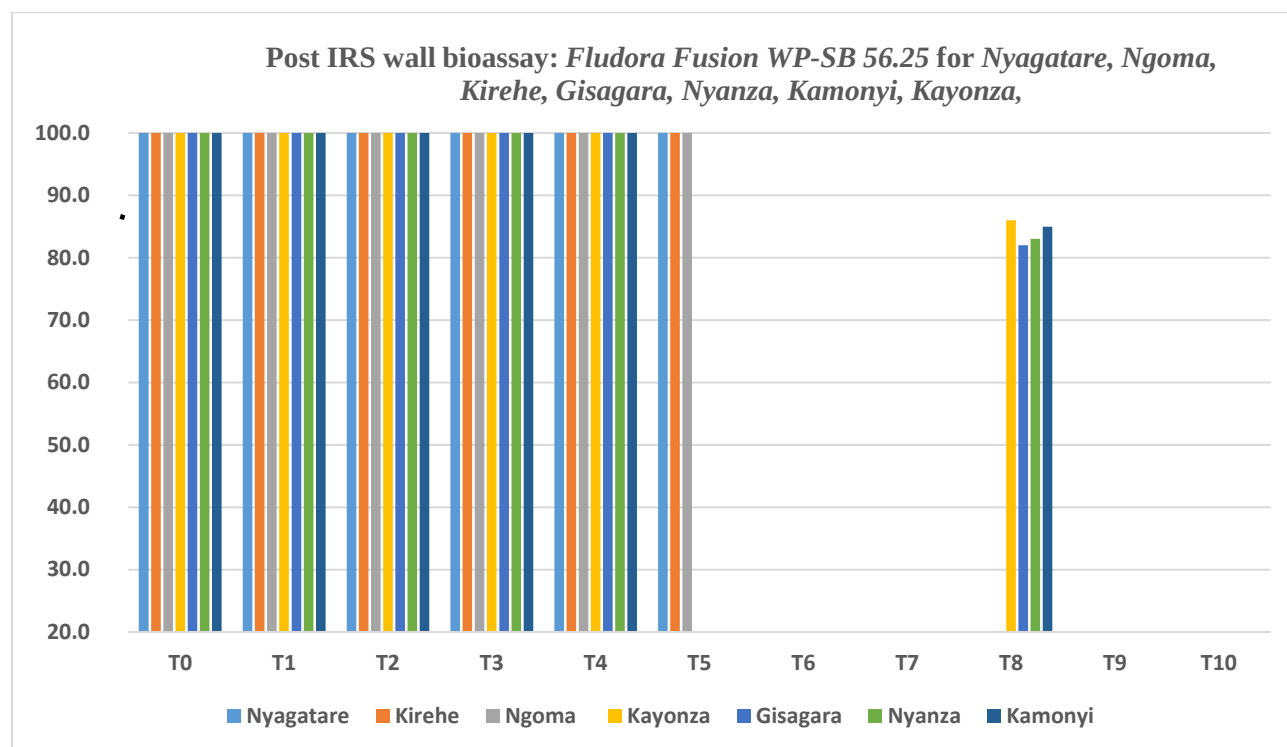
The IRS quality control was performed in 2 sectors from each of the seven out of the 15 IRS districts. At each sector, 6 houses (2 plastered non-painted, 2 plastered painted, and 2 mud) were selected for bioassay tests.

The susceptible Kisumu strains of *Anopheles gambiae* s.s. reared at the MOPDC/RBC insectary based at national entomology laboratory were used to run appropriate tests. Mosquitoes 2-5 days old were exposed in each wall house at the top, middle and bottom level of the walls. Two replicates for each type of house were applied. Mortality was read with interval of 24 hours up to 96 hours of exposure to the insecticide of **Fludora Fusion WP-SB 56.25** sprayed in Nyagatare, Kirehe, Gisagara, Nyanza, Kamonyi, Kayonza Districts. The mortality was calculated for both exposed and control samples.

The susceptible Kisumu strains of *Anopheles gambiae* s.s. before doing any assays have been tested its susceptibility. The mortality rate was 100% which indicated susceptibility.

The tests were conducted using WHO guidelines with cylindrical tubes method⁵ for the six insecticides belonging to the five classes: Carbamates (Bendiocarb 0.1%); Organophosphates (Pirimiphos methyl 0.25%); Organochlorines (DDT 4%); Pyrethroids (Deltamethrin 0.05%, Permethrin 0.75%, and Alphacypermethrin 0.05%)

Figure 6: Post IRS Wall Bioassays Performed in FY 2024-2025



The results and sites of the post IRS wall bioassays are shown in figure 6.

The results of the wall bioassay were available up to five months in Kamonyi, Gisagara, Nyanza, Kayonza and Kamonyi, Gisagara, Nyanza, Kayonza eight months then in Nyagatare, Ngoma and Kirehe five months post spraying.

The insecticide was still effective at the eight months for Gisagara, Nyanza, Kamonyi and Kayonza with mortality of exposed mosquitoes above the cut off mortality of 80% as recommended by WHO.

Results confirm a residual efficacy of **Fludora Fusion WP-SB 56.25** of eight months assessed as shown the above results from Districts with recommendation to assess up to eleven to twelve months for yearly effective confirmation (Figure 6).

⁵ WHO (2013). Test procedures for insecticide resistance monitoring in malaria vector mosquitoes

4.2. Quality Control of IRS using Entomology Monitoring

The entomological monitoring was carried out, from July 2024 to January 2025 in two sites located in each IRS district respectively Nyagatare (Nyagatare & Rukomo), Kirehe (Gatore & Nyamugali), Ngoma (Zaza & Remera). The control district was Rulindo (Ntarabana). Between July 2024 and January 2025, mosquitoes were collected from indoor and outdoor monthly for assessment of the following parameters: vector bionomics using human landing catching method and indoor resting behavior of mosquitoes using Pyrethrum Spraying catching method. The findings are summarized as follows:

1. As shown in tables below, during the period of activities, 15 264 mosquitoes (*Culicidae*) were collected using human landing catching and PSC methods and out of them, 97.1% (n=14824) were *Culicinae* and 2.9% (n=440) *Anophelines* mosquitoes. The *Anopheles gambiae* s.l. were the major malaria vectors and representing 81.8% (n=372) of the total catches of *Anopheles* mosquitoes. Other *Anopheles* mosquitoes collected were respectively *An. Ziemanni* 7.3%, *An. funestus* 0.2%, *An. pharoensis* 4.2%, *An. squamosis* 1.3% and *An. maculipalpis* 5.3%. Of the *An. gambiae* s.l. collected, 71.2% (n=193) caught outside the houses while the 28.2% (n=78) of other *Anophelines* mosquitoes were also collected outside the dwellings.
2. The biting rate by *Anopheles gambiae* s.l. varied from 0.1 to 0.9 bites per person per night within sites, the biting rate by *Anopheles* varied from 0.2 to 0.9 bites per person per night within sites with an average of 0.5 bites per person per night. The average biting rate of mosquitoes in general (*Culicidae*) was 10.9 bites per person per night and ranging from 2.3 to 20 bites per person per night.
3. The total collected mosquitoes through PSC method were 6 123 mosquitoes including 84 *Anopheles gambiae* s.l., 2 total *Anophelines* and 5 951 *Culicinae* from seven sites. Among *Anophelines*, 46 (53.5%) were unfed and 40 (46.5%) were found fed. In total 12 were fresh fed, 13 half-gravid and 15 gravid. The proportion of gravid was 70% in all sites.
4. The determination of parity on a sample of 195 *Anopheles gambiae* s.l. dissected and collected from inside and outside in IRS sites and in none IRS site (control) showed respectively that the parous rates were 35% (n=57) in IRS sites and 65%

(n=21) in none IRS site. The dissected from inside was 12.3% (n=7) and outside was 87.7% (n=50) in IRS sites and in none IRS site (control) showed respectively that the parous rates indoor of 71.4% (n=15) and outdoor of 28.6%(n=6). The results showed that the IRS intervention induce the reduction of the longevity of malaria vectors inside.

5. The entomological inoculation rate (EIR) which is the number of infectious bites per person per unit time was measured and expressed per year. The EIR was 0 infected bite per person and per year for 245 Anopheline tested with a sporozoites infection rate of 0 % from the seven sites.
6. Out of 20 anopheles' mosquito tested for blood meal, 3 (15.0%) were fed on human, 11 (55.0%) were fed on bovine, 4 (20.0%) were fed on goat, 1 (5.0%) were fed on human and bovine and 1 (5.0%) were fed on goat and bovine and HBI was 20%.
7. The speciation of *Anopheles gambiae* s.l. was performed in the entomology lab to identify the siblings of *Anopheles gambiae* complex. Out of 204 samples analyzed using PCR-identification, 5.4% samples were found to be *Anopheles gambiae* s.s. and 94.6% were *Anopheles arabiensis*. The dominant malaria vector recently became *Anopheles arabiensis* in the most entomological monitoring sites within IRS districts with 100%. Out of 11 samples analyzed using PCR-identification in none IRS District 100% samples were found to be *Anopheles gambiae* s.s.

Table 5: Distribution of Malaria Vectors collected using HLC & PSC methods, July 2024-January 2025

SN	Site name	Anopheles gambiae s.l. /HLC			Other Anopheles/ HLC			Cn/HLC	PSC			Tot. An.	Tot. Cn	Cd
		In	Out	Total	In	Out	Total		An.g	Ao	Cn			
1	Gatore	21	44	65	5	32	37	1976	55	2	899	159	2875	3034
2	Nyamugali	1	23	24	0	1	1	332	0	0	783	25	1115	1140
3	Nyagatare	11	47	58	0	2	2	1948	9	0	1058	69	3006	3075
4	Rukomo	7	31	38	0	0	0	968	16	0	890	54	1858	1912
5	Remera	8	25	33	1	4	5	724	0	0	734	38	1458	1496
6	Zaza	6	14	20	13	24	37	2204	4	0	832	61	3036	3097
7	Ntarabana	24	9	33	0	1	1	721	0	0	755	34	1476	1510
Total		78	193	271	19	64	83	8873	84	2	5,951	440	14824	15264

Table 6: Biting behavior of malaria Vectors collected using HLC–July 2024-January 2025

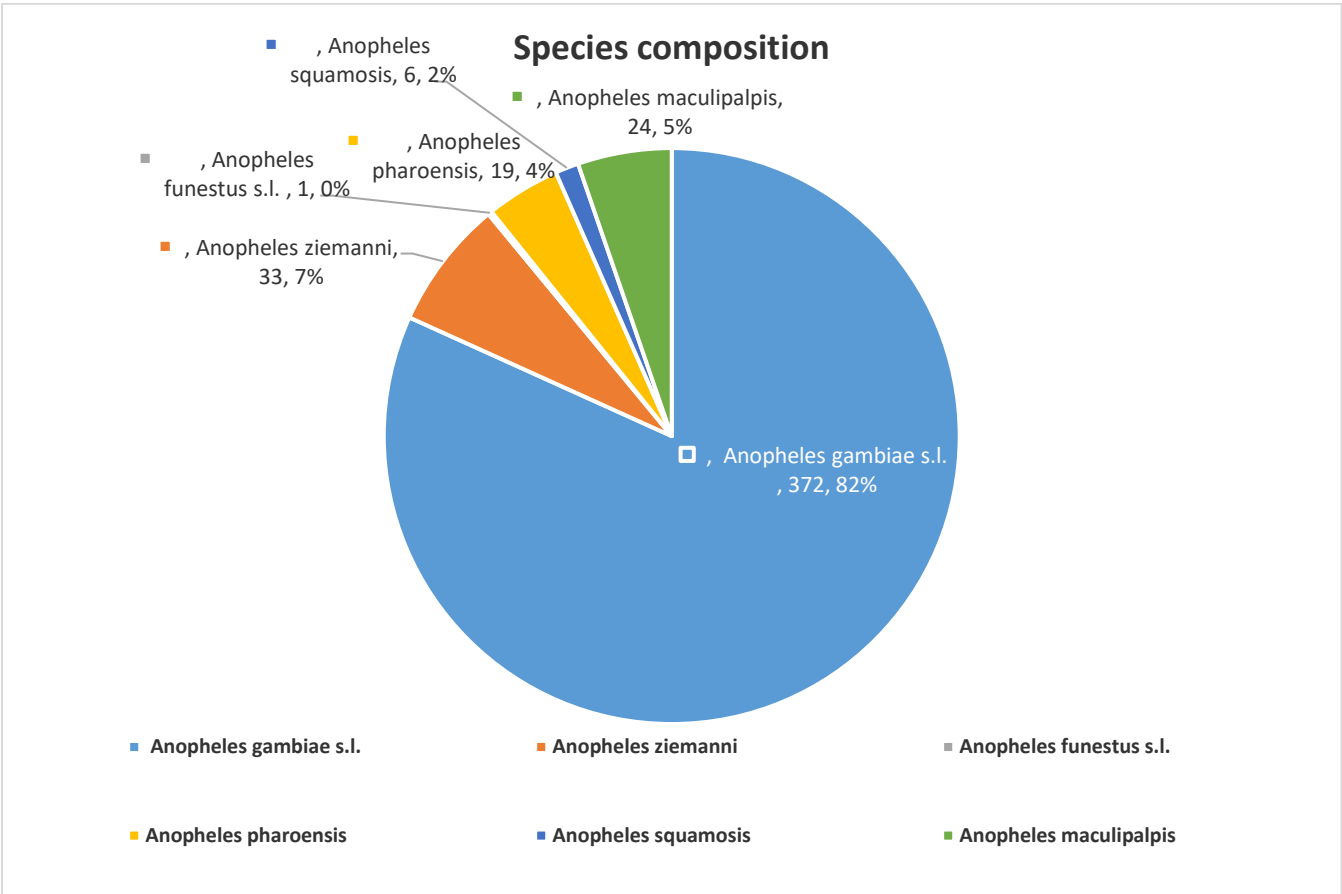
SN	Site name	Biting behavior %				Biting rate person/night				Inf rate (%) An.	EIR An.
		Ag. Endo	Ag. Exo	Ao. Endo	Ao. Exo	An.g	An	Culc	Culd		
1	Gatore	32.3	67.7	13.5	86.5	0.5	0.7	13.7	14.4	0.0	0.0
2	Nyamugali	4.2	95.8	0.0	100.0	0.2	0.2	2.3	2.5	0.0	0.0
3	Nyagatare	19.0	81.0	0.0	100.0	0.4	0.4	13.5	13.9	0.0	0.0
4	Rukomo	18.4	81.6	0.0	0.0	0.3	0.3	6.7	7.0	0.0	0.0
5	Remera	24.2	75.8	20.0	80.0	0.2	0.3	5.0	5.3	0.0	0.0
6	Zaza	30.0	70.0	35.1	64.9	0.1	0.4	15.3	15.7	0.0	0.0
7	Ntarabana	72.7	27.3	0.0	100.0	0.9	0.9	20.0	21.0	0.0	0.0
Total		28.8	71.2	22.9	77.1	0.4	0.5	10.9	11.4	0.0	0.0

Table 7: Results of Pyrethrum Spraying Catch method, July 2024 to January 2025

Period	Site	#Houses	#Occupants	An. <i>gambiae</i> s.l	Other <i>Anopheles</i>	Abdominal/Blood Digestion stages					Gravid (%)	An. <i>gambiae</i> s.l./house	Fed/house	Fed/human host	Culicic
						UF [^]	F [^]	HG [^]	G [^]	Tot					
July 2024 - Jan 2025	Gatore	105	905	55	2	25	8	10	14	57	75%	0.5	0.3	0.0	899
	Nyamugali	105	844	0	0	0	0	0	0	0	0%	0.0	0.0	0.0	783
	Nyagatare	105	1129	9	0	5	2	2	0	9	50%	0.1	0.0	0.0	1058
	Rukomo	105	966	16	0	14	2	0	0	16	0%	0.2	0.0	0.0	890
	Remera	105	791	0	0	0	0	0	0	0	0%	0.0	0.0	0.0	734
	Zaza	105	895	4	0	2	0	1	1	4	100%	0.0	0.0	0.0	832
	Ntarabana	105	805	0	0	0	0	0	0	0	0%	0.0	0.0	0.0	755
Total		735	6335	84	2	46	12	13	15	86	70%	0.1	0.1	0.0	5951

HLC: Human Landing Catching; **PSC:** Pyrethrum Spray Catch; **In:** Inside; **Out:** Outside; **An:** Anophelines; **An.g:** *Anopheles gambiae* s.l.; **Cn:** Culicinae; **Cd:** Culicidae; **Inf:** Infectivity; **endo:** Endophagic; **exo:** Exophagic, **UF[^]:** Unfed, **FF[^]:** Fresh fed, **HG[^]:** Half gravid, **G[^]:** Gravid, **EIR:** Entomological inoculation rate

Figure 7:Species composition from PSC and HLC from July 2024-January 2025



5. Entomology Surveillance in 12 Sentinel Sites

Routine entomological surveillance was carried out over twelve sentinel sites located in different districts according to malaria eco-epidemiological strata (Bungwe and Rwaza in Nothern Province. Rukara. Bukora. Mareba and Mimuli in Eastern Province; Busoro. Karambi in Southern Province; Mashasha. Kivumu. Mubuga in Western Province and Kicukiro in Kigali City (Figure 8). Between July 2024 and June 2025 mosquitoes were collected using human landing catching method from indoor and outdoor on a monthly basis for assessment of the different entomological parameters.

The map illustrates the distribution of 12 sentinel sites across Rwanda. The sites are located in the following districts: KIVUMU, MUBUGA, MASHESHA, KARAMBI, BUSORO, KICUKIRO, MAREBA, BUKORA, MIMULI, RUKARA, and two sites in the northern districts of RWAZA and BUNGEWE. The map also shows the boundaries of provinces and districts, as well as water bodies. A scale bar indicates distances up to 40 km, and a north arrow is present.

Legend

- Red dot: Sentinel site
- White outline: Province
- Grey outline: District
- Blue outline: Water Bodies

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July 2022

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The primary malaria vector for this FY 2024/2025 is *An. gambiae* s.l. (figure 8). Over that period, 64.27% *Anopheles gambiae* s.l. were collected outside and ranging from 25.00% in Rwaza to 97.26% in Bukora. The average of outdoor biting was 60.27% in non-IRS sites while it was 69.28% in IRS sites.

Overall, 461 *Anopheles funestus* were caught in eight sites of Mareba (3.90%, n=18), Karambi (12.36%, n=57), Busoro (0.22%, n=1), Kicukiro (29.93%, n=138), Bungwe (28.20%, n=130), Rwaza (0.43%, n=2), Kivumu (12.36%, n=57) and Mubuga (12.58%, n=58). The focal vector control intervention of IRS should be deployed and eliminate the

above indoor malaria vector where it is appearing as the dominant species in malaria transmission.

Regarding the human biting rate by *Anopheles gambiae* s.l., it varies from 0 (Bungwe) to 11.72 (Mareba) bites per person per night (b/p/n), with an average of 3.15 b/p/n. The average human biting rate of *An. gambiae* s.l. was found respectively 2.40 and 4.21 b/p/n in IRS and non-IRS sites while it was 21.52 b/p/n in *Culicidae* and ranging from 4.08 (Mimuli) to 58.85 (Mashesha) b/p/n with 13.28 and 33.05 b/p/n in IRS and non-IRS sites.

There was an increase of mosquito density of 26.42% in *An. gambiae* s.l. (from 2.32 to 3.15 b/p/n) and a decrease of 3.20% in total *Culicidae* (from 22.20 to 21.52 b/p/n) in comparison with mosquito catches of 2023/2024. Except for six sites of Mareba, Bukora, Busoro, Mashesha, Kicukiro, and Mubuga where the increase of *An. gambiae* s.l. was observed with 35.87%, 17.81%, 16.20%, 20.95%, 40.76%, 70.15% respectively, other sites experienced a general decrease of the above species of primary malaria vector. The general endophagic rate of *An. gambiae* s.l. was 35.73% and varying from 30.72% in IRS districts and 39.73% in non-IRS districts (Figure 9).

The entomological inoculation rate (EIR) which is the number of infectious bites per person per unit of time was measured and expressed per year (ib/p/y). The average of EIR was 1.76 ib/p/y for *An. gambiae* s.l. and 0.74 ib/p/y for *An. funestus*. The *An. gambiae* s.l. carrying *Plasmodium* sp infections were found in Kicukiro and Kivumu sites with 2.18 and 0.26 ibi/p/year.

The infection in *An. funestus* was only reported in Mubuga sentinel site with 6.71 ibi/p/year (table 9). This information, particularly the prevailing of malaria infection at site level should be used to inform the focal control methods and to set the priorities in specific districts.

Figure 9: Comparison of *An. gambiae* s.l. and total *Anopheles* collected vs to total *Anopheles* spp and *Culicidae* FYs 2025/2026

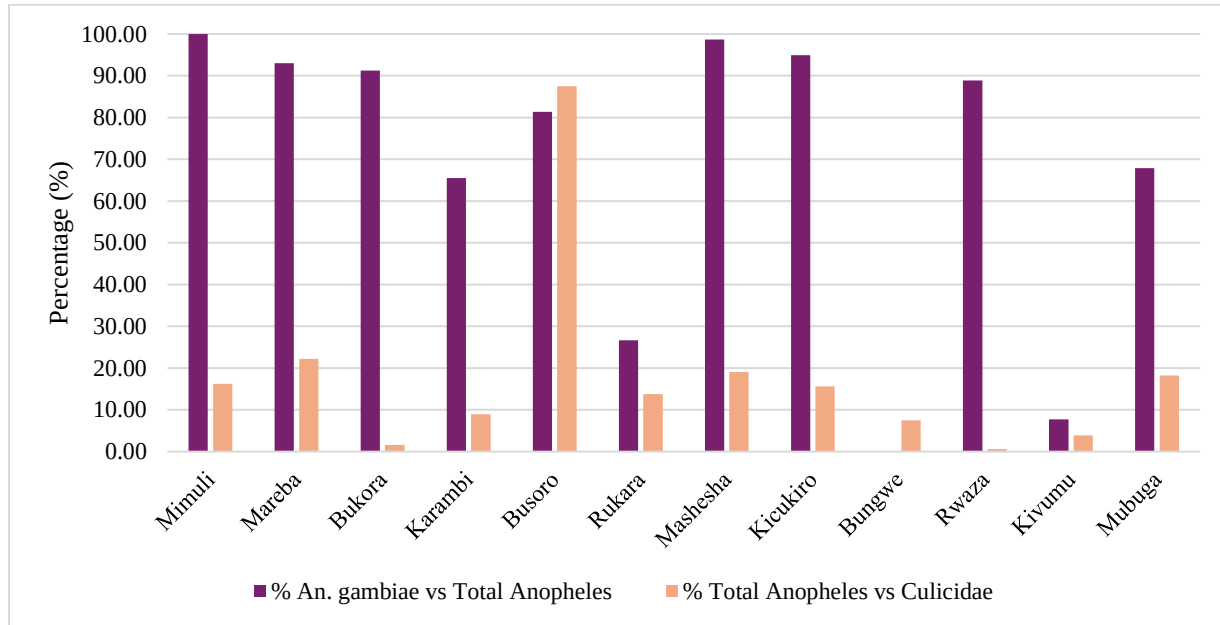


Figure 10: Trends of endophagic rate of *An. gambiae* s.l. per site 2025/2026

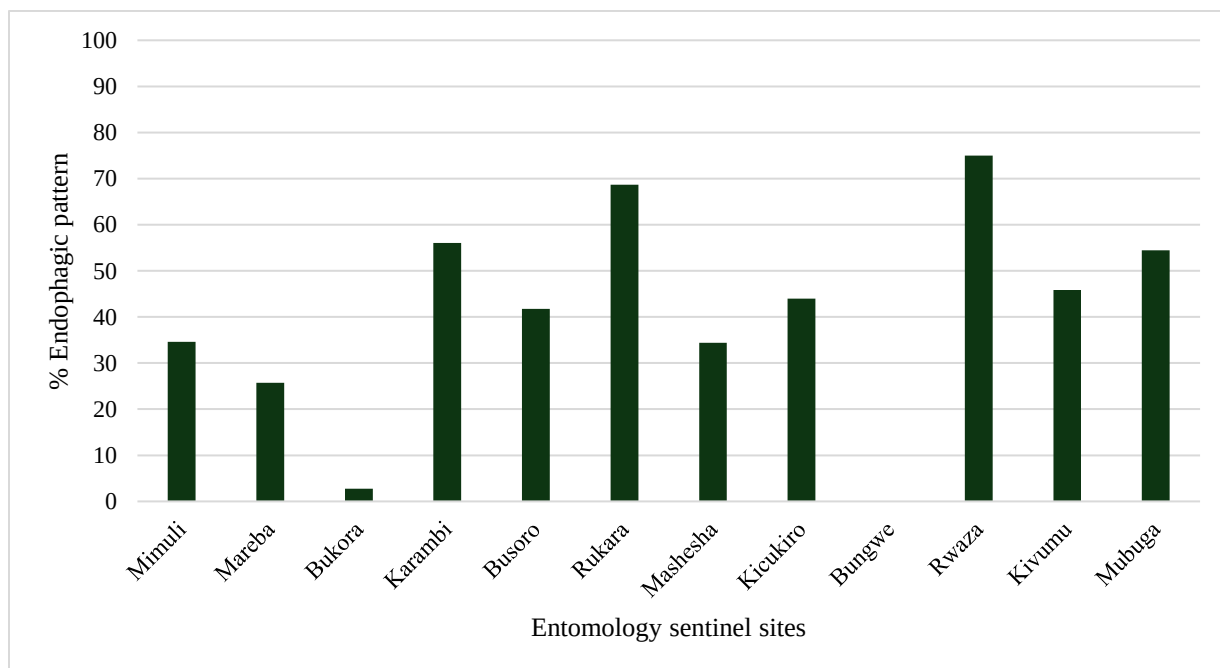


Table 8: Distribution of Malaria Vectors in 12 Sentinel Sites in Number

#	Site name	<i>Anopheles gambiae s.l.</i>			<i>Anopheles funestus</i>			Total An.	Total Culicinae	Total <i>Culicida</i> e	% An. g vs Total An.	% An. fun vs Total An.	% Total An. vs Culicidae	% Culicines vs Culicidae
		In	Out	Total	In	Out	Total							
1	Mimuli	99	187	286	0	0	0	286	1 478	1 764	100.00	0.00	16.21	83.79
2	Mareba	1 302	3 761	5 063	11	7	18	5 441	19 028	24 469	93.05	0.33	22.24	77.76
3	Bukora	2	71	73	0	0	0	80	4868	4 948	91.25	0.00	1.62	98.38
4	Karambi	167	131	298	32	25	57	455	4646	5 101	65.49	12.53	8.92	91.08
5	Busoro	611	852	1 463	0	1	1	1 798	257	2 055	81.37	0.06	87.49	12.51
6	Rukara	46	21	67	0	0	0	251	1567	1 818	26.69	0.00	13.81	86.19
IRS Districts		2 227	5 023	7 250	43	33	76	8 311	31 844	40 155	87.23	0.91	20.70	79.30
7	Mashesha	1 644	3 139	4 783	0	0	0	4 848	20 575	25 423	98.66	0.00	19.07	80.93
8	Kicukiro	1590	2026	3 616	74	64	138	3 808	20 547	24 355	94.96	3.62	15.64	84.36
9	Bungwe	0	0	0	48	82	130	407	5048	5 455	0.00	31.94	7.46	92.54
10	Rwaza	12	4	16	1	1	2	18	2968	2 986	88.89	11.11	0.60	99.40
11	Kivumu	11	13	24	25	32	57	310	7 587	7 897	7.74	18.39	3.93	96.07
12	Mubuga	354	296	650	28	30	58	958	4305	5 263	67.85	6.05	18.20	81.80
Non-IRS Districts		3 611	5 478	9 089	176	209	385	10 349	61 030	71 379	87.82	3.72	14.50	85.50
Total		5 838	10 501	16 339	219	242	461	18 660	92 874	111 534	87.56	2.47	16.73	83.27

Table 9: Distribution of Malaria Vectors in 12 Sentinel Sites

#	Site name	Biting behavior, %				Human biting rate (b/p/n)			SIR (%) An. g	EIR Ag	SIR (%) An.f	EIR Af
		Ag. Endo	Ag. Exo	Af. Endo	Af. Exo	Ag	Af	Culicidae				
1	Mimuli	34.62	65.38	0.00	0.00	0.66	0.00	4.08	0.00	0.00	0.00	0.00
2	Mareba	25.72	74.28	61.11	38.89	11.72	0.04	56.64	0.00	0.00	0.00	0.00
3	Bukora	2.74	97.26	0.00	0.00	0.17	0.00	11.45	0.00	0.00	0.00	0.00
4	Karambi	56.04	43.96	0.00	0.00	0.69	0.13	11.81	0.00	0.00	0.00	0.00
5	Busoro	41.76	58.24	0.00	100.00	3.39	0.00	4.76	0.00	0.00	0.00	0.00
6	Rukara	68.66	31.34	0.00	0.00	0.16	0.00	4.21	0.00	0.00	0.00	0.00
	IRS Districts	30.72	69.28	56.58	43.42	2.40	0.03	13.28	0.00	0.00	0.00	0.00
7	Mashesha	34.37	65.63	0.00	0.00	11.07	0.00	58.85	0.00	0.00	0.00	0.00
8	Kicukiro	43.97	56.03	0.00	0.00	8.37	0.32	56.38	0.26	2.18	0.00	0.00
9	Bungwe	0.00	0.00	36.92	63.08	0.00	0.30	12.63	0.00	0.00	0.00	0.00
10	Rwaza	75.00	25.00	50.00	50.00	0.04	0.00	6.91	0.00	0.00	0.00	0.00
11	Kivumu	45.83	54.17	43.86	56.14	0.06	0.13	18.28	4.76	0.26	0.00	0.00
12	Mubuga	54.46	45.54	48.28	51.72	1.50	0.13	12.18	0.00	0.00	50.00	6.71
	Non-IRS Districts	39.73	60.27	45.71	54.29	4.21	0.18	33.05	0.84	3.52	8.33	1.49
	Total	35.73	64.27	47.51	52.49	3.15	0.09	21.52	0.42	1.76	4.17	0.74

Label: In: Inside; Out: Outside; An.: *Anophelines*; An.g: *Anopheles gambiae* s.l.; An. fun: *Anopheles* group; EIR/Y: Entomological inoculation rate per year. ibp/y: infected bites per person and per year

Table 10:Species of Anopheles mosquitoes tested for detection of Plasmodium infection in IRS and non-IRS districts

#	Anopheles species	IRS districts			Non IRS districts			Total		
		Total tested	Pos	SIR (%)	# Tested	Pos.	SIR (%)	# Tested	Pos.	SIR (%)
1	<i>An. gambiae s.l.</i>	1 870	0	0.00	1 597	7	0.44	3 467	7	0.20
2	<i>An. funestus</i>	67	0	0.00	85	1	1.18	152	1	0.66
3	<i>An. ziemanni</i>	106	0	0.00	34	0	0.00	140	0	0.00
4	<i>An. maculipalpis</i>	46	0	0.00	13	0	0.00	59	0	0.00
5	<i>An. pharoensis</i>	75	0	0.00	0	0	0.00	75	0	0.00
6	<i>An. coustani</i>	6	0	0.00	58	0	0.00	64	0	0.00
7	<i>An. christyi</i>	19	0	0.00	96	0	0.00	115	0	0.00
8	<i>An. squamosus</i>	22	0	0.00	0	0	0.00	22	0	0.00
10	<i>An. rhodesiensis</i>	0	0	0.00	17	0	0.00	17	0	0.00
Total		2 211	0	0.00	1 900	8	0.42	4 111	8	0.19

6. Climate Surveillance

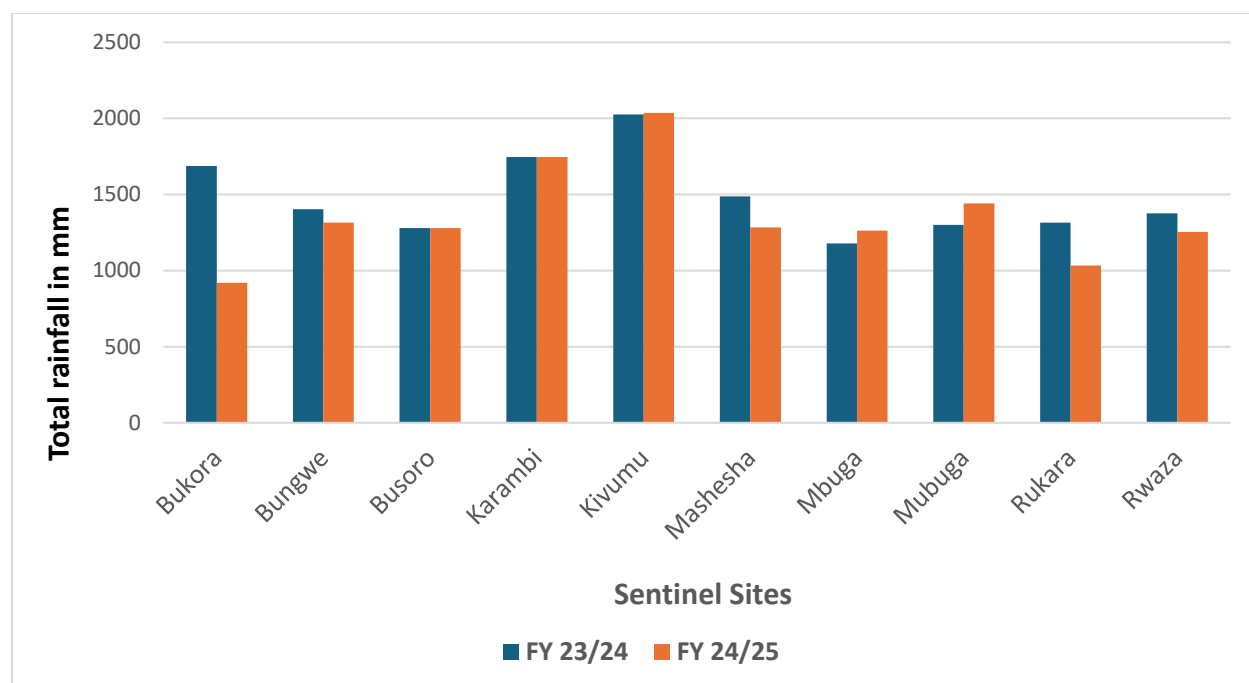
The spatial variation of three climatic variables (temperature, rainfall and relative humidity) is mostly contributing to the distribution of *malaria vectors*. From July 2024 to June 2025, Mashsha (Rusizi District) was the warmest station with 23.66°C. Kivumu (Rutsiro District) was the rainiest (2037mm) and wettest (70.96%) station. Three stations out of ten registered abnormal rainfall varying between 1400-2037mm. This range includes Mubuga (Karongi District: 1440.5mm), Karambi (Ruhango District: 1746mm) and Kivumu (Rutsiro District) with the highest amount of rainfall of 2037mm.

Table 11: Annual Rainfall, Temperature, and Relative Humidity for Ten Entomology Sentinel Sites in 2024/2025

District	Station	An. Max Temp	An. Min Temp	An. Mean Temp	An. Rainfall	R. Humidity (%)
Kirehe	Bukora	30,17	15,35	22,76	919,4	59,9
Burera	Bungwe	-	-	-	1315	-
Nyanza	Busoro	26,18	14,77	20,74	1279	63,36
Ruhango	Karambi	25,47	14,43	19,95	1746	64,04
Rutsiro	Kivumu	24,59	13,52	19,06	2037	70,96
Rusizi	Mashsha	30,98	16,34	23,66	1283,12	60,82
Nyamagabe	Mbuga	25,14	14,01	19,57	1263,13	-
Karongi	Mubuga	25,48	12,92	19,2	1440,5	65,66
Kayonza	Rukara	26,61	18,77	22,15	1032,9	58,95
Musanze	Rwaza	26,05	13,54	19,79	1253,6	55,46

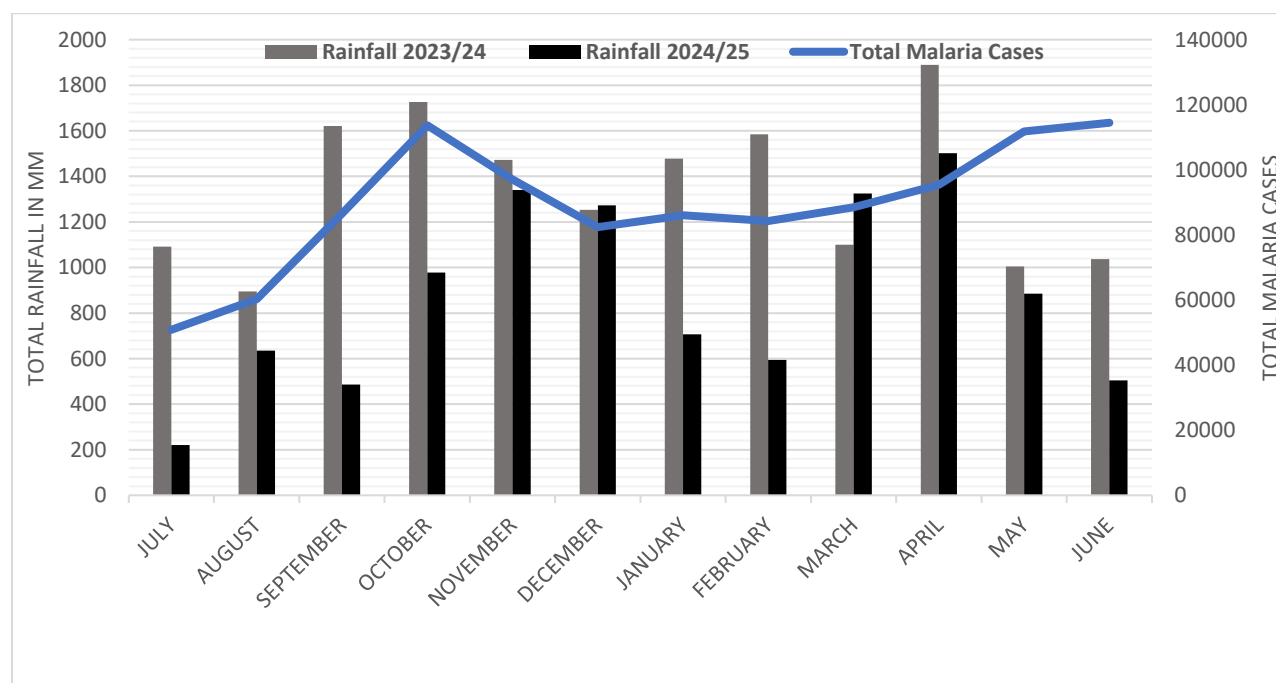
There is a decrease of annual rainfall amount in 2024/2025 (8.3%) compared to the previous year. The annual average of recorded rainfall all sites combined was 1357mm versus 1480mm in 2023-2024.

Figure 11 : Comparison of rainfall 2022-2023 and 2024/2025



In the last FY (2023/24), the peak of rainfall occurred in October 2023 and in April 2024. In 2024/25, it occurs in November 2024 and in April 2025. The bottom of rainfall occurred in July 2024 and in June 2025 (Figure 12).

Figure 12: Annual rainfall patterns reported from 10 sites, 2023/2024 vs 2024/2025 and trends of malaria cases



The combination of the three climate parameters (temperature, rainfall and relative humidity) makes Mashsha likely to host more malaria vectors in its catchment area compared to the other nine sites despite the applied interventions. Consequently, 26% (n=18660) of *Anopheles* collected in 12 sites were reported from Mashsha sentinel site and ranked second site which hosting many malaria vectors after Mareba in Bugesera District with 29.2%. (Table 11).

However, the data indicate that climate parameters collected in 10 sentinel sites remain a risk factor of malaria transmission almost in their respective catchment areas. It has been confirmed that malaria transmission is more likely to occur where monthly temperature $\geq 18 \leq 35^{\circ}\text{C}$, rainfall > 80 mm and relative humidity $> 60\%$ if preventive interventions are not optimized.

7. Maintenance of Insectary and Laboratory Animals

The susceptible Kisumu strain of *Anopheles gambiae* s.s. were maintained at the MOPDD/RBC insectary based at the National Entomology Laboratory of Kicukiro that complies with the WHO mosquito rearing standards. A total of 34,560 adult *Anopheles gambiae* s.s of 2 - 5 days old were supplied for the IRS quality control activities in seven sprayed districts, four for GF/GoR (Gisagara, Nyanza, Kamonyi and Kayanza) and three for USAID/PMI (Ngoma, Kirehe and Nyagatare) that halted with the stop of work order (SWO) of January 2025 from the USG.

During the period of July 2024 to June 2025, a total of 57 Guinea pigs were kept in the insectary for feeding mosquito colony. Out of them, 25 were supplied in the community to improve food deficiency for the poor families around the entomology Laboratory. Currently, 32 are kept healthy and ready to supply blood for mosquitoes.

8. Supplemental interventions, Capacity building and research

8.1. Supplemental interventions

The MOPDD, in partnership with SFH Rwanda, distributed 5,254 units of SC Johnson Guardian™ spatial repellent, marketed with a claimed one-year efficacy against *Anopheles* mosquitoes, through private sector channels including pharmacies, supermarkets, trading shops, and outreach campaigns.

8.2. Integrated Vector Management

In the framework of integrated vector management (IVM) approach, building capacity and strengthening inter-sectorial collaboration, and community based environmental management and entomology surveillance, the following activities were conducted:

The RBC/MOPDC in collaboration with following Civil Society Originations: RICH, Pro-Femmes Twese Hamwe, SFH and CARITAS Rwanda conducted the IVM capacity building in 8 districts, covering 120 sectors out of the total 416 sectors. The training targeted different stakeholders at sector level and covered 21.7% (120) out of the 120 total sectors of the targeted districts.

In total 703 participants have been trained as IVM trainers to support them after cascade awareness and training on IVM approach to the identified targeted groups at the lay communities. The training used mixed training methods involving in class theories and in field practices for mosquito larval collection and their physical identification “learning by doing or seeing” in anophelines and culicines levels.

The participants were identified in collaboration with the respective districts and three CSO partners. The trainees primarily included sector-level officials such as agriculture and livestock officers; presidents of rice, fish, and mining cooperatives (where applicable); social affairs officers; education officers; community health worker (CHW) supervisors; heads of health centers; malaria focal persons; and CHW representatives.

The partners contributed to the training with 0.0% for ASOFERWA, 27.6 % for RICH, 28.6% for CARITAS, 32.9% for SFH, 11.0% Profemme ,0.0% for RNF and 0.0% for SFR out of the 703 total trainees.

Table 12: Sectors covered per district and partner for IVM trainings, FY 2024/2025

Districts	#sectors	Sectors Covered							#sectors covered	% sectors covered
		ASOFERWA	RNGOF	CARITAS	SFR	RICH	Pro-femmes	SFH		
Nyamasheke	15	0	0	6	0	0	0	0	6	40
Myamagabe	17	0	0	0	0	1	0	0	1	5.9
Gisagara	13	0	0	0	0	3	0	0	3	23.1
Nyaruguru	14	0	0	0	0	1	0	0	1	7.1
Musanze	15	0	0	0	0	0	4	0	4	26.7
Rulindo	17	0	0	0	0	0	7	0	7	41.2
Bugesera	15	0	0	0	0	0	0	3	3	20.0
Nyagatare	14	0	0	0	0	0	0	1	1	7.1
Total	120	0	0	6	0	5	11	4	26	
% sectors covered/partner		0.0	0.0	5.0	0.0	4.2	9.2	3.3	100	

Table 13: Number of trainees in IVM approach per district, sector and partner

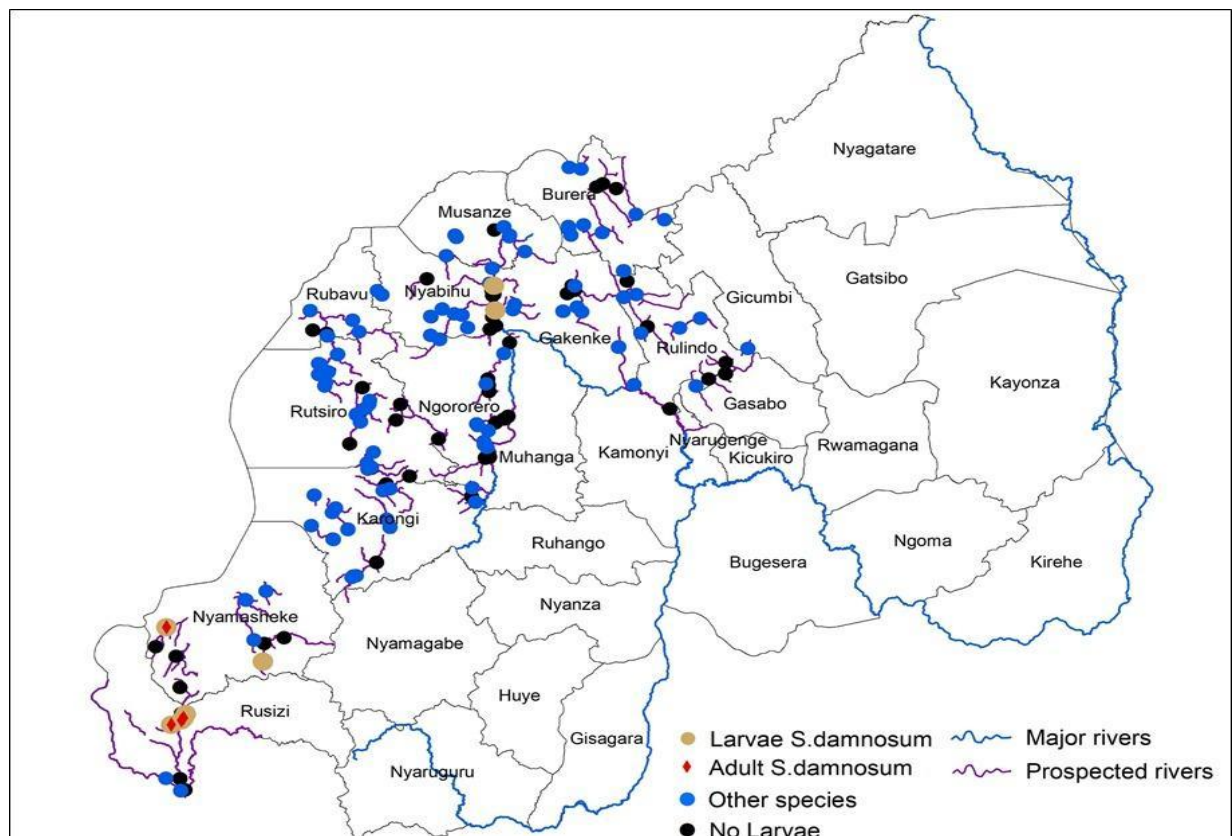
Districts	Trained Sectors	# of trainees per sector and per partner							# trainees per sector	% trainees per sector covered
		ASOFERWA	RNGOF	CARITAS	SFR	RICH	Pro-femmes	SFH		
Nyamasheke	6	0	0	201	0	0	0	0	201	33.5
Nyamagabe	1	0	0	0	0	34	0	0	34	34
Gisagara	3	0	0	0	0	130	0	0	130	43.3
Nyaruguru	1	0	0	0	0	30	0	0	30	30
Musanze	4	0	0	0	0	0	43	0	43	4.8
Rulindo	7	0	0	0	0	0	34	0	34	4.9
Bugesera	3	0	0	0	0	0	0	167	167	55.7
Nyagatare	1	0	0	0	0	0	0	64	64	64
Total	26	0	0	201	0	194	77	231	703	
% Trainees/partner		0.0	0.0	28.6	0.0	27.6	11.0	32.9	100	

The RBC/MOPDC in collaboration with the END FUND RLMF, Rwanda Entomology Technicians have been trained on Onchocerciasis Entomology breeding sites surveys. Human onchocerciasis is a debilitating disease caused by the filarial nematode *Onchocerca volvulus* and transmitted by blackflies of the genus *Simulium*. The disease is associated with skin and eye symptoms, with permanent blindness observed in severe cases. The capacity building focused on the following main points:

- a) How to determine potential breeding sites
- b) How conduct rivers prospection
- c) On how to identify black fly larvae and pupae
- d) Conduct capture fly record information

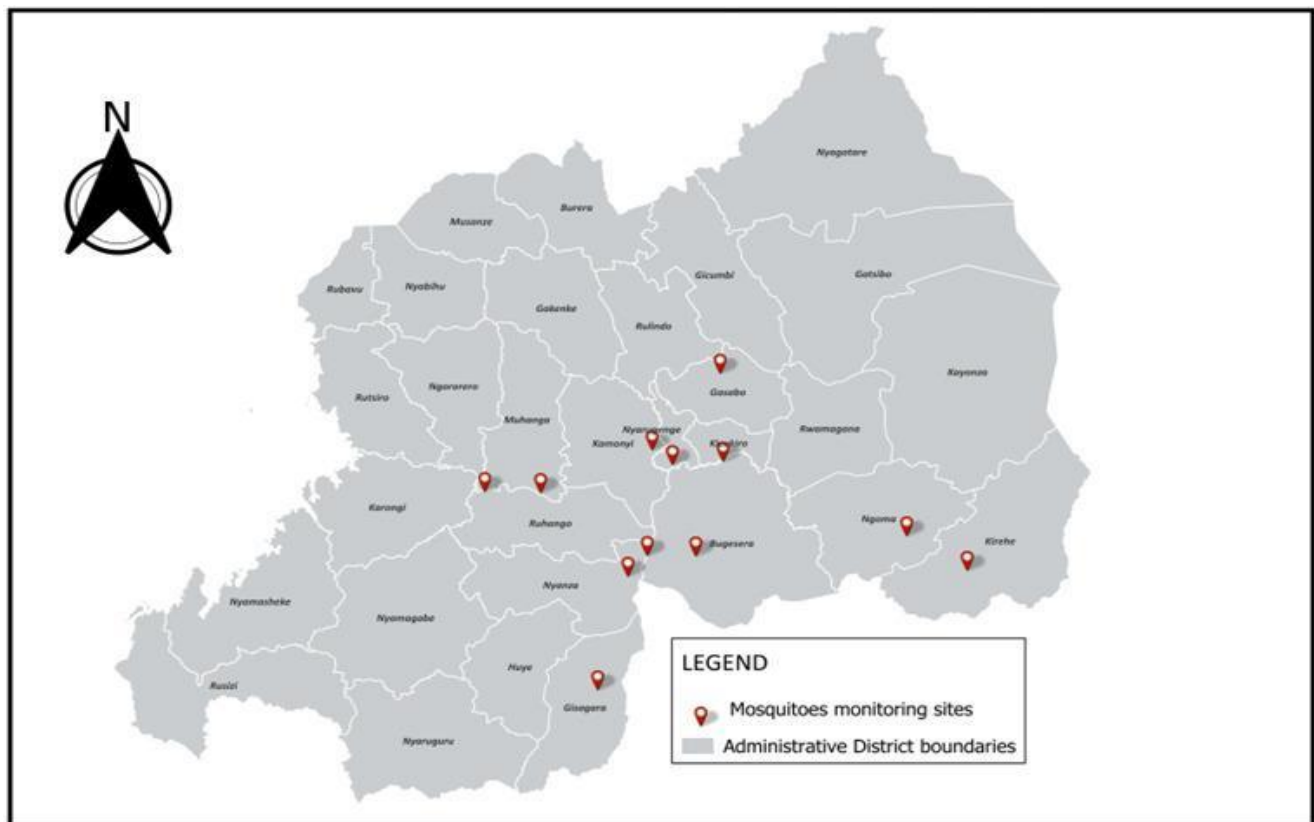
A total of 600 rivers were prospected at 709 sites. There was high prevalence of breeding of *Simulium* species in fast flowing rivers in the country, dominated by *Simulium hargreavesi*. Larvae of *Simulium damnosum* s.l., the primary vectors of *Onchocerca volvulus*, were found in 12 sites in the Western, Northern and Eastern provinces, at altitudes below 1,200 m, with exception to the Northern province where larvae were found at altitude of 1483m. The predominant cytospecies was *S. kilibanum*. Adult blackflies were collected at 5 sites.

Figure 13: Map of the Onchocerciasis Entomology breeding sites prospected in July -December 2025



The RBC/Malaria and Other Parasitic Diseases Control Division and Emergency Preparedness and Response Division (PHS&EPR division) in collaboration with Rwanda Agriculture Board (RAB) have started Entomological surveillance in 13 Districts where confirmed the outbreaks of Rift Valley Fever Vectors which is a zoonotic mosquito-borne viral disease of domestic and wild ruminants that can cause severe disease in a small proportion of infected humans and it is also threatens primarily animal health but also with a capacity to infect humans.

Figure 14: Map of Entomology Monitoring Sites _RVF Vectors



8.2. Research and monitoring

1. Efficacy and residual period evaluation of VECTRON™ T500 and Sovrenta 15WP, new IRS insecticide products

Two evaluation research on new insecticides recommended for IRS were completed and generated local evidence on efficacy and residual time.

The first study was entitled “Residual efficacy evaluation of VECTRON™ T500 (Broflanilide 50WP), a new IRS insecticide against susceptible *Anopheles gambiae* s.s. Kisumu strain under semi-field conditions using experimental community houses in Rwanda”. The new insecticide is manufactured by Mitsui Chemicals Crop & Life Solutions. Inc. (MCAG). Japan. This

insecticide is made of new active ingredient “Broflanilide 500gr/kg” and formulated as Wettable Powder (WP). The experiment was performed in experimental houses located in Nyarubuye village, Kajevuba cell. Ntarabana sector, in Rulindo district of the Northern Province.

This study investigated three arms, respectively Vectron T500 as experiment, The Fludora® Fusion 56.25, the positive control and untreated houses as control. It covered 12 months and started in December 2023 and was completed in November 2024. At the 12 months of bioassay tests, the results showed that Vectron™ T500 performed well, with 100% at 24 hours’ period of mosquito mortality against susceptible *An. gambiae* s.s., Kisumu strain in experimental rural houses, both on cement and mud walls. As VECTRON™ T500 remains effective at 100% after 12 months post spraying of experimental houses, its residual efficacy looked more than 12 months in Rwanda, similarly to the findings reported from other malaria endemic countries.

Figure 15:Trend of residual activity (% mortality) of Vectron™ T500 and Fludora® Fusion 56.25 WP on cement walls against susceptible *An. gambiae* s.s., Kisumu strain, in experimental houses of Kajevuba, Rwanda.

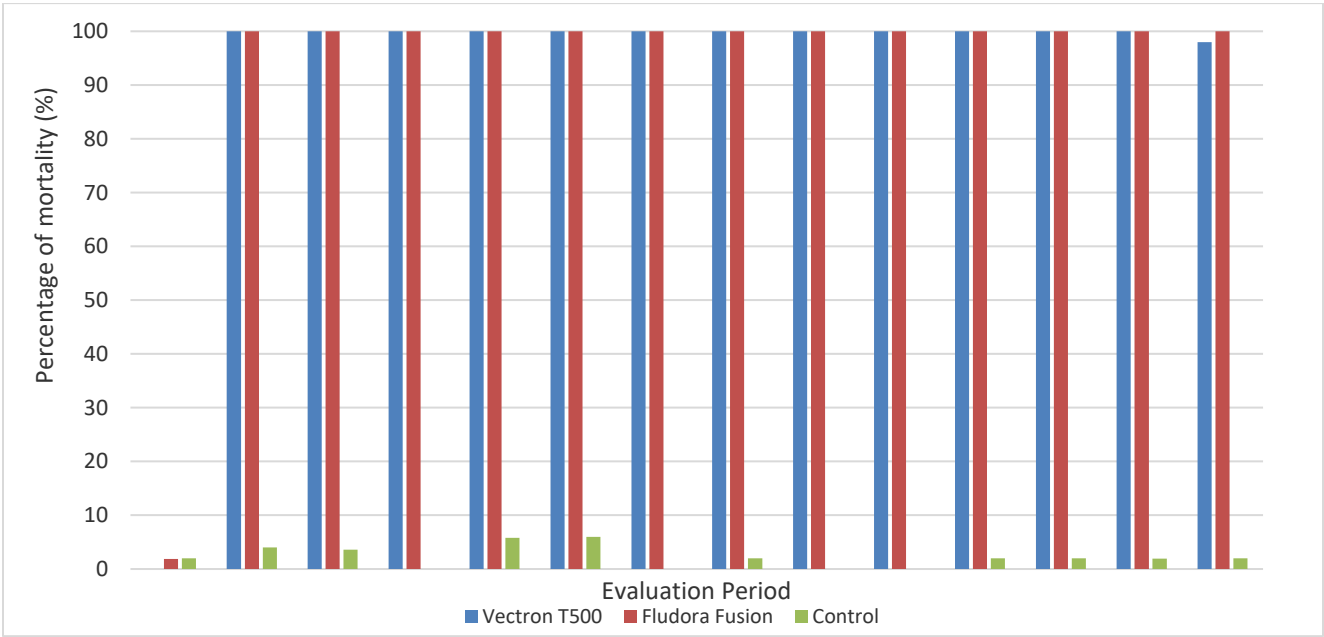
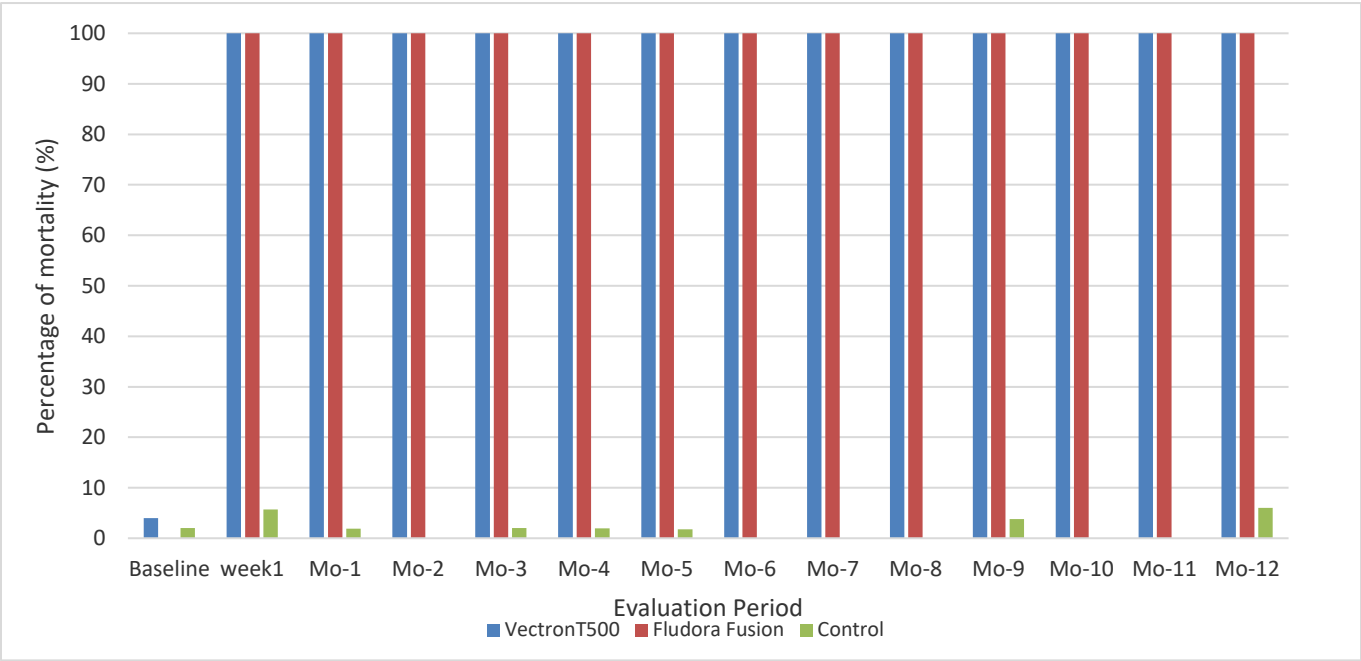


Figure 16:Figure 13: Trend of activity efficacy (% mortality) of Vectron™ T500 and Fludora® Fusion 56.25 WP on mud walls against susceptible *An. gambiae* s.s., Kisumu strain, in experimental houses of Kajevuba, Rwanda.



The second study was entitled “Efficacy evaluation of SYN547407 WP, a new insecticide formulated for Indoor Residual Spraying (IRS) against susceptible and wild-pyrethroid-resistant anopheles mosquitoes under experimental huts, South-Eastern of Rwanda Country Rwanda. This new IRS insecticide, Sovrenta 15WP. Was evaluated under the code of SYN547407 WP and it is manufactured by Syngenta Crop Protection B.V, Switzerland. The insecticide is made of new active ingredient “Isocycloseram” and formulated as a Wettable Powder (15 WP).

The experiments were organised into three arms, respectively Sovrenta 15 WP as experiment, The Fludora® Fusion 56.25, as positive control and untreated huts as control. It covered a period of 12 months, from February 2024 to March 2025. At the 12 months of monthly bioassay tests, the results showed a well performance both on cement and mud walls at 48 hours of mortality observations, with 100% mortality against susceptible *An. gambiae* s.s., Kisumu strain. The insecticide was found lasting 12 months post spraying of experimental huts and one annual IRS campaign will be enough in the context of Rwanda.

Figure 17:24- and 48-hour mosquito mortality on cement walls for 12 months per treatment

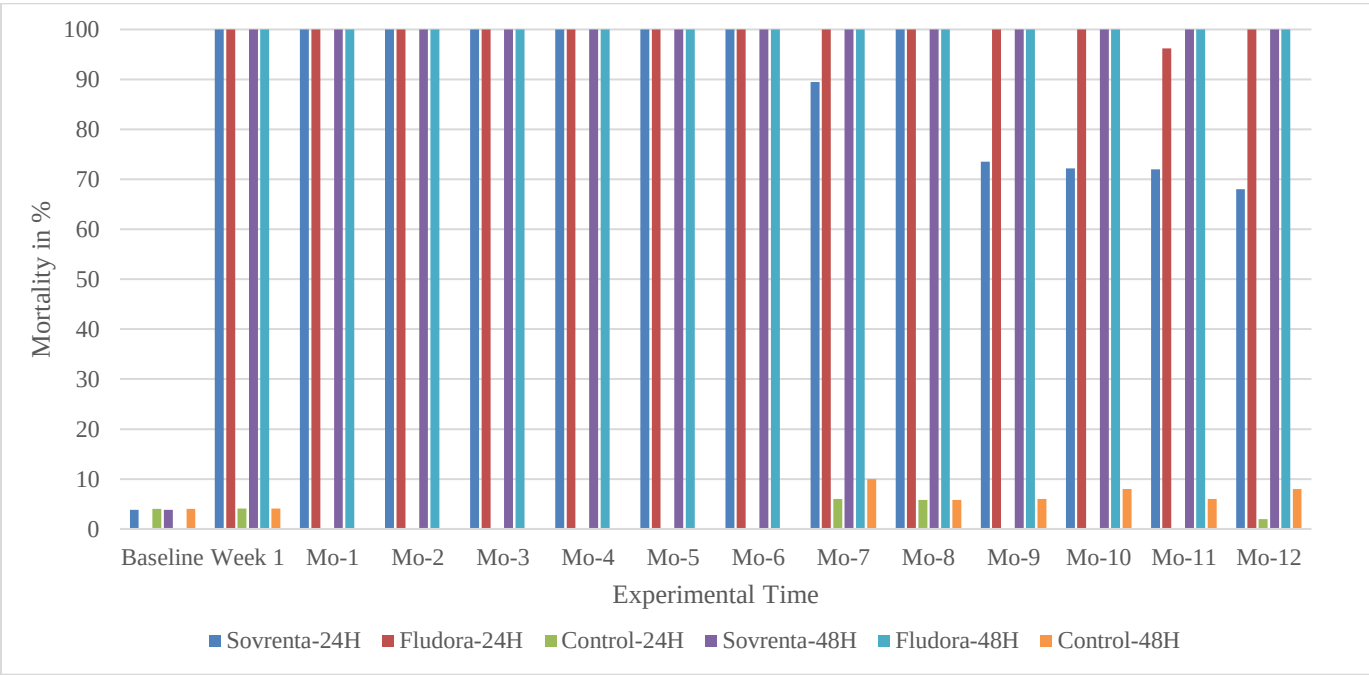
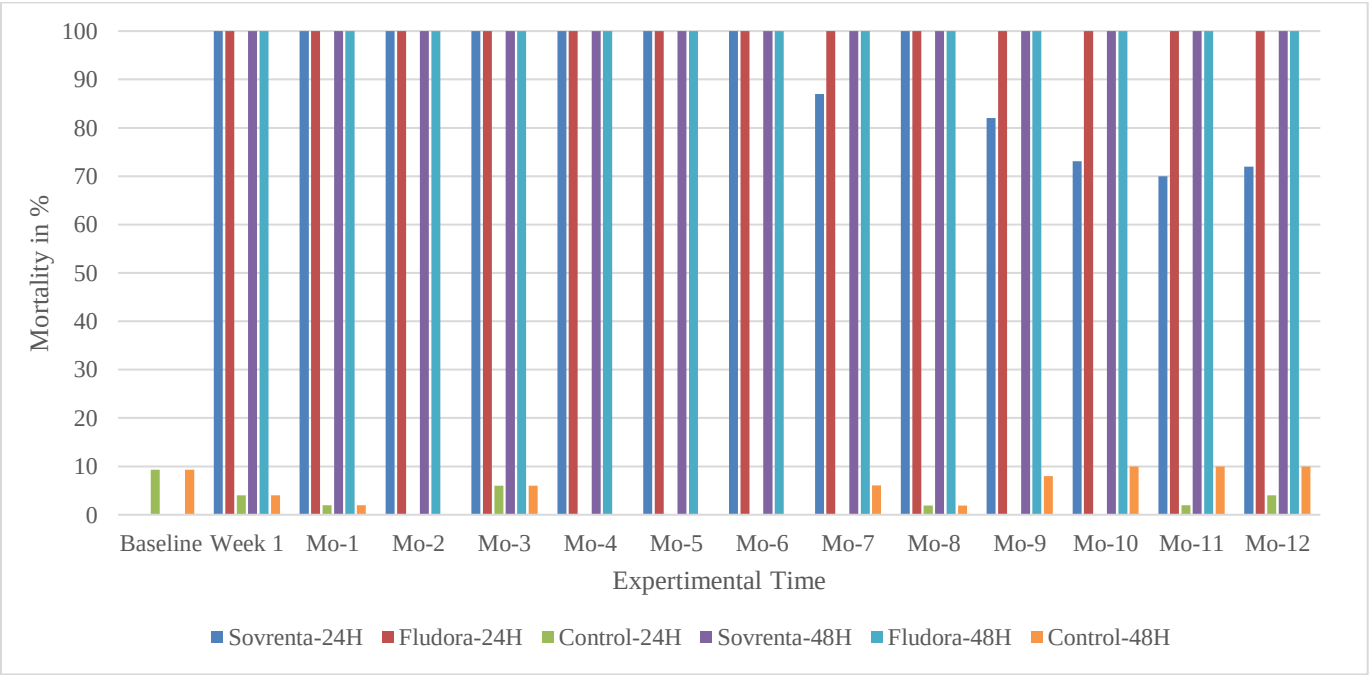


Figure 18:24- and 48-hours mosquito mortality on mud walls for 12 months per treatment (residual efficacy tests) post spraying of experimental huts.



2. Abstracts presented or submitted for dissemination of Vector control Activities

In FY 2024/2025. Vector control participated in one important international conference with four abstracts (Table 11) presented or submitted. The conference is the American Society for Tropical Medicine and Hygiene (ASTMH) annual conference. 13-17 November 2024. New Orleans, USA (4 abstracts). Again, four abstracts were submitted for the same conference planned from 9-13 November 2025, in Toronto-Canada.

Table 14:List of abstracts for dissemination of vector control activities in Rwanda

#	Title of abstracts
A. ASTMH annual conference. 13 – 17 November 2024. New Orleans, USA	
1	Impact of Focal Malaria Control Using Targeted Indoor Residual Spraying (IRS), four Years Results from Rusizi District, Western Province of Rwanda
2	Residual efficacy of wall contacts bioassays and fumigants effects induced by Actellic®300CS and Fludora®Fusion WP-SB 56.25 insecticides used for Indoor Residual Spraying against susceptible <i>Anopheles gambiae</i> s.s.
3	Resistance intensity and mechanisms of <i>An. gambiae</i> sl 2021 to 2023 in Rwanda
4	Interceptor G2 nets and standard nets combined with IRS each provides superior protection against malaria compared to standard ITNs treated with only pyrethroid insecticide in Rwanda: Results from new nets project pilot study. 2020-2022
B. ASTMH annual conference. 9-13 November 2025, Toronto-Canada	
5	Bytes against Bites: Building a unified Digital Framework for Vector Surveillance and Control.
6	The Physical Integrity and Survival Patterns of Interceptor® G2, PermaNet® 3.0, Yahe® and Olyset® Brand Insecticide-Treated Nets in Rwanda from 2020 to 2023
7	Distribution of members of the <i>Simulium damnosum</i> s.l. in Rwanda and the risk of local transmission of onchocerciasis
8	Identifying key breeding habitats of malaria vectors to inform Larval Source Management in peri-urban Gasabo District, Kigali, Rwanda

Strategy 2. Sustain Universal Access to Long Lasting Insecticide Treated Nets (LLINs)

Key Achievements

During the fiscal year 2024/2025 a total of 3,318,370 ITNs were procured and it remains the gap of 3,793,981 ITNs to be distributed for the universal coverage and routine distribution through antenatal (ANC) and expanded program for immunization (EPI) services.

Key Challenges

A funding shortfall has led to a 53% reduction in the planned quantity of ITNs, which is expected to adversely affect the overall effectiveness of the strategy.

Way forward

Revision of the distribution strategy, due to the fund shortage for the procurement of ITNs

Long Lasting Insecticide Treated Nets

Protecting at least 90% of the population through universal coverage with IRS and ITN distribution is one of the main objectives of the Extended National Malaria Strategic Plan 2020-2027 and WHO recommendations.

Towards this objective, the strategy focused on ITN distribution through mass campaigns targeting households in areas with low to moderate malaria incidence, as well as through routine distribution channels prioritizing vulnerable groups, including children under five and pregnant women, across the country.

However, implementation of this strategy was hindered by funding shortages, resulting in a reduction in the planned quantity of ITNs, which is expected to negatively impact the overall effectiveness of the strategy.

During this reporting period, the program implemented the following activities:

LLINs Procurement

For the period 2024-2025, a total of 3,318,370 rectangular ITNs were procured with the Government of Rwanda on of the Global Fund through RMS Ltd and PMI through TRMS/ GHSC-PSM. The table below shows the number of ITNs which were planned from July 2024 to June 2027, the number of procured ITNs, types, and quantities:

Table 15: Number of ITNs Planned/Procured ITNs by Source of Funds

Source of Funds	#ITNs Planned (July 2024 to June 2027)	Procured	Type of ITNs	Expected Delivery Period	Gap (Planned vs Procured)
GFATM	2,653,458	2,936,000	Dual AI	01/11/2025	- 282,542
USAID/PMI	3,890,255	382,370	Dual AI	01/09/2025	3,507,885
GoR	568,638	-	TBC		
TOTAL	7,112,351	3,318,370			3,225,343

From July 2024 to June 2027, the program is expected to procure and distribute 7,11351 ITNs for the targeted population at risk. While the distribution for universal coverage was planned for the next fiscal year, only 3,318,370 (46%) LLINs were procured, leaving a gap of 3,225,343 ITNs to cover the expected population for universal coverage and routine distribution through antenatal (ANC) and expanded program for immunization services.

LLINs Distribution to Pregnant Women and Children under 1 Year Old

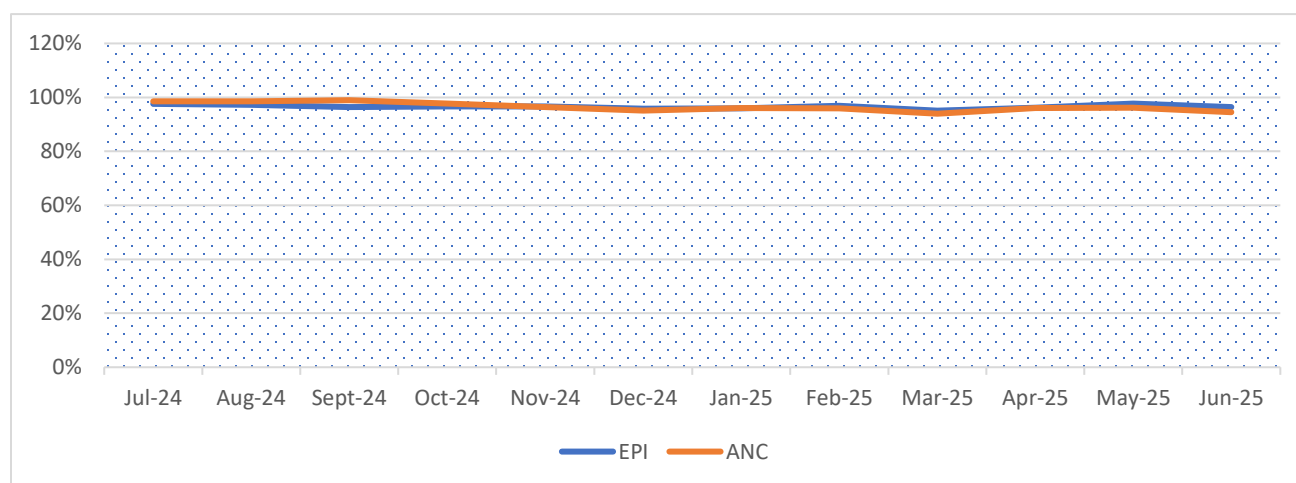
Pregnant women and children under 1 year old are considered to be among the Malaria vulnerable groups. To enhance their prevention measures, they are provided with LLINs through the Antenatal Care (ANC) package and Expanded Program in Immunization (EPI) services in all Health Centres. This intervention was reported on a monthly basis through the national Health Management Information System (HMIS).

LLINs Distribution to Pregnant Women and Children under 1 Year Old

The strategy of LLINs distribution to these vulnerable groups is integrated in the Antenatal Care (ANC) package and the Expanded Program on Immunization (EPI) services in all Health Centres. Every month, the distribution of LLINs was reported through the national Health Management Information System (HMIS).

During this fiscal year, 344,214 LLINs were distributed to pregnant women over 356,564 who attended the first visit of antenatal care, representing 96,5% and 298,516 LLINs were distributed to children under one year over 309,174 who attended MR1, representing 96,5%.

Figure 19: National Coverage of LLINs through ANC and EPI



Comparison of LLINs routine ANC and EPI distribution coverage of the FY 2023 -2024 and the FY 2024-2025

For children under one year, during the fiscal year 2023-2024, a total of 314,449 ITNs were distributed to children under one year over 322,059 who attended MR1, representing 94,5%, while during the fiscal year 2024-2025, a total of 298,473 ITNs were distributed to children under one year over 309,931 who attended MR1, representing 96,3%.

For pregnant women, during the fiscal year 2023-2024, a total of 344,390 ITNs were distributed to pregnant women over 332,652 who attended the first visit of antenatal care, representing 97,7%, while during the fiscal year 2024-2025, a total of 344,390 ITNs were distributed to pregnant women over 356412 who attended the first visit of antenatal care, representing 96,6%.

The comparison of the previous and this year shows the increase in the coverage of LLINs distribution to children of one year (1.8%), while the LLINs distribution to pregnant women attending the first visit of antenatal care decreased (1.1%)

Figure 20: ITNs routine Distribution Coverage by District

District	ITN Coverage in ANC	ITN Coverage in EPI
Bugesera	99%	99%
Burera	99%	98%
Gakenke	99%	99%
Gasabo	75%	73%
Gatsibo	100%	99%
Gicumbi	100%	98%
Gisagara	98%	99%
Huye	95%	97%
Kamonyi	98%	100%
Karongi	98%	98%
Kayonza	99%	99%
Kicukiro	99%	99%
Kirehe	100%	99%
Muhanga	98%	98%
Musanze	97%	97%
Ngoma	100%	100%
Ngororero	90%	90%
Nyabihu	99%	96%
Nyagatare	100%	100%
Nyamagabe	100%	100%
Nyamasheke	93%	91%
Nyanza	95%	97%
Nyarugenge	88%	90%
Nyaruguru	100%	99%
Rubavu	100%	96%
Ruhango	99%	100%
Rulindo	99%	96%
Rusizi	98%	99%
Rutsiro	99%	98%
Rwamagana	100%	100%
National Coverage	97%	96%

LLINs Distribution to Special Target Groups

In addition to the continuous distribution through routine service and the mass distribution, ITNs are distributed to special groups, such as hospitals, prisons, boarding schools, and other vulnerable groups. During the reported fiscal year 2024-2025, a total of 7,633 ITNs were distributed to prisons located across the country.

Key Achievements

During the fiscal year 2024-2025, Community Health Workers (CHWs) and Health Posts (HPs) significantly contributed to the management of uncomplicated malaria cases, maintaining a contribution rate exceeding 50%. Consequently, over 90% of patients presenting with fever were tested and treated within 24 hours of symptom onset. The quality of malaria diagnosis remains high. Furthermore, the introduction of the Multiple First-Line Therapies (MFT) strategy aiming at addressing the ongoing emergence of antimalarial drug resistance, was launched.

Key Challenges

The emergence of artemisinin resistance and delays in seeking care among certain patients in Kigali Districts, along with the lack of visibility of stock at the Central Medical Store and RMS branches, continue to undermine the progress achieved in malaria case management. This situation largely contributed to the increase in severe malaria cases and related fatalities.

Way Forward

Implement the Multi-first Line Treatment (MFT) of simple Malaria cases, as a strategy to mitigate the spread of the mutation leading to the emergence of malaria drug resistance. Reinforce the SBC for early consultation.

Strengthen the proper management and surveillance of Malaria treatment failure across all levels of health care. Close collaboration with RMS to ensure continued monitoring of Malaria Drugs Stock Status.

Objective 2: Maintain 100% Prompt Testing & Treatment of All Suspected Malaria Cases in Line with National Treatment Guidelines by 2025

Diagnosis and treatment are key components in malaria control. Various interventions have been implemented through program strategies to improve access to early diagnosis and appropriate case management, thereby reducing malaria morbidity and mortality.

In FY 2024-2025, the MOPDD, in collaboration with partners, has been strengthening the capacity of healthcare providers in diagnostic testing to ensure all malaria patients are accurately diagnosed and receive timely and appropriate treatment. All suspected malaria cases were confirmed parasitologically, either by Malaria Rapid Diagnostic Test or Blood Smear, and categorized as uncomplicated, simple malaria with minor digestive symptoms, or severe malaria before receiving the appropriate treatment.

The rollout of Home-based Management of Malaria (HBM) to all age groups has enabled Community Health Workers (CHWs) to provide timely treatment for all cases of uncomplicated malaria within the community, preventing severe malaria and limiting transmission. Since April 2024, the Malaria program has adopted the Multiple First Line Treatment as a new strategy for managing Malaria cases in response to the emergence of antimalarial drug resistance. By ensuring early diagnosis and treatment at all levels of healthcare, all suspected malaria cases are tested and managed according to the National Malaria Treatment Guidelines.

Strategy 1: Provide Malaria Diagnosis to all Suspected Malaria Cases at all Levels

1. Develop MFT Strategy, Implementation plan, and SBC toolkits

During the 2024–2025 fiscal year, in line with the Integrated Malaria Control Guidelines, important revisions were introduced to respond to the emergence of partial resistance to artemisinin. These measures include expanding treatment options for malaria through the introduction of dihydro-artemisinin–piperaquine (DHAP) and artesunate–pyronaridine for the management of uncomplicated malaria, as well as artemether injection for the treatment of severe malaria.

To mitigate the risk of drug resistance, Multi-Firstline Therapy (MFT) for uncomplicated malaria was adopted as a new strategic approach. The corresponding guideline has been approved by the Ministry of Health and is scheduled for dissemination beginning in FY2025–2026.

Furthermore, an MFT implementation guide and supporting Social and Behavior Change (SBC) tools, including flyers, radio spots, fact sheets, and Q&A booklets, have been developed.

2. Quality Control/Quality Assurance of Malaria Diagnosis

To uphold the quality of malaria diagnosis within the national laboratory network, External Quality Assurance (EQA) for malaria is implemented by RBC/MOPDD in partnership with the National Reference Laboratory, Parasitology Section.

The EQA includes blinded slide rereading, proficiency testing, and on-site supervision of Hospital Laboratories. Quarterly evaluation of the quality of thick and thin smear practices, Giemsa staining, and microscopy results are enforced in health facilities. Health center practices are supervised by the district hospital, and district hospitals are supervised by the NRL.

Figure 21: External Quality Control Results at Hospital level FY 2024-2025:

Results from hospitals with discrepancies (percentages represent the proportion of discordant results compared to the number of slides retested in the hospital.

a. Percentage of discrepancy per quarter:

Period assessed	Number of Sites	Number of samples	Percentage of discrepancy
April-June 2024	50	750	1,1%
July-September 2024	50	949	0,1%
Oct-December 2024	51	764	0,0%
January-March 2025	27	367	0,3%

b. Hospitals with discrepancies during the financial year:

Hospital	Total samples	Total discrepancies	Percentage of discrepancy
Ruhengeri	45,00	1,00	2,2%
Ruhango	45,00	1,00	2,2%
Muhororo	45,00	1,00	2,2%
Kibagabaga	45,00	3,00	6,7%

During the 2024–2025 fiscal year, EQA/Quality Control of blood smears was conducted in 51 public hospitals and 20 private hospitals/clinics. Discordant slide readings between two observers were identified in 4 hospitals, compared to 11 in the previous year. Overall, the 2024–2025 blood slide Quality Control results indicated that discrepancies remained within

the acceptable threshold of 5% (Figure 20), with the exception of Kibagabaga Hospital, which recorded a discordance rate of 6.7%.

The overall discrepancy was 0.4% during the reporting period.

Corrective Measures were immediately provided to the mentored staff which included recording the opening date and performing validation of new Giemsa solution, performing the quality control of HCs blood films regularly and reporting parasites density for positive blood films.

The malaria program will continue to work closely with NRL to correct reported discrepancies in district hospitals through formative and refresher training during the FY 2025-2026.

Strategy 2: Strengthen Prompt Access to Diagnosis and Treatment of Malaria

1. Ensure Malaria drug efficacy

In line with the WHO strategy for responding to antimalarial drug resistance in Africa, and following an assessment of the national context including the status and epidemiology of malaria drug resistance, the drivers of artemisinin resistance, and the broader health and regulatory systems MOPDD developed a strategic intervention aimed at addressing antimalarial drug resistance and curbing the spread of partial artemisinin resistance.

The main objective of this response strategy was to strengthen the surveillance of antimalarial drug efficacy and resistance, to provide expanded coverage of the data on antimalarial drug efficacy and resistance in the country, to limit drug pressure on parasites by optimizing and better regulating the use of diagnostics and treatments and limit the spread of antimalarial drug-resistant parasites through optimal malaria interventions including appropriate preventive measures in priority areas to restrict transmission from recrudescence cases.

In this regard, the MOPDD launched in April 2025 World Malaria Day Held in Gasabo District, the Multiple first line treatment of simple Malaria cases. The Rwanda Multiple First-Line Therapies (MFT) Strategy was launched, detailing the official policy framework endorsed by MOH/RBC, outlining the vision, objectives, principles, and governance of MFT in Rwanda. In addition, the Rwanda Multiple First-Line Therapies (MFT) Implementation plan with detailed operational roadmap for rollout, covering block assignment, supply chain, training, monitoring, and evaluation was developed. The Social behavior change (SBC) tool kit was developed, targeting High-level decisionmakers; malaria patients and caregivers, General public, community members, CHW, NGOs, community leaders, HCPs and Patients.

2. Case Management at the Community Level

In 2016, the community case management of malaria was extended to children above five years of age and adults countrywide following the success of the iCCM program. Since the extension of HBM of Malaria intervention to children above five years and adults, there has been a steady increase of the proportion of malaria patients seeking care in the community contributing to the prompt treatment of malaria cases.

Figure 22: Proportion of Under 5 YO Treated within 24 Hours at the Community Level (2022-2025)

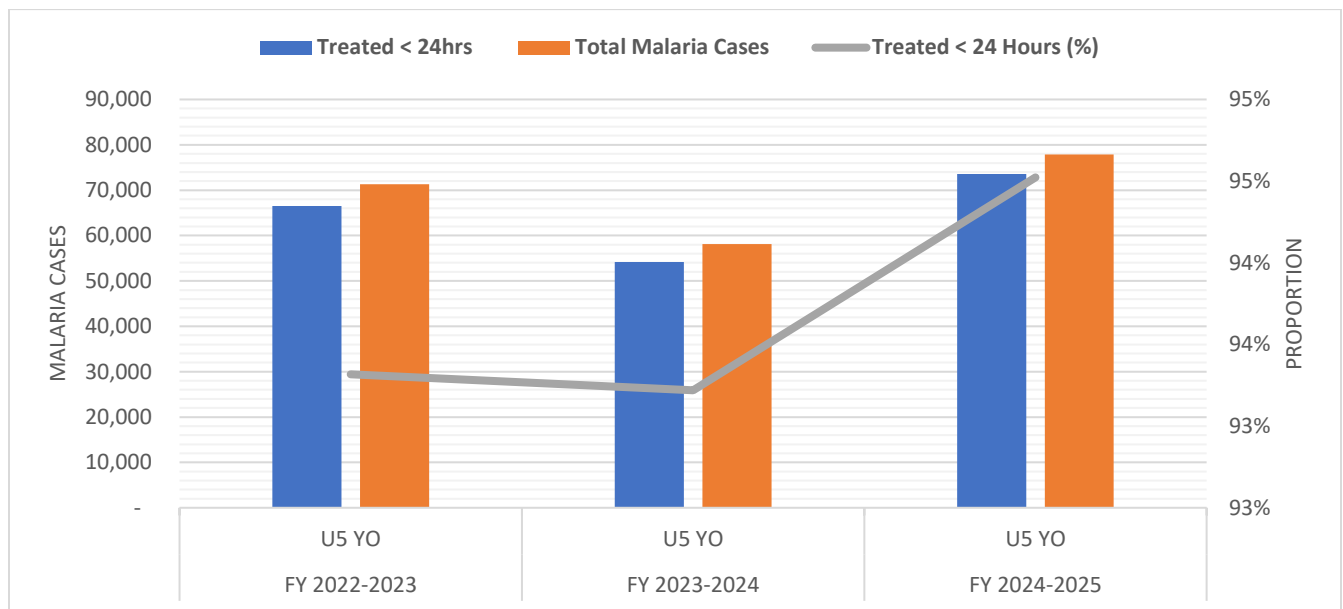
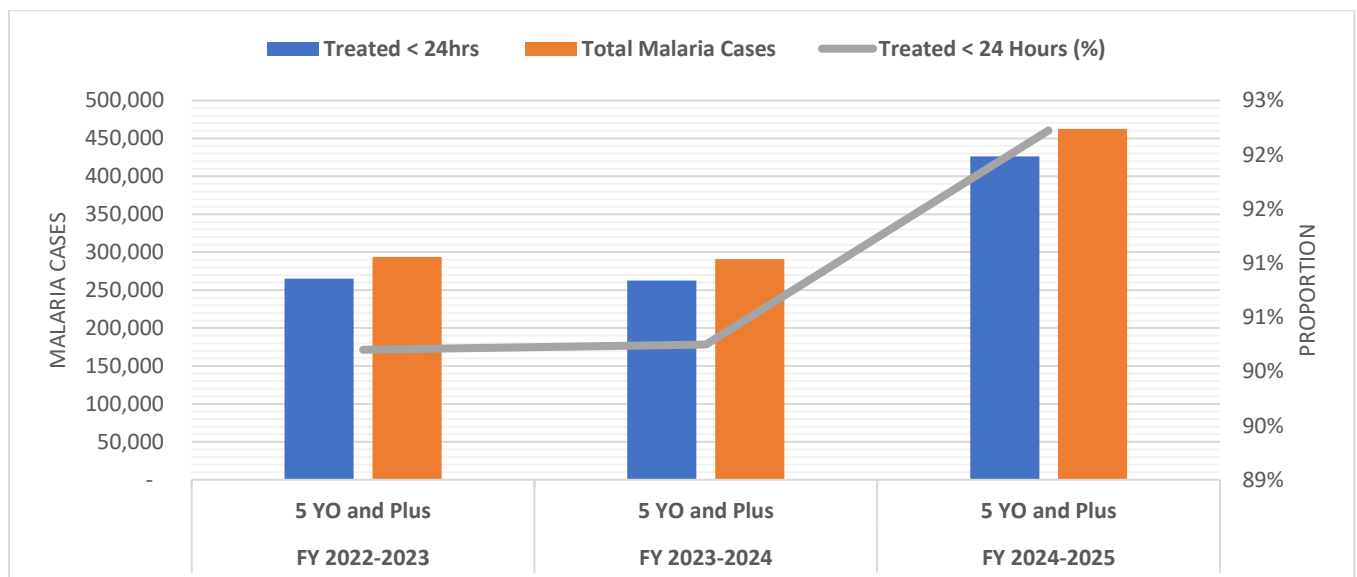
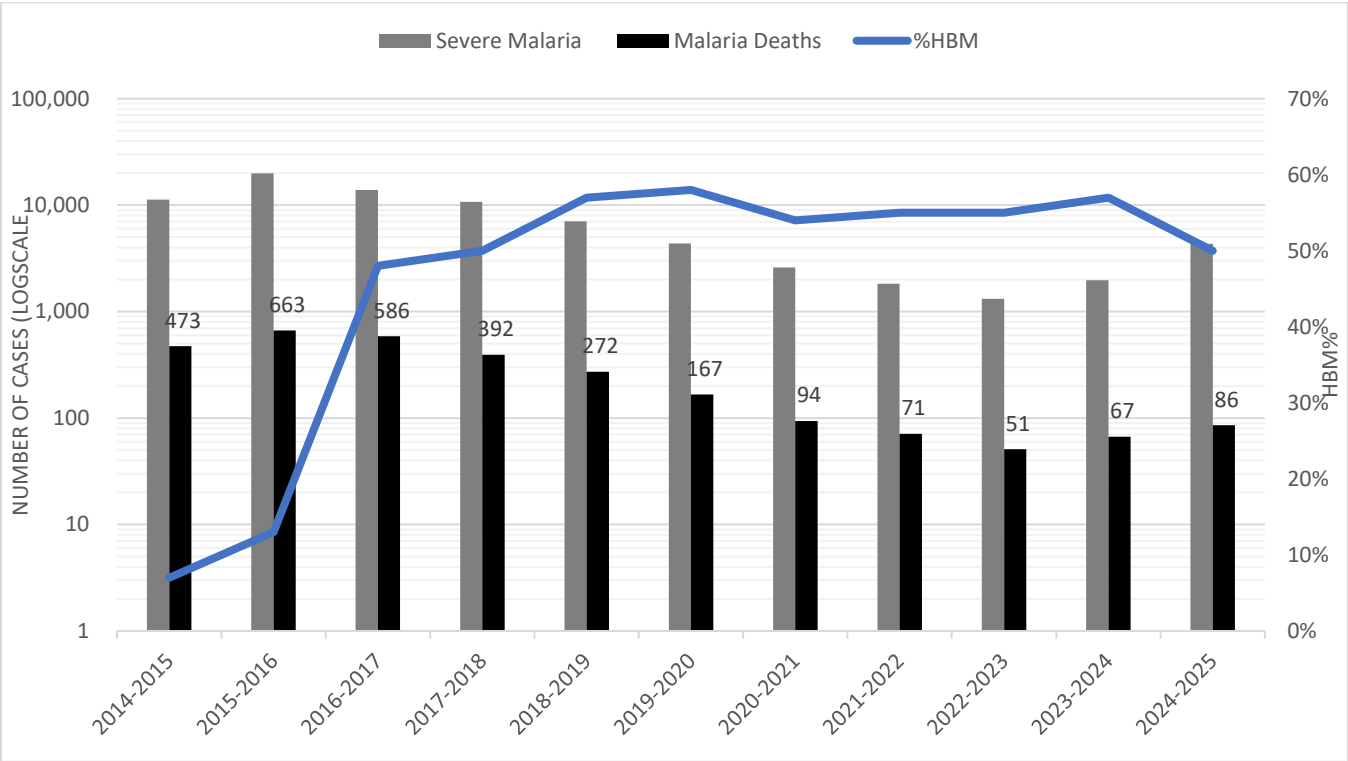


Figure 23: Proportion of 5 YO and Above Treated within 24 Hours at the Community Level (2022-2025)



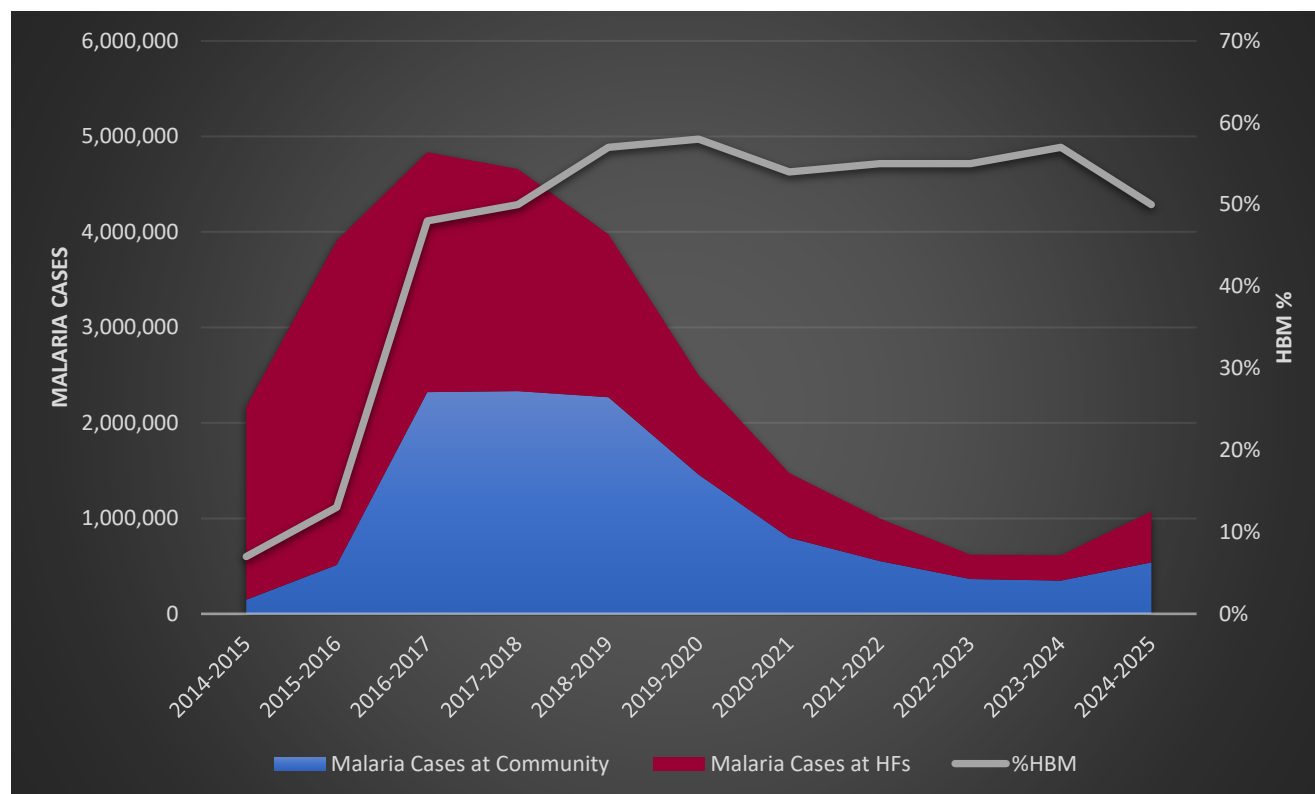
In FY 2024-2025, 95% of children under five and 92% of children above five and adults sought treatment within 24 hours of onset of symptoms at community level, Figure 21. Patients seeking care at the community were diagnosed by an RDT and treatment provided only when a positive RDT was observed.

Figure 24: Home Based Management, Severe Malaria Cases and Malaria Mortality Rate, 2014 to June 2025



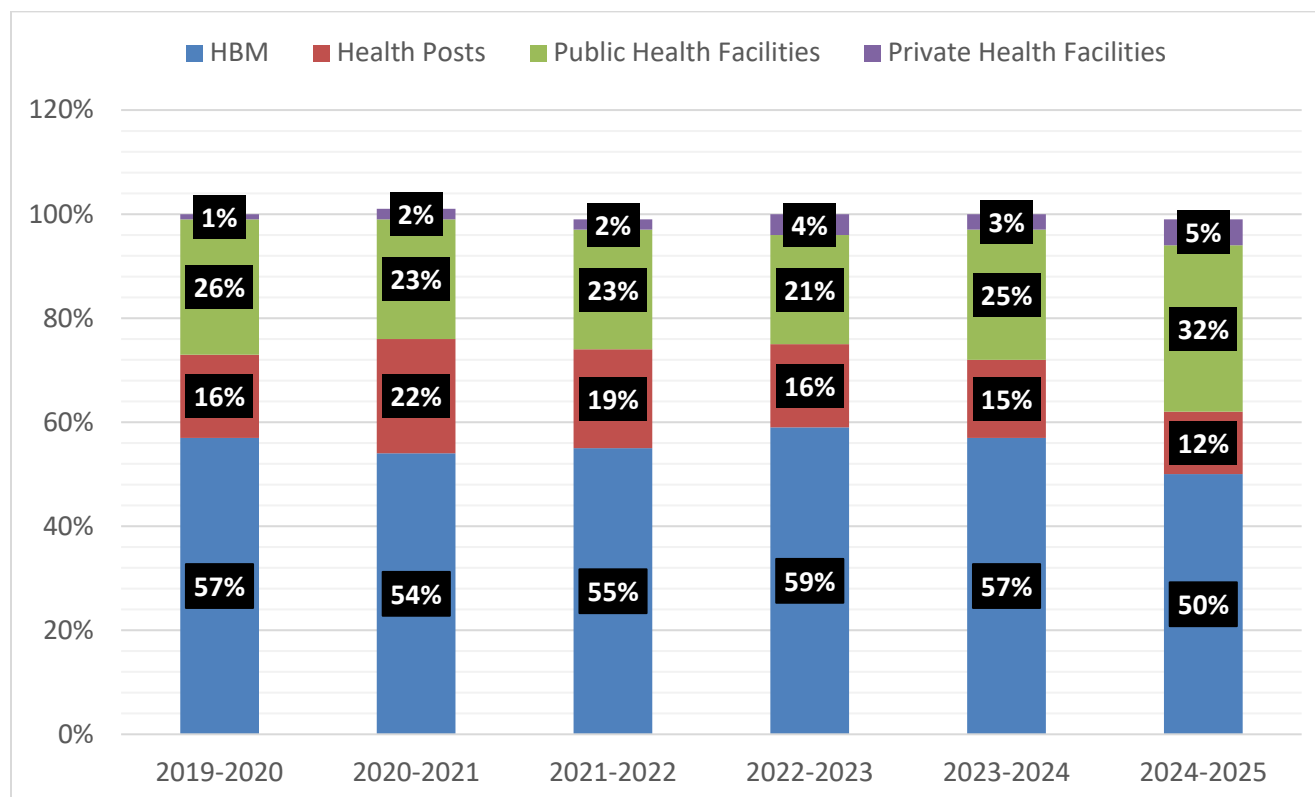
During the scale-up period, a decline in severe malaria cases and malaria-related deaths was observed up to FY2022–2023. However, from FY2022–2023 to FY2024–2025, severe malaria cases showed a steady increase, reaching 120% higher in FY2024–2025 compared to the previous year (2023–2024). In contrast, malaria-related deaths increased by only 28% over the same period, reflecting the significant efforts invested in strengthening case management, particularly through the capacity building of healthcare providers at health facility level (Figure 22).

Figure 25: Proportion of Malaria Cases by Level of Service Delivery, 2014-June 2025



The proportion of malaria cases treated in the community remains slightly above 50% since the scale-up of the home-based management of simple malaria to adults. The introduction of HPs posts in the health system, a new strategy adopted by the GoR to scale up health services closer to the community and alleviate workload for the CHWs, contributed to 12% of simple malaria cases (Figure 23).

Figure 26: Proportion of Malaria Cases by Level of Service Delivery, July 2019 to June 2025



Note: A Shift from Community Malaria Services (HBM & HPs) to Public and Private Health Facilities, which may justify the increased number in severe cases and deaths due to malaria

Strategy 3: Strengthen Prompt and Correct Treatment of Simple Malaria at All Levels Through Training and Supportive Supervision

1. Strengthening of Health Facility and Community Case Management through Supportive Supervision.

During the fiscal year 2024-2025, the Malaria and other parasitic diseases division (MOPDD), in collaboration with its partners, significantly advanced the provision of high-quality malaria services through rigorous supportive supervision.

From July 2024 to June 2025, 13 hospitals, 101 health centers, and 12 health posts benefitted from integrated supervisory efforts spearheaded by MOPDD and its partners. At the health center level, 432 staff members from 101 health centers and 12 health posts received direct support. Additionally, 16 nurses across 12 health posts were mentored on critical aspects of malaria care, including diagnosis and treatment, supply chain management, and referral procedures, in alignment with established malaria treatment guidelines.

Community Health Workers (CHWs) were continuously trained to enhance their capability in delivering quality primary health care (PHC) to their communities. During this reporting period, 35,824 CHWs (comprising 21,150 females and 14,674 male) from the districts of

Nyagatare, Gatsibo, Rwamagana, Ngoma, Bugesera, Nyarugenge, Kicukiro, Gasabo, Gicumbi, Rulindo, Gakenke, Musanze, Kamonyi, Muhanga, Ruhango, Nyaruguru, Nyamagabe, Rubavu, Ngororero and Rutsiro were supported through supervisory sessions focusing on malaria drug supply management. This included the meticulous counting and analysis of both physical and reported stock levels for essential items such as artemether-Lumefantrine and malaria Rapid Diagnostic Tests (RDTs).

2. Training of Health Care Providers

a. The CHWs Cascade training on Malaria cRACDT and use of cEMR:

To accelerate Rwanda's goal of malaria elimination by 2030, Rwanda has adopted the Community-led Reactive Case Detection and Treatment (cRACDT) strategy as a way to enhance early treatment of malaria cases and investigation of risk factors contributing to the transmission of malaria among the Rwandan population.

In this line, the Rwanda Biomedical Center (RBC) conducted a series of cascade training for Community Health Workers (CHWs) on Community-led Reactive Case Detection and Treatment (cRACDT) and the use of Community Electronic Medical Records (cEMR). This nationwide training initiative, delivered in two phases between May 19th and June 20th, 2025, aimed to enhance the skills of CHWs in malaria case detection, treatment, risk factor assessment, and digital health reporting to support real-time malaria surveillance and community-level service delivery.

A total of 2,219 CHWs out of a targeted 2,222 (99.8%) successfully completed the training across four districts.

Table 16: Capacity Building of CHWs on Malaria cRACDT and Use of cEMR

District	CHWs Trained	CHWs Targeted	Percentage
Musanze	340	340	100%
Kirehe	1,042	1,044	99.8%
Rwamagana	297	298	99.7%
Burera	540	540	100%
Total	2,219	2,222	99.8%

b. Cascade training of Health Care providers on Multiple First-Line Therapies (MFT) Strategy.

Since the emergence of artemisinin-resistant malaria in Rwanda in 2020, the Ministry of Health (MoH) has adopted a Multiple First-Line Therapy (MFT) strategy to safeguard the effectiveness of antimalarial treatments. MFT serves as a cornerstone of Rwanda's national response to drug resistance and is fully aligned with the World Health Organization's (WHO) 2022 Strategy to Address Antimalarial Drug Resistance in Africa. By promoting the use of multiple, equally effective first-line therapies, the strategy aims to reduce drug pressure and delay the spread of resistance.

For successful implementation, nationwide training of all relevant personnel has been essential. In FY2024–2025, the Rwanda Biomedical Center (RBC), in collaboration with partners, conducted training across all levels of healthcare provision in both public and private facilities. The training aimed to strengthen the capacity of healthcare providers (HCPs) at hospitals, health centers, health posts, community health worker (CHW) networks, and private clinics through a cascade approach. Its objectives included ensuring effective implementation of the MFT strategy at both facility and community levels, enhancing community awareness and engagement through Social and Behavior Change (SBC) platforms, ensuring timely and coordinated supply of malaria commodities by RMS in line with the MFT implementation plan, and discussing strategies for reverse logistics of malaria commodities under the MFT framework.

Table 17 : Summary of the Training of Healthcare Providers on the updated Malaria Control Guideline, Including MFT Implementation

Training	Target Group	Achievements
Conducted a master training on MFT strategy at National level	The training targeted 35 trainers, including staff from the Ministry of Health, MOPDD, and partner organizations: CSOs, WHO, CHAI, PIH, USAID, and PSM	Participants received training on the MFT strategy, and a set of implementation tools including the implementation plan, social and behavior change (SBC) materials, and training slides for use during the Training of Trainers were developed. In addition, a roadmap for the rollout of MFT training was established
A cascading Training of Trainers on Multiple first line therapies on malaria case management	Hospital CHWs Supervisors, Director of Nursing and Midwifery, Hospital Clinical directors, Hospital Malaria supervisors, Hospital pharmacist, and Medical Doctors, partners implementing malaria SBC and case management: ASOFERWA CARITAS RWANDA RICH SFH Rwanda	Two training sessions were organized in March and December 2024 the training reached 43 Community Health Worker (CHW) Supervisors, 45 Directors of Nursing, 45 Midwifery staff, 45 Hospital Clinical Directors were trained. In addition, 50 Hospital Malaria Supervisors and 4 Pediatricians participated in the training, while 45 Pharmacists representing 45 hospitals also successfully completed the program.
Training HCP on MFT and Malaria Surveillance	All Public and private HCP at both hospital and health centers	To ensure an effective implementation of MFT strategy, and not leave anyone behind, RBC through MOPDD, organized a virtual training for all health care providers. Staff from 541 health centers were reached and received training on MFT strategy and implementation plan. The training of HCP from Private is still ongoing.
Training of CHWs on MFT and Malaria Surveillance	All community health workers (CHWs).	Community health workers from 541 health center completed MFT strategy and implementation plan.

3. Implementation of the Therapeutic Efficacy Study (TES)

Monitoring the efficacy of antimalarial medicines is a critical component of malaria control. In line with WHO recommendations, national malaria control programs should continue using current first-line treatments when the Adequate Clinical and Parasitological Response (ACPR) is 95% or higher, with therapeutic efficacy studies (TES) conducted at least every 24 months at designated sentinel sites. Preserving the efficacy of artemisinin-based combination therapies (ACTs) for the treatment of *Plasmodium falciparum* malaria remains a top national and global public health priority.

Table 18: TES Sites, enrolled participants, and treatment outcome by site

Treatment outcomes by day 28 with AL by study site				
Variables	Study sites			Total
	Ngoma	Masaka	Bugarama	(n=264)
Number of enrolled cases (n)	88	88	88	264
PCR unadjusted				
Early treatment failure	0	0	1 (1.13)	1 (0.4)
Late clinical failure	0	2 (2.2)	1 (1.13)	3 (1.13)
Late parasitological failure	3 (3.4)	12 (13.6)	4 (4.54)	19 (7.19)
Adequate clinical and parasitological response (%)	85 (96.5)	74 (84.02)	82 (93.1)	241 (91.2)
Treatment outcomes by day 42 with DP by study site				
Variables	Study Sites			Total
	Ngoma	Masaka	Bugarama	(n=264)
Number of enrolled cases (n)	88	88	88	264
PCR unadjusted				
Early treatment failure	0	0	0	0
Late clinical failure	0	0	1 (1.13)	1 (0.3)
Late parasitological failure	0	1 (1.13)	0	1 (0.3)
Adequate clinical and parasitological response (%)	100	87 (98.9)	87 (98.9)	262 (99.24)
Day 3 Parasitemia				
AL Day 3 parasitemia	3 (3.4)	11(12.5)	3 (1.13)	
DP Day 3 Parasitemia	4 (4.5)	13 (14.5)	1 (1.2)	

AL: Artemether Lumefantrine; DP: Dihydro-artemisinin Piperaquine; ETF: Early Treatment Failure; LTF: Late Treatment Failure.

In recent years, the Malaria and Other Parasitic Diseases Division, in collaboration with partners, developed a Therapeutic Efficacy Study (TES) protocol aligned with WHO standards. The study assessed the efficacy of artemether–lumefantrine (AL) and Dihydroartemisinin–piperaquine (DHA-PPQ) for the treatment of uncomplicated malaria at three sites across

Rwanda. Enrollment and uncorrected and adjusted PCR analysis were completed; PCR correction is ongoing.

In the AL arm, Unadjusted PCR showed that one case of early treatment failure was recorded in Bugarama. Three patients were noted as Late Clinical Failure (LCF), two of whom were from Masaka Health Center. Of the 19 patients recorded as Late Parasitological Failure (LPF), Masaka accounted for 12 cases. While in the DHA-PPQ arm, unadjusted results show that there were no cases of early treatment failure, with only one case of Late Clinical Failure in Bugarama and one case of Late Parasitological Failure in Masaka.

To strengthen national capacity for advanced molecular analyses, including PCR correction to distinguish new infections from recrudescence, and DNA sequencing to identify resistance markers, 10 National Reference Laboratory (NRL) technicians were trained by Swiss TPH in collaboration with RBC. After the training, the technicians performed *MSP1* and *MSP2* genotyping, as well as microsatellite analysis, for PCR correction of TES samples. The next step, which is currently ongoing, is data analysis to generate PCR-adjusted results and to assess the status of *K13* in the TES sentinel sites.

Strategy 4: Ensure Accurate Quantification and Distribution of Quality Assured Malaria Commodities

1. Quantification and Procurement of Malaria Commodities

Accurate quantification and timely procurement are essential to maintain adequate stock of malaria commodities across all levels of the supply chain. MOPDD, in collaboration with CPDS partners, conducted regular supply plan reviews to align procurement with current malaria transmission trends. Following a rise in malaria cases and a reduction in US funding, targets were revised to increase the quantities of malaria drugs and RDTs, prompting emergency procurement to prevent stockouts.

Additionally, due to increasing treatment failures linked to partial artemisinin resistance, emergency procurement of Dihydroartemisinin–piperaquine (DHAP) and artesunate–pyronaridine (ASPY) was initiated to provide alternative treatment options. The surge in emergency procurement created a funding gap under the Global Fund, which was partially offset by World Bank support. These actions ensured continuity of malaria case management and strengthened the national response to both seasonal and resistance-driven challenges.

Table 19: Malaria Commodities Procured in FY 2024/2025

#	Product	Global Fund/	RMS (PMI)	GHSC-PSM (PMI)	World Bank	Total Qty Procured
1	RDT	1,517,370	0	0	1,041,360	2,558,730
2	Artemet/ Lumefant 20/120mg Tab(6x1) (Disp)	156,524	170,640	42,000	0	369,164
3	Artemet/ Lumefant 20/120mg Tab (6x2)(DISP)	42,960	252,660	85,440	0	342,396
4	Artemet/ Lumefant 20/120mg Tab (6x3)	42,960	92,640	64,800	0	200,400
5	Artemet/ Lumefant 20/120mg Tab (6x4)	126,212	390,000	183,720	0	699,932
6	DHAP 20/160 Mg Dispersible 3 Tab/Blister	175,868	5,050	0	72,683	253,601
7	DHAP 20/160 Mg Coated	95,318	126,250	0	85,463	180,781
8	DHAP 30/240mg Dispersible	84,000	6,860	0	65,825	156,685
9	DHAP 40/320mg 3 Tabl	3,783	10,725	0	1,906	16,414
10	DHAP 40/320mg 6 Tabl	18,410		0	26,184	44,594
11	DHAP 40/320mg 9 Tabl	15,174		0	0	15,174
13	Pyro/Arte 180/60mg Film-Coat 9tab/Blister	336,048	104,700	0	0	440,748
14	Pyro/Arte 60/20mg Granul/Susp 3 Sachets	173,700	2,000	0	0	175,700
16	Artesunate inj	50,000	136,954	31,021	0	217,975

Malaria commodities were routinely distributed to health facilities via RMS branches and subsequently from health centers to the community, with redistribution conducted as needed. In response to emerging antimalarial resistance, “rescue” malaria products were distributed across all RMS branches, supplying new ACTs (DHAP and ASPY) to hospitals and trained health centers.

2. Validation of RMS Branch Reports and Distribution of Malaria Commodities

The objective of the validation of malaria commodities is to:

- Ensure that the RMS Branches and lower service levels receive the right amount of malaria commodities at the right time.
- Ensure that RMS Branches are given the quantities they need to be stocked according to plan (stock to be between the minimum and the maximum levels) and that they receive feedback on the validation report.
- To ensure e-LMIS data accuracy as the validation exercise is currently based on the information found in e-LMIS.
- Rationalize the quantities available at the RMS store in case of understock. This was done through the redistribution of commodities within districts not only to prevent stock out at

RMS but also to avoid expiration of malaria commodities.

During the FY 2024-2025, the validation exercise allowed to align the distribution of malaria commodities with trend of Malaria cases in different districts.

3. Stock Status of Malaria Commodities, End June 2025

By the end of the FY 2024-2025, the stock status of malaria commodities was kept in acceptable levels. Table 19. However, there was a slight understock for RTD and Artesunate due to the overall increase in malaria cases observed in the country.

Table 20: Stock Status of Malaria Commodities

Product	RMS HQ	RMS Branches	Stock SDPs	Stock all levels	AMC all Levels	MoS all Levels	Qty in pipeline
Artemet/ Lumefant 20/120mg Tab(6x1) (Disp)	207330	35249	85509	328088	6939	47	0
Artemet/ Lumefant 20/120mg Tab (6x2)(DISP)	300690	34777	103485	438952	10676	41	0
Artemet/ Lumefant 20/120mg Tab (6x3)	119640	30373	123101	273114	9074	30	0
Artemet/ Lumefant 20/120mg Tab (6x4)	461070	56049	184272	701391	26679	26	0
Malaria RDT	554010	301930	571767	1427707	388920	4	864000
Artesunate inj	9710	9952	17799	37461	6 927	5	136954
DHAP 20/160 Mg Dispersible 3 Tab/Blister	154514	31157	22754	208425	7997	26	0
DHAP 20/160 Mg Coated	157863	36420	17300	211583	7997	26	0
DHAP 30/240mg Dispersible	140000	20920	2923	163843	11865	14	33510
DHAP 40/320mg 3 Tabl	143544	97250	3620	244414	22741	11	59958
Dihydroartemisinin/Piperaquine DHAP) 80/640 Mg Dispersible Tablet							58548
Pyro/Arte 180/60mg Film-Coat 9tab/Blister	125470	54840	76425	256735	29013	9	80502
Pyro/Arte 60/20mg Granul/Susp 3 Sachets	199500	25842	18010	243352	6335	38	

4. Monitoring of Stock Status

Quarterly and monthly monitoring of malaria commodities enabled a clear understanding of stock status and supported maintaining quantities within the required national levels (9 months minimum and 12 months maximum). In FY2024–2025, this monitoring guided the redistribution of newly procured products, ensuring their effective use and minimizing expiration. Redistribution was coordinated weekly via a shared Google Sheet with RMS branches and on a monthly basis with RMS central in collaboration with RBC.

7. Challenges

During the reporting period, RMS transitioned from ELMIS to SAT (a new electronic Logistics Management System), which temporarily reduced visibility of stock at the central Medical Store and RMS branches, increasing the risk of both program-wide and localized stockouts at health facilities. Additionally, a shipment of 28,800 RDT boxes (30 tests each) was delayed by the supplier due to pending payments from another program, contributing to low RDT stock levels at the end of the year.

PART III: MALARIA SURVEILLANCE AND EPIDEMIOLOGY

Key Achievements

10 sectors experienced a notable decline in cases in 2024–2025. These reductions occurred specifically in sectors where focal Indoor Residual Spraying (IRS) was implemented, highlighting the effectiveness of targeted IRS interventions to lowering malaria transmission in high-burden communities. In the 17 sectors where the incidence was more than 250 per 1000 people in 2023-2024, the decrease of malaria incidence was observed in 14 sectors in 2024-2025.

Out of 30 districts, 23 districts have incidence below 100 per 1,000 and 334 out of 416 sectors (80%) with API below 100 per 1,000.

Key Challenges

Lack of more granular data (cell, village, and individual level) to inform targeted interventions. The inadequate use of data at the decentralized level for the timely response.

Insufficient funds to enable supervision from central to peripheral level.

Way Forward

Introduce Community Electronic Medical Record (C-EMR) to improve data use and targeted response.

Capacity building of district teams in data use for decision-making.

Objective 3: BY 2027, Strengthen Surveillance and Reporting for Complete and Timely Accurate Information for Appropriate Decision Making at All Levels

Strategy 1. Strengthen Malaria Routine Surveillance and Epidemic Preparedness and Response (EPR) at All Levels

1. Introduction

Malaria remains one of the world's most formidable health adversaries, disproportionately affecting African countries. In 2023, the disease claimed over half a million lives, the majority being African children under 5 years of age (WHO, Report 2024).

Between 2018–2019 and 2023–2024, Rwanda achieved a significant reduction of malaria cases from 317 per 1,000 persons to just 45 cases per 1,000. This represents a more than 85% decline, underscoring the country's commitment to public health and disease prevention.

This success is attributed to a combination of strategic interventions, including widespread distribution of insecticide-treated nets, expanded indoor residual spraying, community-based healthcare delivery, and targeted education campaigns.

However, malaria remains also a major public health challenge, with the entire population at risk.

In Rwanda, malaria surveillance system is integrated into the Health Management Information Systems (HMIS) where the program collects data on malaria epidemiology to provide information for planning, implementing, and monitoring and evaluating malaria control interventions.

The establishment of a robust malaria surveillance and reporting system through strengthening routine IDSR, HMIS and SISCO reporting systems, improving monitoring and evaluation of the program implementation and promoting the generation and use of evidence to inform malaria programming is essential for the success of this strategic plan.

In addition, population-based surveys and operational research such as surveillance of antimalarial drug efficacy and drug resistance, entomological surveillance and vector control monitoring, Malaria Indicator Surveys (MIS), Demographic Health Survey (DHS and other studies are conducted on regular basis to support evidence decision making to fight against

malaria. During the reporting period, the Malaria program, in collaboration with NISR and ICF International, conducted MIS 2023 Data Analysis and Report Writing with USAID funding.

INDICATORS KEY MIS23 Results	Baseline	Year of Baseline	2024-2025 Results
Goal : By 2027, reduce malaria morbidity and mortality by at least 90% of the 2019 levels			
Malaria prevalence (microscopic) among children (5-59 months)	7.20%	2017	1% MIS23
Malaria prevalence (microscopic) among children 5-14 years	11%	2017	1% MIS23
Malaria prevalence (microscopic) among children 15 YO and Older	6%	2017	<1% MIS23
Malaria prevalence (microscopic) All household members	7%	2017	1% MIS23
Malaria prevalence (microscopic) among pregnant women	5%	2017	0.70% MIS23

2. Key Malaria Program Indicators

Health facilities report malaria data on a weekly and monthly basis through IDSR and HMIS while community data are reported monthly through SISCOM system. Key malaria data includes malaria cases, malaria related deaths, malaria inpatients cases (severe malaria), number of testing and treatment.

The program produces trends on key malaria indicators on a monthly basis both at national and district level in order to detect any changes and respond to outbreaks in a timely manner.

Table 20, summarizes the key malaria indicators for FY 2024-2025 compared to previous reporting period:

Table 21: Key Malaria Program Indicators

Indicators	2022/2023	2023/2024	2024/2025
Malaria Incidence per 1,000 Persons per Year	47	45	76
Slide Positivity Rate (%)	14	14	21
Uncomplicated Malaria Cases	621,465	613,415	1,068,522
Inpatient Malaria cases	3,307	4,055	10,216
Severe Malaria Cases	1,316	1,969	4,338
Malaria Deaths	41	67	87
Case Fatality Rate (per 100,000 Malaria cases) *	6.4	10.9	7
Proportion of Malaria Cases Treated at the Community	59%	57%	50%

Key Malaria Program Indicators

- ✓ 41% Increase in Malaria Incidence from 2023/2024 to 2024/2025
- ✓ 43% Increase in Uncomplicated Malaria Cases from 2023/2024 to 2024/2025
- ✓ 55% Increase in Severe Malaria Cases from 2023/2024 to 2024/2025
- ✓ 9% Increase in Malaria Deaths from 2023/2024 to 2024/2025
- ✓ 60% Increase in inpatient malaria cases from 2023/2024 to 2024/2025
- ✓ Today, 50% of all malaria cases are being treated at Community Level by CHWs compared to 57% during the FY 2023/2024.
- ✓ 86, % reduction in Malaria Prevalence among children (5-59 months) from 2017 to 2023
- ✓ 91% reduction in Malaria Prevalence (microscopic) among children 5-14 years.
- ✓ 83% reduction in Malaria Prevalence (microscopic) among children 15 YO and Older.
- ✓ 86 reductions in Malaria Prevalence (microscopic) All household members.
- ✓ 86 reduction in Malaria Prevalence (microscopic) among pregnant women.

2.1 Malaria Incidence

Malaria incidence has been calculated using the average medium projected population of 2024 and 2025. Data shows that the national malaria incidence in Rwanda increased from 45 cases per 1,000 persons per year in FY 2023- 2024 to 76 cases per 1,000-person per year in FY 2024-2025 (41% increase).

Figure 27: Malaria Incidence per 1000 Persons Year, 2008-2025

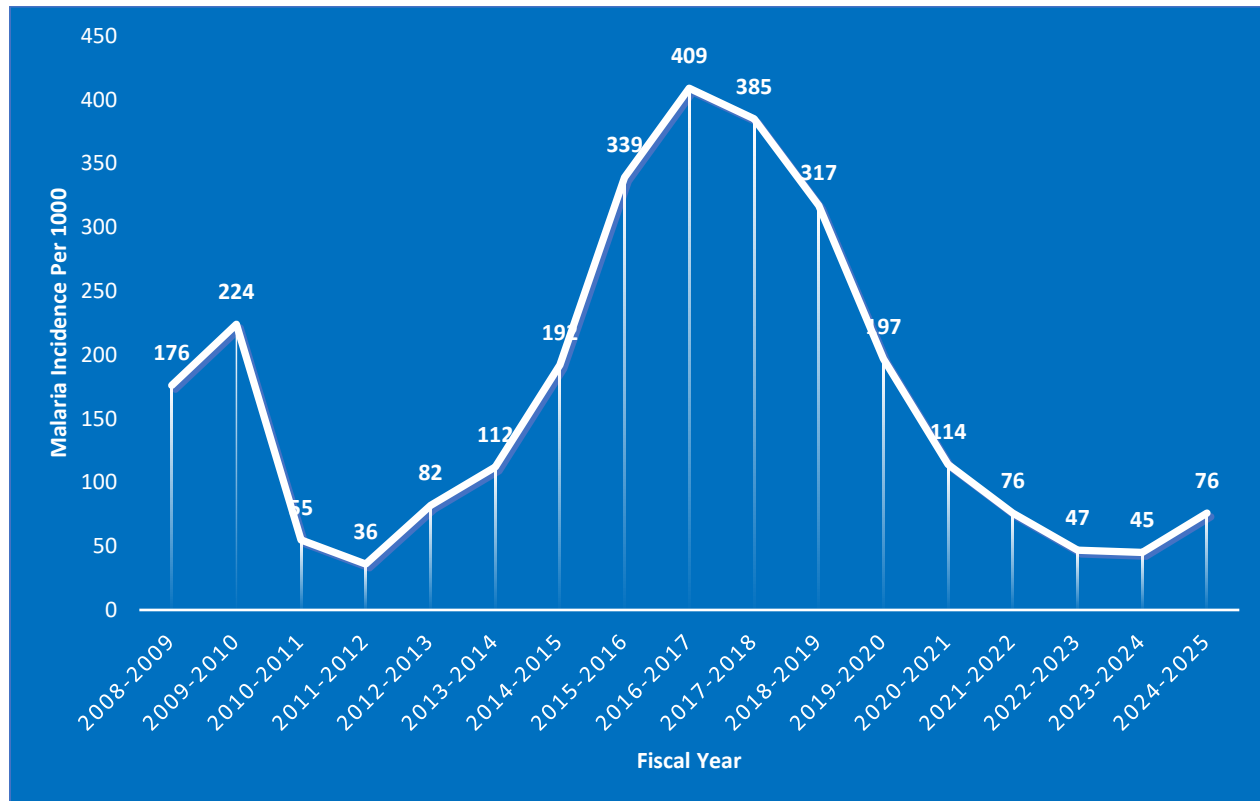
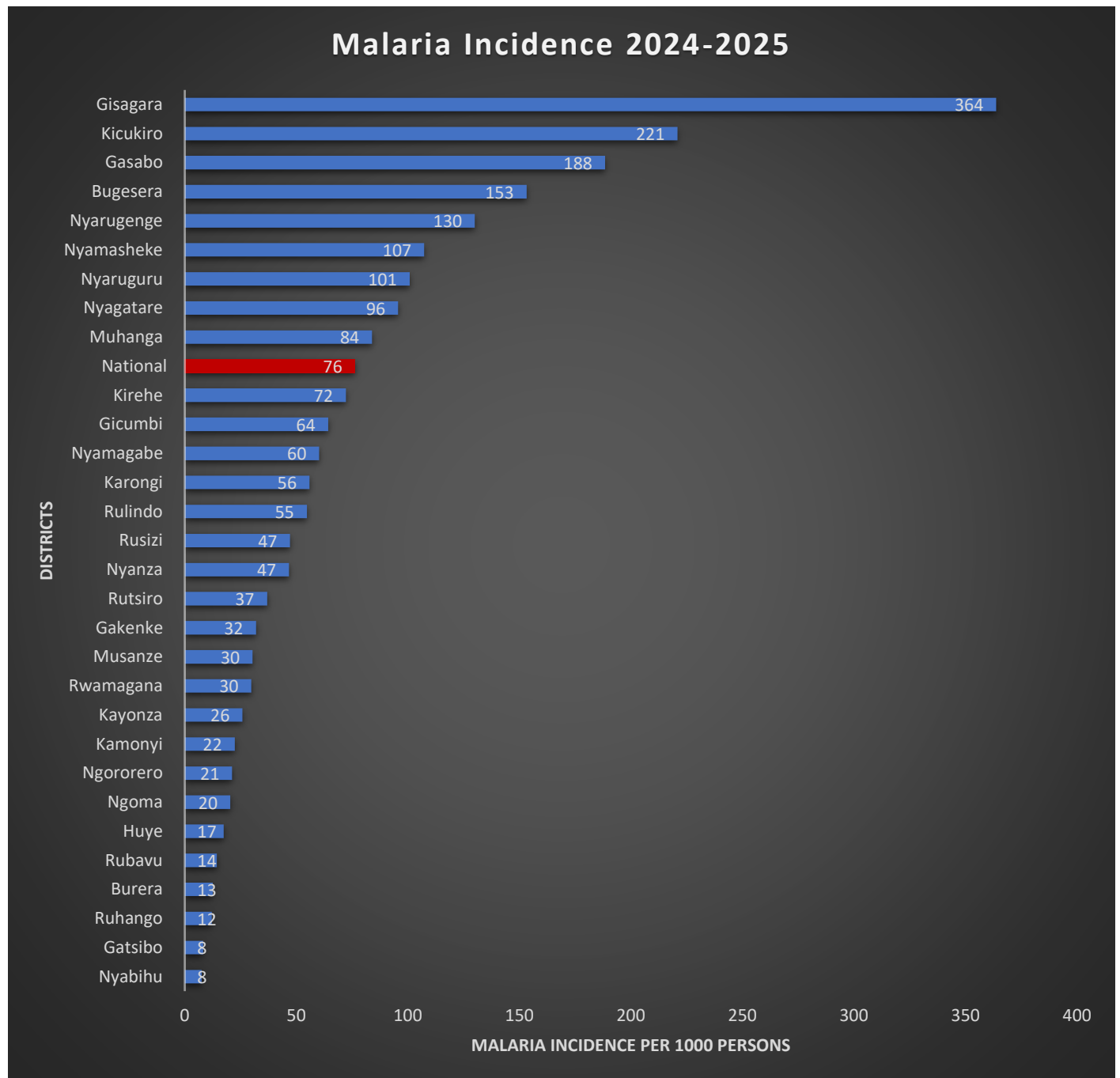


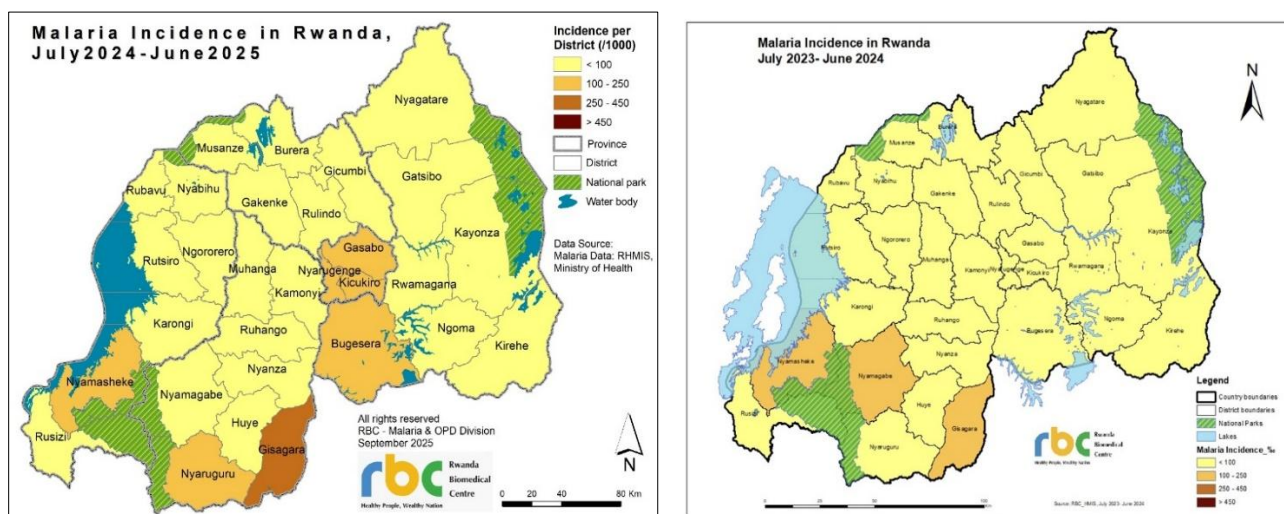
Figure 28: Malaria Incidence (per 1000) by District, FY2024-25



Nine districts have incidence above national average of 76 per 1000 persons. Out of 30 districts, 7 registered API above 100 per 1,000: Gisagara (364%), Kicukiro (221%), Gasabo (188%), Bugesera (153%), Nyarugenge (130%), Nyamasheke (107%) and Nyaruguru District (101%)

compared to three districts in FY 2023-2024: Nyamagabe (151%), Gisagara (143%) and Nyamasheke (106%).

Figure 29: Malaria Incidence (per 1000) by District



During this reporting period, the malaria incidence has generally increased at the national level from 45 per 1000 persons in 2023-2024 to 76 per 1000 persons in 2024-2025.

Malaria incidence increased by 1 to 20% in four Districts: Nyamasheke (2%), Burera (3%), Rulindo (6%), Rutsiro (19%) and increased between 20% and 100% in 11 districts: Gatsibo (22%), Nyagatare (32%), Ruhango (33%), Ngororero (35%), Muhanga (42%), Karongi (45%), Musanze (56%), Nyaruguru (60%), Nyabihu (65%), Rusizi (69%), Kamonyi (75%). Malaria Incidence increased by more than 100% in also 11 Districts: Huye (109%), Bugesera (110%), Kirehe (118%), Nyanza (130%), Kayonza (149%), Gisagara (153%), Gasabo (167%), Rwamagana (168%), Kicukiro (216%), Nyarugenge (332%) and Ngoma District (359%).

Malaria incidence reduced in 3 districts: Gakenke (14%), Gicumbi (32%) and Nyamagabe District (60%). Only the Rubavu District in which the malaria incidence remains stationary at 14 per 1000 persons.

There is a need to conduct a further investigation to understand the risk factors associated with malaria upsurge despite sustained blanket IRS and ITN distribution.

2.2 Malaria Incidence per Sector

During the FY 2024-2025, 5 sectors registered an incidence of more than 450 per 1,000: Mamba from Gisagara (API=585), Kamabuye from Bugesera (API=612), Nyarugenge from Nyarugenge (API=612), Gishubi from Gisagara (833), and Muganza from Gisagara (961). Table 22.

Table 22 : Change in Malaria Incidence in High to Moderate Incidence Sectors.

Districts	Sectors	Mal Incidence per 1000 FY 2023_2024	Mal Incidence per 1000 FY 2024_2025	Increase/ Decrease
Gicumbi	Giti	864	258	-70%
Nyamagabe	Cyanika	730	94	-87%
Gisagara	Mukindo	483	433	-10%
Gasabo	Gikomero	457	303	-34%
Gicumbi	Rwamiko	393	164	-58%
Gicumbi	Bukure	361	131	-64%
Rulindo	Ntarabana	356	276	-22%
Gasabo	Rutunga	355	164	-54%
Bugesera	Kamabuye	337	612	82%
Nyamagabe	Musange	316	284	-10%
Nyamagabe	Kibumbwe	287	103	-64%
Nyamasheke	Macuba	287	284	-1%
Nyamagabe	Kamegeri	279	67	-76%
Musanze	Nkotsi	274	388	42%
Gisagara	Nyanza	263	291	11%
Nyamagabe	Mbazi	263	126	-52%
Nyamasheke	Gihombo	251	163	-35%

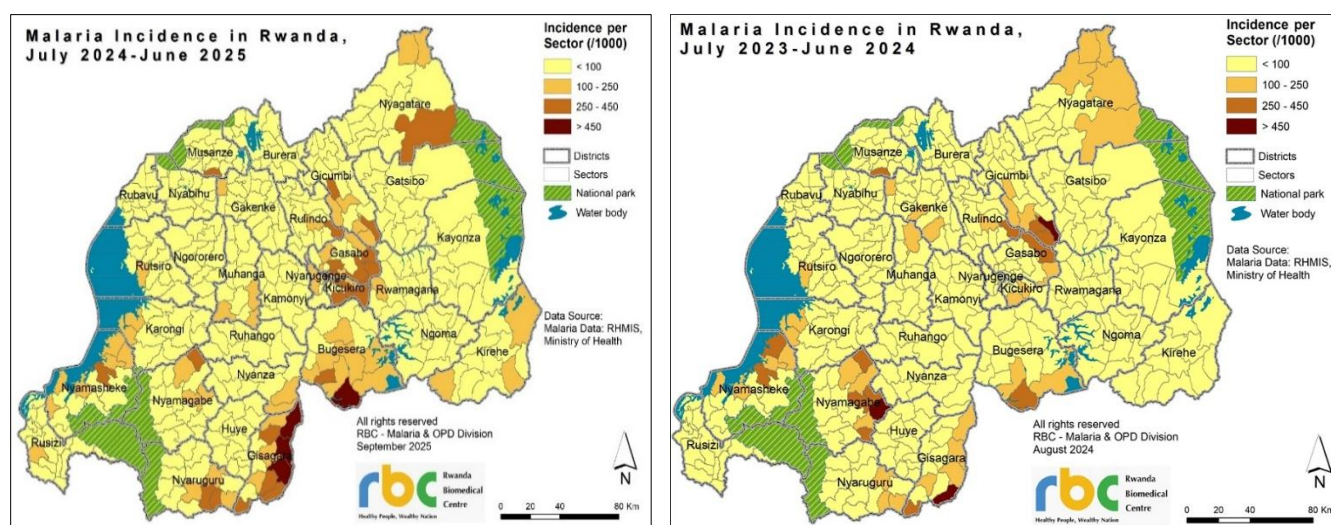
In seventeen sectors where the malaria incidence was above 250 per 1000 persons during FY 2023-2024, 14 of them experienced a reduction of malaria incidence and 3 others, the malaria incidence increased during FY 2024/2025.

Among these 17 sectors which had moderate and high incidence during the year 2023-2024, 10 sectors experienced a reduction of malaria incidence during the year 2024-2025 and these are the sectors in which IRS focal was carried out (Bukure, Giti, Rwamiko, Rutunga, Cyanika, Kamegeri, Kibumbwe, Mbazi and Musange Sector).

Table 23 : Distribution of Sectors per API Category per Type of Intervention

Mal incidence category (per 1000)/Year	FY2023-2024		FY2024-2025	
	IRS	No IRS	IRS	No IRS
>450	1	2	4	1
250-450	2	12	6	21
100-250	11	25	18	32
<100	125	238	125	209

Figure 30: Malaria Incidence (per 1000) by Sector



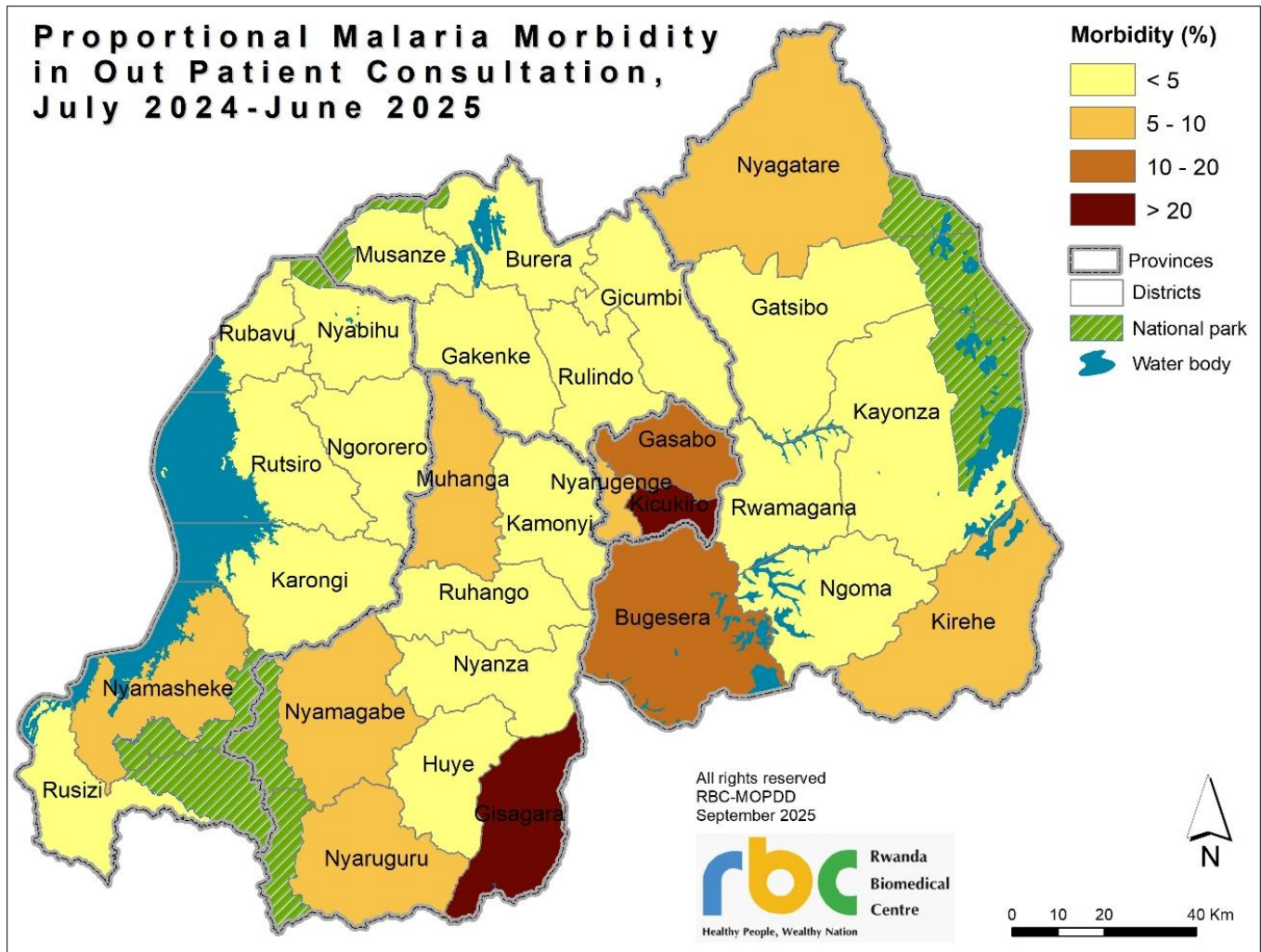
3. Malaria Morbidity

In FY 2024-2025, a total of 1,071,181 malaria cases were reported at both health facilities and community levels compared to 613,415 cases in FY 2023-2024(43% of malaria cases increase). Malaria outpatient department (OPD) cases constituted 6% of all new OPD consultations. Of the reported malaria cases, 50% were treated at the community level, 12% at health posts, and 5% at private health facilities.

The proportion of malaria morbidity differs among districts, ranging from 1% to 5% in Gatsibo, Nyabihu, Burera, Ruhango, Huye, Rubavu, Ngoma, Gakenke, Musanze, Kamonyi, Rwamagana, Ngororero, Kayanza, Rutsiro, Nyanza, Rusizi, Rulindo, Gicumbi and Karongi Districts and from 6% to 10% in Kirehe, Nyamagabe, Muhanga, Nyaruguru, Nyarugenge, Nyagatare and Nyamasheke Districts, while malaria proportion morbidity of more than 10% is in Bugera, Gasabo, Kicukiro and Gisagara Districts.

Figure 24 These patterns highlight the necessity of enhancing availability of diagnosis and treatment health commodities at the community level, health posts, and within both private and public health facilities.

Figure 31: Malaria Proportional Morbidity by District



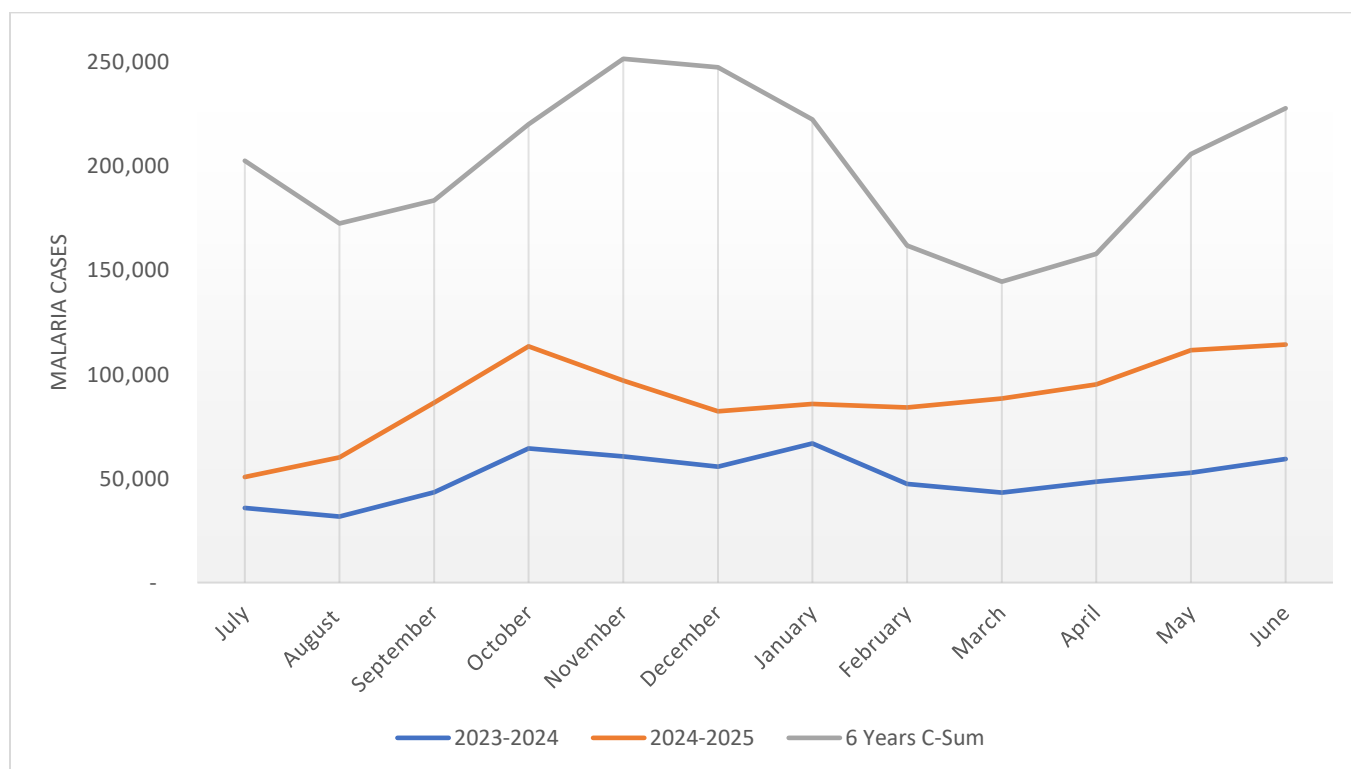
4. Malaria Test Positivity Rate

During the reporting period FY 2024-2025 the total 5,196,126 lab tests were performed. This includes 3,384,440 blood smears and 1,811,686 RDTs. The number of RDTs done by community health workers was 1,265,795 representing 70% of all malaria RDT tests performed. The overall slide positivity rate was 21%, for last fiscal year 2024-2025. The positivity rate was 12% for Blood Smears and 30% for RDT. At community level, the test positivity rate was 43%. The Annual blood examination rates (ABERs) was 37% compared to 32% during the last FY 2023-2024.

5. Trends in Uncomplicated Malaria Cases

From July 2024 to June 2025 a total of 1,070,555 outpatients were reported compared to 613,415 during the FY 2023-2024, representing an increase of 43%. Malaria cases treated at the community level represent 50% of all cases. The private health facilities account for 56,605 (5%) and health posts accounted for 128,415 (12%). Children under five years accounted for 138,387 malaria cases (13%) and pregnant women 5,616(1%). The estimated malaria incidence among pregnant women attending antenatal care is 2%.

Figure 32: Trends in Malaria Cases, FY 2023-2024, 2024-2025 and Previous 6 Years Cumulative Monthly Average cases for the last 6 years using the C-sum method



Note: The 6 years' average was calculated using the C-Sum method

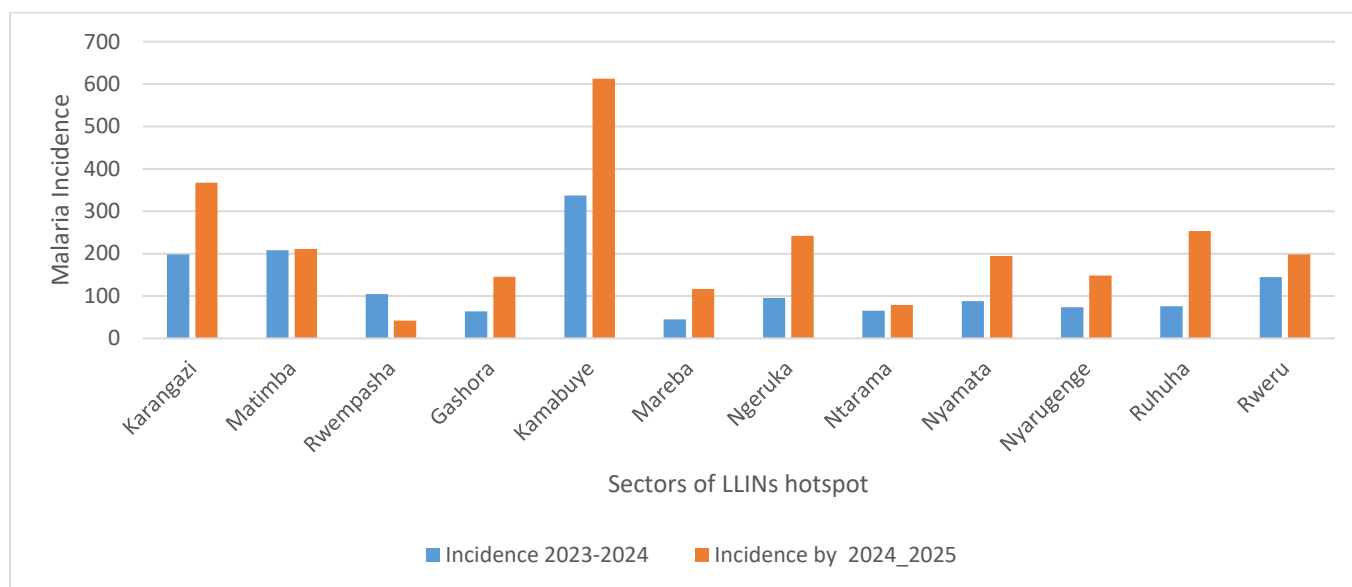
Table 24: Malaria cases in the Sectors where IRS focal was carried out

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Districts	Sectors	Malaria Cases 2023_2024	Incidence 2023- 2024	Malaria Cases 2024- 2025	Malaria Incidence 2024_2025	Cases 2023/2024 VS 2024/2025	Incidence 2024-2025
Gicumbi	Bukure	7635	361	2828	131	-170%	-176%
Gicumbi	Giti	15576	864	4768	258	-227%	-234%
Gicumbi	Mutete	6364	224	4634	159	-37%	-40%
Gicumbi	Rwamiko	6033	393	2579	164	-134%	-139%
Gasabo	Gikomero	9289	457	6295	303	-48%	-51%
Gasabo	Rutunga	8260	355	3909	164	-111%	-116%
Nyaruguru	Ngera	1405	56	2113	82	34%	32%
Nyaruguru	Ngoma	4506	179	4930	191	9%	6%
Nyaruguru	Nyagisozi	4246	209	6150	295	31%	29%
Nyamagabe	Cyanika	19420	730	2551	94	-661%	-679%
Nyamagabe	Gasaka	8331	194	1921	44	-334%	-344%
Nyamagabe	Kamegeri	4161	279	1019	67	-308%	-318%
Nyamagabe	Kibumbwe	4093	287	1495	103	-174%	-180%
Nyamagabe	Mbazi	3403	263	1666	126	-104%	-109%
Nyamagabe	Musange	6651	316	6112	284	-9%	-11%
Rusizi	Bugarama	2353	53	3329	73	29%	28%
Rusizi	Gihundwe	404	9	993	23	59%	58%
Rusizi	Gikundamvura	1016	45	1852	80	45%	44%
Rusizi	Gitambi	124	5	347	13	64%	63%
Rusizi	Kamembe	525	15	1002	27	48%	46%
Rusizi	Muganza	1486	44	1585	46	6%	4%
Rusizi	Nkanka	387	19	843	40	54%	53%
Rusizi	Nyakabuye	95	3	299	9	68%	67%
Rusizi	Nzahaha	748	24	1791	56	58%	57%
Total		11,6511		65,011		44% Reduction	

Note: - A reduction of malaria cases in the sectors where the Focal IRS was carried out, from 116,511 malaria cases in 2023-2024 to 65,011 malaria cases in 2024-2025, a reduction of 44%. Out of 25 sectors where the Focal IRS was carried out, a reduction was observed in 12 Sectors. New Sectors respond better to Focal IRS; therefore, Reactive IRS can work in the context of Resource Constraints

Figure 33: Malaria cases in the Sectors of LLINs Hotspot



Malaria cases have increased in LLIN hotspot sectors despite the distribution of LLINs in these sectors.

Strategy 4. Strengthen Severe Malaria Notification and Malaria Death Audits

1. Severe Malaria Cases

Over the reporting period, 4,338 cases of severe malaria were reported by hospitals level compared to 1,969 reported in the FY 2023-2024, representing a 120% increase of severe malaria cases. The number of inpatients malaria cases also increased from 4055 cases in FY 2023-2024 to 10,216 cases during the FY 2024-2025. The drug resistance, decrease in HBM and other factors may contribute to the increase of severe malaria cases. The cases of severe malaria referred to the Hospital by the health centers were 1,170 in 2023-2024 while in 2024-2-25; the cases of severe malaria referred to high level are 2,659 and are in the table below:

There is a variation of severe malaria cases by sectors within a district as per the map (Figure 34)

Figure 34: Distribution of Severe Malaria Cases Referred to Hospitals per Sectors

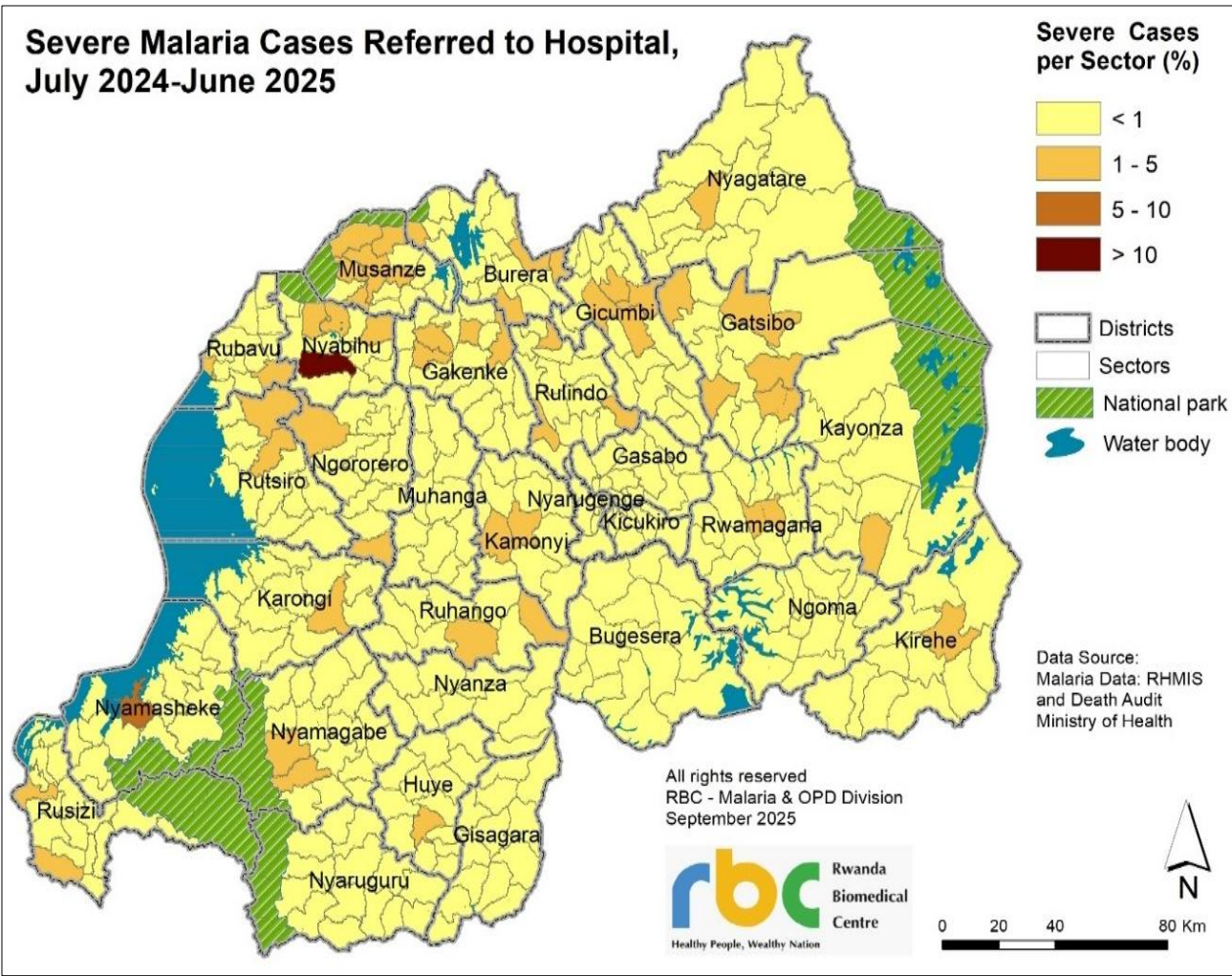


Table 25: Number of Severe Malaria Cases Referred to Hospitals per District

Districts	# Severe Malaria	% to Total	Districts	# Severe Malaria	% to Total
Bugesera	95	4%	Ngororero	16	1%
Burera	33	1%	Nyabihu	33	1%
Gakenke	42	2%	Nyagatare	39	1%
Gasabo	351	13%	Nyamagabe	24	1%
Gatsibo	35	1%	Nyamasheke	388	15%
Gicumbi	94	4%	Nyanza	59	2%
Gisagara	374	14%	Nyarugenge	157	6%
Huye	18	1%	Nyaruguru	59	2%
Kamonyi	37	1%	Rubavu	43	2%
Karongi	47	2%	Ruhango	18	1%
Kayonza	21	1%	Rulindo	113	4%
Kicukiro	148	6%	Rusizi	138	5%
Kirehe	58	2%	Rutsiro	25	1%
Muhanga	65	2%	Rwamagana	32	1%
Musanze	82	3%	Total Severe Malaria Cases	2659	100%
Ngoma	15	1%			

The majority of severe cases are from Nyamasheke, Gisagara, Gasabo, Nyarugenge, Kicukiro, Rusizi, Rulindo, Bugesera, and Gicumbi Districts.

Table 26 : Sectors with 10 or More Severe Malaria Cases Referred to Hospitals (2024-2025)

Districts	Sectors	# Severe Malaria	% to total	Districts	Sectors	# Severe Malaria	% to total
Nyamasheke	Kagano	329	12%	Nyanza	Ntyazo	19	1%
Gasabo	Kinyinya	135	5%	Nyabihu	Rambura	18	1%
Gisagara	Gishubi	122	5%	Gasabo	Bumbogo	17	1%
Gasabo	Ndera	121	5%	Kicukiro	Niboye	16	1%
Gisagara	Muganza	84	3%	Gatsibo	Kabarore	15	1%
Rulindo	Ntarabana	77	3%	Kamonyi	Runda	15	1%
Kicukiro	Masaka	55	2%	Muhanga	Nyamabuye	15	1%
Nyarugenge	Muhima	55	2%	Rubavu	Gisenyi	15	1%
Nyarugenge	Kigali	46	2%	Gasabo	Jabana	14	1%
Gisagara	Mukindo	39	1%	Gicumbi	Byumba	14	1%
Musanze	Muhoza	37	1%	Kicukiro	Gikondo	14	1%
Kicukiro	Kanombe	36	1%	Kirehe	Nyamugari	14	1%
Gasabo	Rusororo	34	1%	Rusizi	Bugarama	14	1%
Nyarugenge	Nyarugenge	31	1%	Kicukiro	Nyarugunga	13	0%

Districts	Sectors	# Severe Malaria	% to total	Districts	Sectors	# Severe Malaria	% to total
Nyaruguru	Cyahinda	31	1%	Kirehe	Nyarubuye	13	0%
Rusizi	Mururu	31	1%	Muhanga	Shyogwe	13	0%
Gisagara	Mugombwa	30	1%	Karongi	Rubengera	12	0%
Bugesera	Ruhuha	27	1%	Gakenke	Gashenyi	11	0%
Rusizi	Nzahaha	25	1%	Rusizi	Rwimbogo	11	0%
Gisagara	Ndora	24	1%	Bugesera	Mareba	10	0%
Nyamasheke	Macuba	24	1%	Burera	Gahunga	10	0%
Bugesera	Nyamata	23	1%	Gasabo	Kacyiru	10	0%
Gicumbi	Rukomo	23	1%	Gisagara	Save	10	0%
Gisagara	Mamba	23	1%	Karongi	Gashari	10	0%
Gisagara	Kansi	22	1%	Kayonza	Mwiri	10	0%
Nyagatare	Karangazi	22	1%	Muhanga	Muhanga	10	0%
Nyanza	Kibilizi	21	1%	Muhanga	Nyarusange	10	0%
Nyarugenge	Kimisagara	20	1%	Nyamasheke	Kanjongo	10	0%
Gicumbi	Kageyo	19	1%	Rusizi	Muganza	10	0%
Sub Total		1949	73%	Rusizi	Nyakarenzo	10	0%
Total Severe Cases		2659	100%				

2. Malaria Mortality and Deaths Audit

During the FY 2024-2025, 87 deaths due to malaria were recorded compared to 67 deaths in the FY 2023-2024 (23% increase).

Figure 35: Malaria Related Deaths per Aged Group from 2019-2025

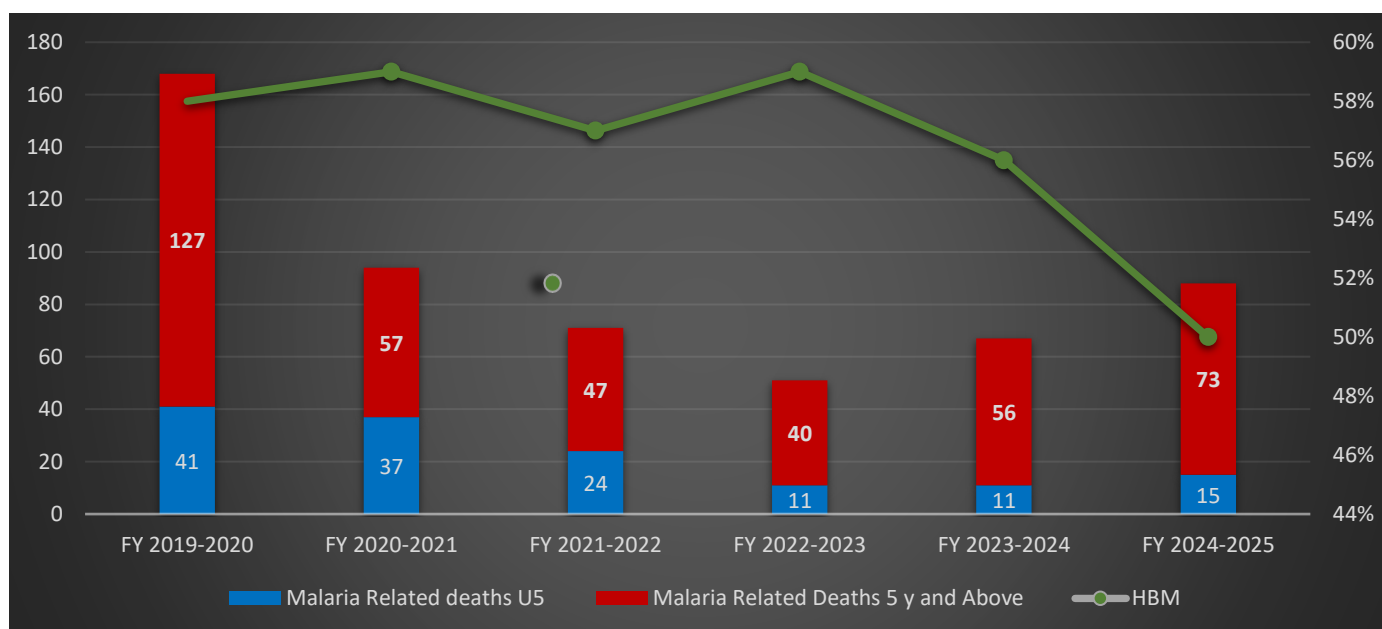
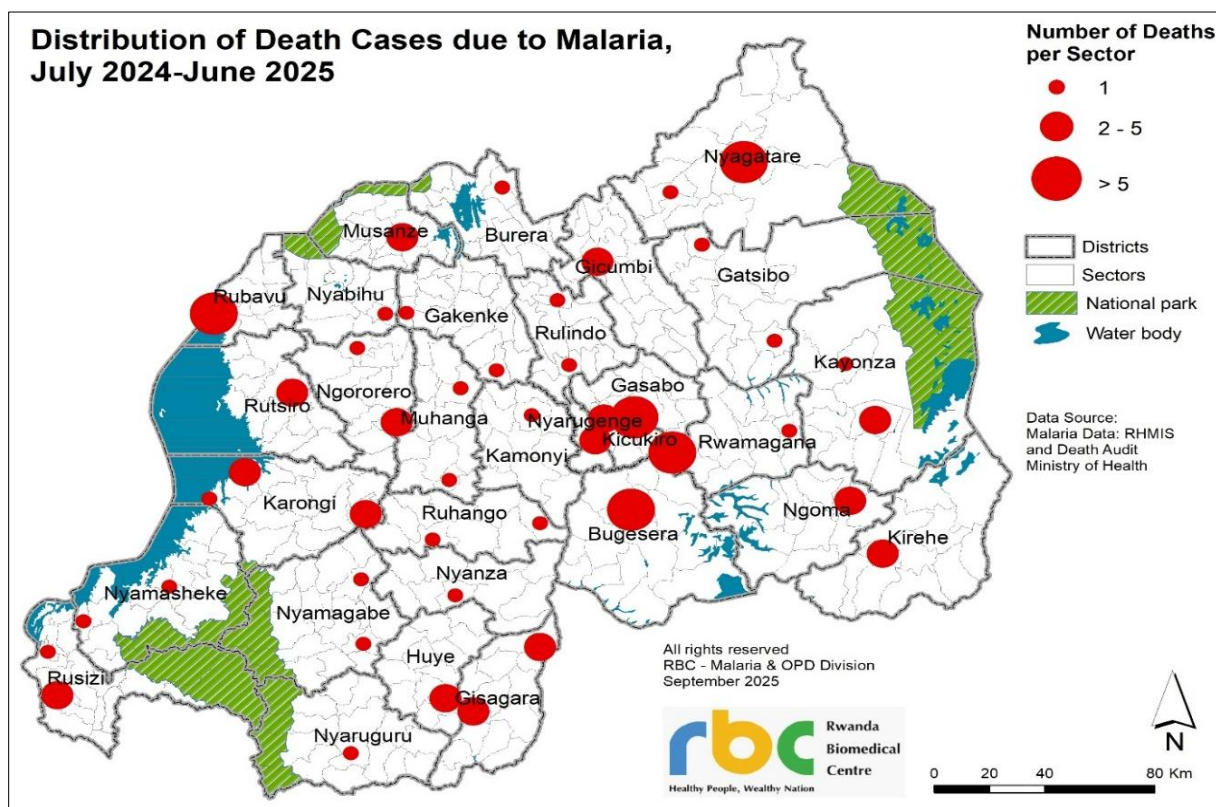


Figure 36: Distribution of Deaths Due to Malaria per Sector



a. Malaria Death Audit

During the FY 2024-2025, 87 malaria deaths were reported into HMIS and 232 malaria deaths reported into CRVS. The program conducted malaria deaths audits and 87 were confirmed as deaths due to malaria. The increase in malaria deaths may be linked to the increase in severe malaria and inpatients deaths. Other factors must be explored to deeper understanding the increase in severe malaria and malaria deaths.

Table 27: Malaria Deaths in Hospitals(2024-2025)

Hospital Name	Malaria Deaths 2024-2025	Hospital Name	Malaria Deaths 2024-2025
Byumba L2TH	7	Kibungo L2TH	2
Kibagabaga L2TH	7	Kirehe DH	2
Nyagatare DH	7	Muhororo DH	2
Nyamata L2TH	6	Munini DH	1
Gisenyi DH	5	Butaro L2TH	1
Kibilizi DH	5	Gahini DH	1
Masaka DH	5	Kabgayi L2TH	1
Butare Chu Hnr (Huye)	4	Kaduha DH	1
Kibuye RH	4	Kirinda DH	1
Ruhengeri L2TH	4	Kiziguro DH	1
CHK(CHUK) HNR	3	Ngarama DH	1
Mibilizi DH	3	Nyanza DH	1
Rutongo DH	3	Nyarugenge DH	1
Rwinkwavu DH	3	Shyira DH	1
Gakoma DH	2	Total Malaria deaths	87
Kabutare DH	2		

STRATEGY 5. IMPROVE REPORTING FROM THE PRIVATE SECTOR AND SUSTAIN PUBLIC SECTOR REPORTING

5.1. Data Quality Assessment

5.1.1. Data Quality Assurance

To ensure the quality of Malaria indicators reported in HMIS by health facility and community, every sixth day of the month, MOPPD generate and analyze the data for the data quality verification. The analysis report is shared with to all concerned health facilities to correct the data before closing HMIS and SISCom systems. The second extraction and analysis of this data is carried out and shared with HFs between the 11th and 14th day of the same month to check if the corrections were made.

In addition, Malaria Program in collaboration with the Hospitals organized data quality review meetings to improve data quality and the malaria data use to improve service delivery and malaria surveillance. Participants of those meetings are mainly Director General of the Hospital or his/her delegate, M&E team at the Hospital, Head of health centers, the data managers, C-EHOs and nurse in charge of OPD services at health center level and triangulation of malaria indicators analysis were the focus of the meeting.

During this year, the reporting rate was 91% at hospitals, 99% at health centers, 51% at health posts and 38% at private health facilities.

The on-time reporting was 85 % at health centers, 91% at hospitals.

The root causes of discrepancies were related to the counting errors, incompleteness of data source documents, misunderstanding of some malaria indicators, and irregularity in conducting data validation meetings.

5.1.2. Data Quality Assessment/Audit at Health Center and at Community Levels

Data quality assessment is carried out with the objective of improving the quality of reported data used for decision-making. The program identifies data quality issues at the health facility and community level and proposes solutions together with the health facility. During this fiscal year 2024-2025, this activity was performed in collaboration with the team of the Hospital where Malaria increased considerably. This activity was implemented at health facilities and at Community levels.

At Health Center level, we compared Malaria data reported into HMIS and those counted in OPD Registers. At Community level, we first compared the village report and data counted in their registers and then we compared all village reports and the cell reports in selected period.

The following table shows results of Data Quality Assessment conducted in July 2025 and the assessed period started from March to May 2024.

Table 28: Data Quality Assessment/Audit at Health Center and at Community Levels

Districts	Health Facility	Reported	Recounted	Difference	% of Discrepancies
Rusizi	Nkombo	943	537	406	43%
Nyamasheke	Nyamsheke	1444	1443	1	0%
Nyamasheke	Kibingo	374	362	112	30%
Nyamasheke	Hanika	481	482	1	0%
Nyamasheke	Gabiro	582	582	0	0%
Nyagatare	Ndama	1051	1063	16	2%
Nyagatare	Matimba	721	721	0	0%
Kayonza	Kageyo	584	577	6	1%
Kayonza	Buhabwa	177	184	13	7%
Kirehe	Rwatonde	39	39	0	0%
Kirehe	Nasho	70	70	0	0%
Kirehe	Gashongore	36	36	0	0%
Kirehe	Bukoba	129	129	0	0%

As shown in the table above, the discrepancies between confirmed and counted malaria cases in the data source documents, compared to those in the HMIS, the worrying and questionable discrepancies have been observed in the Nkombo, Kibingo and Buhabwa health centers, respectively in Rusizi, Nyamasheke and Kayonza Districts.

Comparison between reported Malaria Cases (HMIS/SISCOM) and Counted Malaria Cases in data sources documents.

Malaria cases were counted in different data sources documents and after each identified case is aligned with its own village. Counted data are those for Health Centers, Health Posts located in each Sector part of this investigation.

There was a big discrepancy between reported malaria data and counted data at Health Center level in Kanombe and Masaka Sectors.

Concerning Community malaria data, a significant discrepancy was observed in Kanombe (-34.9%) and Niboye & Kagarama Sectors.

Considering the issues observed during this DQA activity conducted in the above mentioned Districts (Rusizi, Nyamasheke, Kayanza, Kirehe and Kicukiro), some proposed recommendations have been taken whom conduct regular data validation meeting before data entry in the HMIS/SISCOM. This is done after check and cross check in different documents sources of data; CEHO of HCs should participate in the compilation of monthly Villages reports of CHWs at Cell level and they must avoid any stock out at community level.

Districts with some big discrepancies between malaria data were advised to extend this kind of DQA in the remaining Health Facilities. For those with a considerable increase of malaria cases, they are requested to conduct Malaria Case Investigation to determine/evaluate the related risk factors.

5.1.3. Malaria Case Investigation in Hotspot Sectors.

Malaria Case Investigation is a systematic process of collecting, verifying, and analyzing information about an individual confirmed malaria case to determine when, where, and how the infection was acquired. It involves tracing the origin of infection, identifying potential sources of transmission, assessing the risk of further spread, and guiding appropriate public health responses such as treatment, prevention, and targeted interventions. During this fiscal year 2024-2025, this activity took place in different districts where Malaria cases increase considerably and these contributed more to the Malaria increase countrywide.

The Malaria program organized this activity in the targeted districts with objectives of recounting those malaria cases into lab registers; identifying sectors, cells, and villages where with a big number of malaria cases; checking the availability of malaria drugs and commodities at RMS branches, health facilities and at community levels as well as identifying risk factors (environment, use of ITNs....) to take appropriate corrective measures.

Malaria Cases Investigations are summarized in the following table:

N°	Districts	Investigated Sectors	Contributing Factors
1	Nyanza	Kibirizi and Nyagasozi	Shortage in Malaria drugs at RMS level and at community level and the delay of IRS activities in Nyanza district in general
2	Gisagara	Mamba, Gishubi and Muganza	Stock out of AL 6x1 and AL 6x2 at RMS Branch and a frequency stock out of Anti Malaria drugs and commodities in different HCs and at community level
3	Nyagatare	Matimba, Karangazi, Musheru and Rwimiyaga	High diversity of mosquito breeding sites within villages or inside the compound of human dwellings; Delay in distribution of ITNs; Cattle keepers (they are many) not protected by any available intervention and IRS Delayed
4	Kicukiro	Masaka, Gahanga, Kanombe, Kagarama and Niboye	A stock out of AL6X1 and a small quantity of AL6X4 at RMS Kigali Region; Insufficient of Malaria drugs and commodities at visited Health Facilities especially in Health Posts as well as a pronounced shortage out of Malaria drugs and commodities at community level. Housing are surrounded by bushes, crops and others trees; Poor housing; Misuse of LLINS; Slums areas and Stagnant water and Poor hygiene and sanitation and Collected water for construction especially in Gahanga Sector considered as the new site for construction

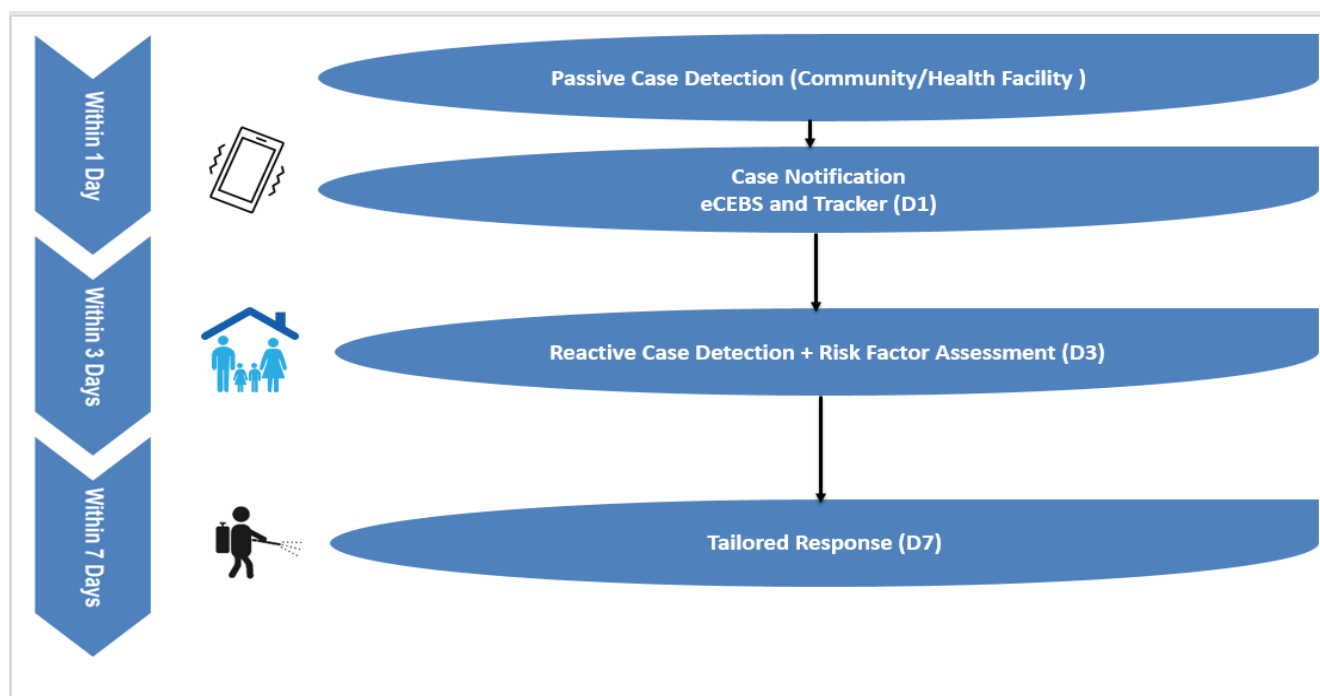
To address these challenges/issues, some recommendations have been taken: Urgently avail malaria drugs and commodities at all levels and provide sufficient quantities in most affected Villages and proceed with an active malaria testing and treatment at village level; Continue IRS in Gisagara District once a year and twice a year in targeted Villages; improving the supply chain to avoid stock out of malaria drugs and commodities from RMS to Community levels. Districts and CSOs have been requested to organize the community works (Umuganda) in the mostly affected Villages to clean the identified breeding sites as well as increase sensitization for Social Behavior Change. They must prioritize high-risk villages, enhance surveillance and outbreak detection, and regularly monitor the implementation of recommended interventions to reduce malaria transmission and prevent future outbreaks.

5.2. Malaria Reactive Case Detection

Malaria Reactive Case Detection is a targeted malaria surveillance strategy used to identify and respond to additional malaria cases following the detection of an initial (index) case in a given community. Normally, this strategy is commonly applied in low-transmission or elimination settings, where finding and treating every case is essential to interrupting transmission.

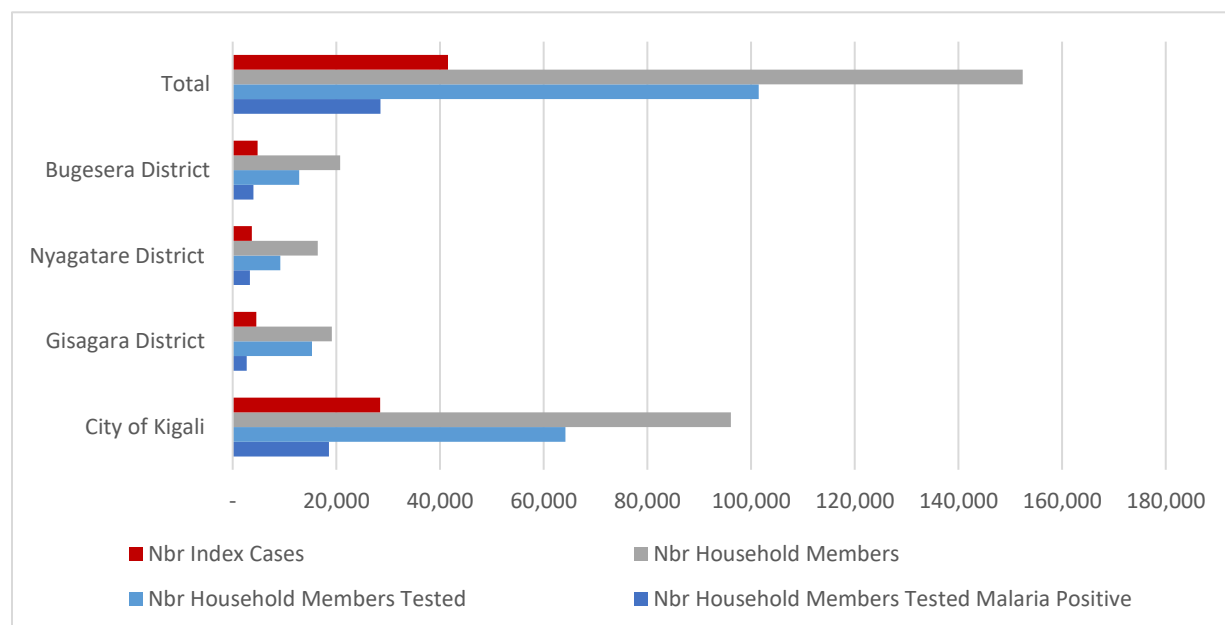
Concerning our Case, Malaria Reactive case detection started in top 15 Sectors of Kigali City where Malaria was a burden and after it was applied in some Sectors of Gisagara, Nyagatare and Bugesera Districts.

Malaria Reactive Case Detection begins when a confirmed malaria case, identified at a health facility or in the community, is flagged as an index case. A field investigation team then visits the household of this case and all household members of the index case are screened for malaria, typically using Rapid Diagnostic Tests (RDTs), and any individuals who test positive receive treatment in line with national malaria guidelines. After this, it is the time to evaluate the risk factors surrounding the household visited. Alongside testing and treatment, Malaria Reactive Case Detection also emphasizes prevention by raising community awareness, distributing long-lasting insecticidal nets (LLINs), and mobilizing collective efforts such as community work (*Umuganda*) to reduce transmission risks where they are identified.



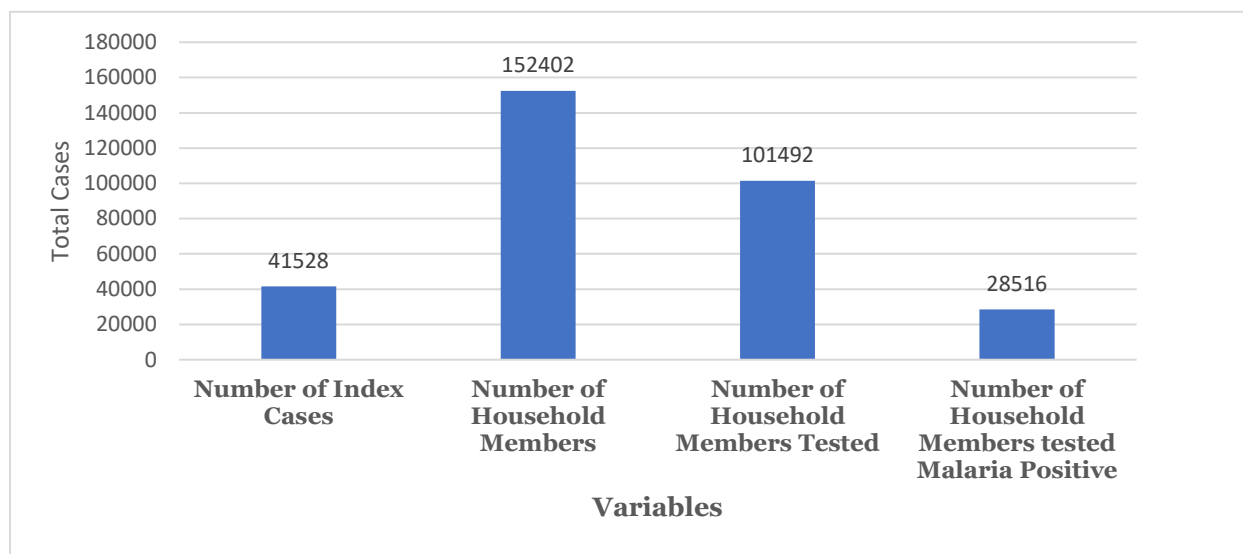
The following table indicate the summary of Malaria Reactive Case Detection conducted in the above mentioned Districts from April to June 2025.

Figure 37: Outcomes of Reactive Case Detection (RACD) in Targeted Districts (April - June 2025)



The positivity rate among household members tested was 29% in CoK, 18% in Gisagara, 36% in Nyagatare, and 31% in Bugesera District.

Figure 38: Malaria Reactive Cases Detection in all Areas of Intervention.



Between 17 April and 30 June 2025, a total of 41,528 index malaria cases were investigated across Kigali City and other three districts. These cases led to the listing of 152,402 household members, of whom 67% (101,492) were tested for malaria.

- Kigali reported the largest malaria burden, with 28,464 index cases and the highest household morbidity (30%).
- Nyagatare and Bugesera, though with fewer index cases, had the highest positivity rates among tested household members (36% and 31% respectively), indicating intense household-level transmission.
- Gisagara achieved the best testing coverage (80%) and had the lowest positivity rate (18%), suggesting stronger RACD performance and lower transmission.
- The overall positivity rate was 28%, showing that RACD effectively uncovers hidden infections and remains crucial for malaria surveillance.

This activity has been organized and implemented by RBC in collaboration with all Local Leaders from District to the Village level, RMS, CSOs and Partners for Malaria Program. The purpose of this strategy was to identify asymptomatic or undiagnosed infections, to prevent onward transmission (it interrupts transmission chain), to contain potential outbreaks quickly and to

gather data on malaria transmission hotspots. RACD is a cornerstone of malaria elimination efforts as it helps to actively detect and respond to cases before they can spread further.

During the implementation of this activity, various Strengths have been observed:

Early Malaria detection and treatment contribute to significantly reduce the risk of malaria transmission by intercepting infections before they spread; The acceptability of this activity is highly appreciated by local leaders and communities; Commitment of CHWs reactive detection and treatment is unimaginable. CHWs discovered the risk factors of malaria infection at HH visited

Also some Challenges such as CHWs faced difficulties, including defining and locating index cases and reaching people at home due to incomplete address given by HCs; CHWs' workload limited the index coverage and Some index cases HH members are not at home during HH testing. That led to inefficacy of this activity purpose.

Faced to these challenges, some recommendations or action have taken:

Communities, Local leaders, Health care providers requested to own this activity and collaborate jointly to mitigate the risk factors identified at HH visited and RBC in partnership with Partners Rwanda is recommended to scale up this activity in others sectors hot spots.

A. Incidence Change in Sectors Which were done Malaria Reactive Cases Detection.

Districts	Sectors	Mal Incidence per 1000 FY 2023_2024	Mal Incidence per 1000 FY 2024_2025	Increase/ Decrease
Bugesera	Kamabuye	337	612	45%
Bugesera	Nyamata	88	195	55%
Gasabo	Bumbogo	59	94	37%
Gasabo	Jabana	42	144	71%
Gasabo	Kacyiru	97	417	77%
Gasabo	Kinyinya	61	334	82%
Gasabo	Ndera	56	253	78%
Gasabo	Remera	70	404	83%
Gasabo	Rusororo	119	263	55%
Kicukiro	Gahanga	169	280	40%
Kicukiro	Kanombe	117	341	66%
Kicukiro	Masaka	32	306	89%

Districts	Sectors	Mal Incidence per 1000 FY 2023_2024	Mal Incidence per 1000 FY 2024_2025	Increase/ Decrease
Kicukiro	Niboye	69	374	81%
Kicukiro	Nyarugunga	72	201	64%
Nyarugenge	Kigali	32	126	75%
Nyarugenge	Muhima	94	449	79%
Nyarugenge	Nyarugenge	94	622	85%
Gisagara	Gishubi	239	833	71%
Gisagara	Mamba	220	585	62%
Gisagara	Muganza	195	961	80%
Gisagara	Mugombwa	71	308	77%
Gisagara	Mukindo	483	433	-11%
Gisagara	Nyanza	263	291	10%
Nyagatare	Karangazi	198	367	46%
Nyagatare	Matimba	208	211	2%
Bugesera	Kamabuye	337	612	45%
Bugesera	Nyamata	88	195	55%

Out of 25 sectors in which Malaria Reactive Case Detection was carried out, the malaria incidence increased in 24 sectors of them and in one sector, it was observed the malaria incidence reduction from 483 per 1000 people to 433 per 1000 people, hence a reduction in the said sector of 11%.

5.3. Training on electronic Community-Based Surveillance System (eCEBS)

To sustain progress in reducing malaria, Rwanda must strengthen its surveillance system by ensuring timely, comprehensive, and village-level reporting. While health centers currently submit weekly malaria data through the Integrated Disease Surveillance and Response (IDSR) system, this excludes many cases managed at community level. To address this gap, the Ministry of Health, through the Rwanda Biomedical Center (RBC), directed all facilities to report malaria cases aggregated by village and to ensure Community Health Workers (CHWs) immediately report cases and stock status using the electronic community-based surveillance system (eCEBS).

Therefore, there was a need for weekly reporting system to be inclusive for malaria cases treated at community level but also a need for aggregated data at the lowest administrative unit (village)

for identification of the focus of transmission in order to target the response. The system will also be used to monitor the stock status at community level and therefore reduce stock-outs.

For the better implementation of this activity, the Malaria Program organized an orientation meeting with Central Malaria program staff, Partners and Civil Society Organization working with malaria program. At district hospitals, in charge of planning and M&E, Data Managers and Community health workers Supervisors and malaria Supervisors have been trained at and at health center level, the Head of Health Centers, the CEHO and the Data Managers participated into these trainings to be able to conduct them to their community health workers (Binomes) in the Health Center catchment area.

After the training session, the next important step the registration of all Users of the eCEBS into the System from the Central level to the community levels whereas the Central level collected and compiled all lists of Users from the Health Centers, Hospitals and Districts levels to submit to the high level enabling to have access to the System as well on the reporting System from Community Health Workers to the Health Facility levels. All Community Health Workers have been trained on how to notify Malaria Case treated, Stock out and Risk of Stock out.

Malaria positive case detected is notified by CHWs using their phones on daily basis and Malaria Cases treated at Health Facility levels are reported in the system of eCEBS on daily basis also with objective of knowing the most affected villages to facilitate quick interventions.

5.4. Cascade Training of Community Health Workers (CHWs) On Malaria Community-Led Surveillance and Response (CRACDT)

Malaria remains a significant public health concern in Rwanda, despite a reduction in cases from 4.8 million in 2017 to 613,000 in 2023/24. To achieve malaria elimination by 2030, Rwanda has adopted the Community-Led Reactive Case Detection and Treatment (cRACDT) strategy, supported by digital innovations like cEMR. This strategy aims to enhance elimination efforts by tailoring interventions based on identified risk factors. The Rwanda NGOs Forum on HIV/AIDS and Health Promotion (RNGOF), in collaboration with the Rwanda Biomedical Center (RBC) and the Ministry of Health (MOH), conducted a 10-day cascade training for CHWs in Kirehe, Musanze, Rwamagana and Burera Districts to support the implementation of

cRACDT. The training aimed to build CHWs' capacity for early malaria case detection, effective response to positive cases, and the use of digital tools for accurate and timely reporting.

The observed achievements of this activity are: Improved the capacity of CHWs in the case management through implementation of the cRACDT strategy and cEMR system; Enhanced digital literacy and system use, enabling real-time data entry, household registration, and case reporting; Improved stock management skills, ensuring timely restocking and avoiding treatment interruptions and Increased community engagement competencies, ensuring community awareness, and improving coverage of malaria surveillance and screening activities.

The proportion of people reached by districts:

N°	District	Training Sites/HCs	Targeted CHWs	Attended HCs	Attendance Rate
1	Kirehe	Kirehe, Gahara, Gashongora, Kigina, Kigarama, Nyarubuye and Nyabitare	1044	1042	99.8%
2	Musanze	Kimonyi, Nusanze, Shingiro and Nyange	340	340	100%
3	Rwamagana	Fumbwe, Muhazi, Gishari, Musha and Gahengeri	298	297	99.6%
4	Burera	Butaro, Gitare, Cyanika, Rusasa, Kivuye, Mucaca, Rukundo and Bungwe	540	540	100%

The successful delivery of both theoretical and practical modules, despite technical challenges, reflects the commitment and collaboration of all stakeholders involved. By enhancing CHWs' skills in malaria case management, digital data use, and community engagement, the training has laid a solid foundation for improved health service delivery. The integration of the cEMR system into routine CHW practice is a critical step toward achieving data-driven, timely, and effective interventions. Key achievements and lessons learned will inform future scale-up efforts across other districts. As Rwanda moves toward its malaria elimination goals, continued investment in digital tools, capacity building, and support systems will be essential. This initiative serves as a model for leveraging technology to advance public health outcomes at the community level.

Strategy 6. Develop and Implement an Operational Research Agenda for Malaria

In line with improving the quality of malaria-related services, the malaria program regularly conducts research. In this reporting period, the following research projects have been conducted:

#	Title of abstracts
ASTMH annual conference. 13 – 17 November 2024. New Orleans, USA	
1	Impact of Focal Malaria Control Using Targeted Indoor Residual Spraying (IRS), four Years Results from Rusizi District, Western Province of Rwanda
2	Residual efficacy of wall contact bioassays and fumigants effects induced by Actellic®300CS and Fludora®Fusion WP-SB 56.25 insecticides used for Indoor Residual Spraying against susceptible <i>Anopheles gambiae</i> s.s.
3	Resistance intensity and mechanisms of <i>An. gambiae</i> sl 2021 to 2023 in Rwanda
4	Interceptor G2 nets and standard nets combined with IRS each provides superior protection against malaria compared to standard ITNs treated with only pyrethroid insecticide in Rwanda: Results from new nets project pilot study. 2020-2022
5	Sentinel site Monitoring of the Prevalence of Soil-Transmitted Helminthiasis and Schistosomiasis in Rwanda: measuring needs to enhance control interventions
6	The therapeutic efficacy of albendazole and ivermectin against soil-transmitted helminth infections in Rwanda
ASTMH 2025, 10-13 November 2025, Toronto, Canada	
7	Persistently High Soil-Transmitted Helminthiasis Prevalence After 15 Years of Mass Drug Administration: Do Frequency and Regimen Hold the Key to Elimination?
PUBLICATIONS	
1	From mapping to elimination: A comprehensive overview of Rwanda's schistosomiasis program (International Journal of Infectious Disease)
2	Water and sanitation factors associated with schistosomiasis and soil transmitted helminthiasis persistence in Rwanda (Scientific Reports)

PART IV: PROGRAM COORDINATION AND MANAGEMENT

Objective 4: By 2027, Strengthen Coordination, Collaboration, PSM, and Effective Program Management

To sustain gains made by the Malaria Control Program and its Partners, there is a need for strong coordination and collaboration between different Stakeholders. Advocacy and resources mobilization efforts are very key to cover all program needs and priorities.

From July 2024 to June 2025, the following activities under specific strategies have been implemented in line with strengthening coordination, collaboration, procurement, and supply management, as well as effective program management.

Strategy 1: Mobilization of Adequate Financial Resources

✓ Development of Integrated Malaria Surveillance Proposal

In collaboration with RBC/RIDS and RBC/NRL Divisions, the Rwanda Malaria Control Program developed and submitted an Integrated Malaria Surveillance Proposal to the Gates Foundation. This new design of malaria surveillance is estimated at \$6 million to cover the program's needs for the next three years.

✓ Participation in National Planning for Action Plan for FY 2025-2026

In FY 2024-2025, a malaria control program participated in the Action Plan (AP) development process coordinated by the Ministry of Finance (MINECOFIN) and the Ministry of Health (MOH). During the planning sessions for AP FY 2025-2026, a total of **3,202,644,079 RWF** as direct support to malaria and NTDs programs to cover direct program needs, including IRS, integrated vector control, malaria and NTDs case management and surveillance, etc.

Strategy 2: Strengthen the Intra- and Inter- sector Collaboration and Coordination for Malaria Control at All Levels

✓ Development of the Integrated Malaria Surveillance Guidelines

With support from CHAI, the Malaria Program and its partners developed the Integrated Malaria Surveillance Guidelines that will guide the national efforts to respond to malaria resurgence and outbreaks, but also support malaria elimination interventions.

The Draft is available and will be endorsed to be used in the FY2025-2026.

✓ **Development of the Rwanda MFT Strategy and Implementation Plan**

Following the recent WHO guidelines on the Mitigation of Anti-malaria Drug Resistance, Rwanda, with support from CHAI and JHPIEGO, developed the Multiple First Line Therapies (MFT) Strategy and Implementation Plan, as well as related SBC Tool Kits, to guide national efforts in drug resistance mitigation.

✓ **Organize the Science of Defeating Malaria: A Leadership Development Course**

Organized by Harvard University, UCAD Senegal, and UHAS Ghana in collaboration with the Rwanda Biomedical Centre in Kigali from June 15 to 20, 2025, the Science of Defeating Malaria Course aimed to equip leaders with a multidisciplinary understanding of malaria, essential for addressing the disease across diverse transmission settings. A total of 48 Participants in this Leadership Development Course gained practical, hands-on experience through detailed exploration and interactive discussions with RBC Technical Teams on innovative approaches in healthcare delivery.



The RBC Deputy Director General for the Opening Ceremony

✓ **Establishing the National Malaria Task Force**

Following malaria resurgence in Rwanda, the Ministry of Health established the National Malaria Surveillance and Response Task Force to coordinate malaria surveillance, investigation, and response, and to monitor the impact of interventions at all levels in Rwanda. Its main objectives are:

- 1. Surveillance:** Enhance malaria surveillance at national, district, and community levels for timely and accurate data collection.
- 2. Data Utilization:** Promote the use of malaria data, particularly in hotspot areas, to guide intervention efforts.
- 3. Investigation:** Investigate key drivers of the malaria resurgence to develop targeted response strategies.
- 4. Tailored Response:** Lead the implementation of evidence-based, locally adapted interventions to combat malaria upsurges.
- 5. Monitoring and Evaluation:** Continuously assess the effectiveness of malaria control measures.
- 6. Stakeholder Engagement and Resource Mobilization:** Advise stakeholders and facilitate resource mobilization for sustainable malaria control efforts.
- 7. Capacity Building:** Strengthen the decentralized teams to perform surveillance and response activities.

From November 2024 to June 2025, six (6) meetings of the National Malaria Surveillance and Response Task Force were organized to discuss updates on the malaria situation and advise on specific interventions to contain malaria resurgence in Rwanda.

In addition, District Task Forces were established and coordinate all district efforts in malaria response.

Strategy 3: Synchronization and Alignment of Malaria Commodities Procurement and Supply Management

The program procurement plan FY2024/25 was developed to guide all program commodities procurement. Anti-malaria drugs, diagnostic tests, LLINs, Insecticides for IRS, IRS materials, etc. were procured based on the program needs,

Regular data and supply chain review meetings were organized to inform adjustments in quantities to be procured, mainly based on the malaria resurgence from 2024 and the need to introduce the MFT Strategy to mitigate anti-malaria drug resistance in Rwanda.

PART V: SOCIAL BEHAVIOR CHANGE

Objective 5: By 2027, 85% of the Population Will Have Correct and Consistent Practices and Behaviors towards Malaria Control Interventions

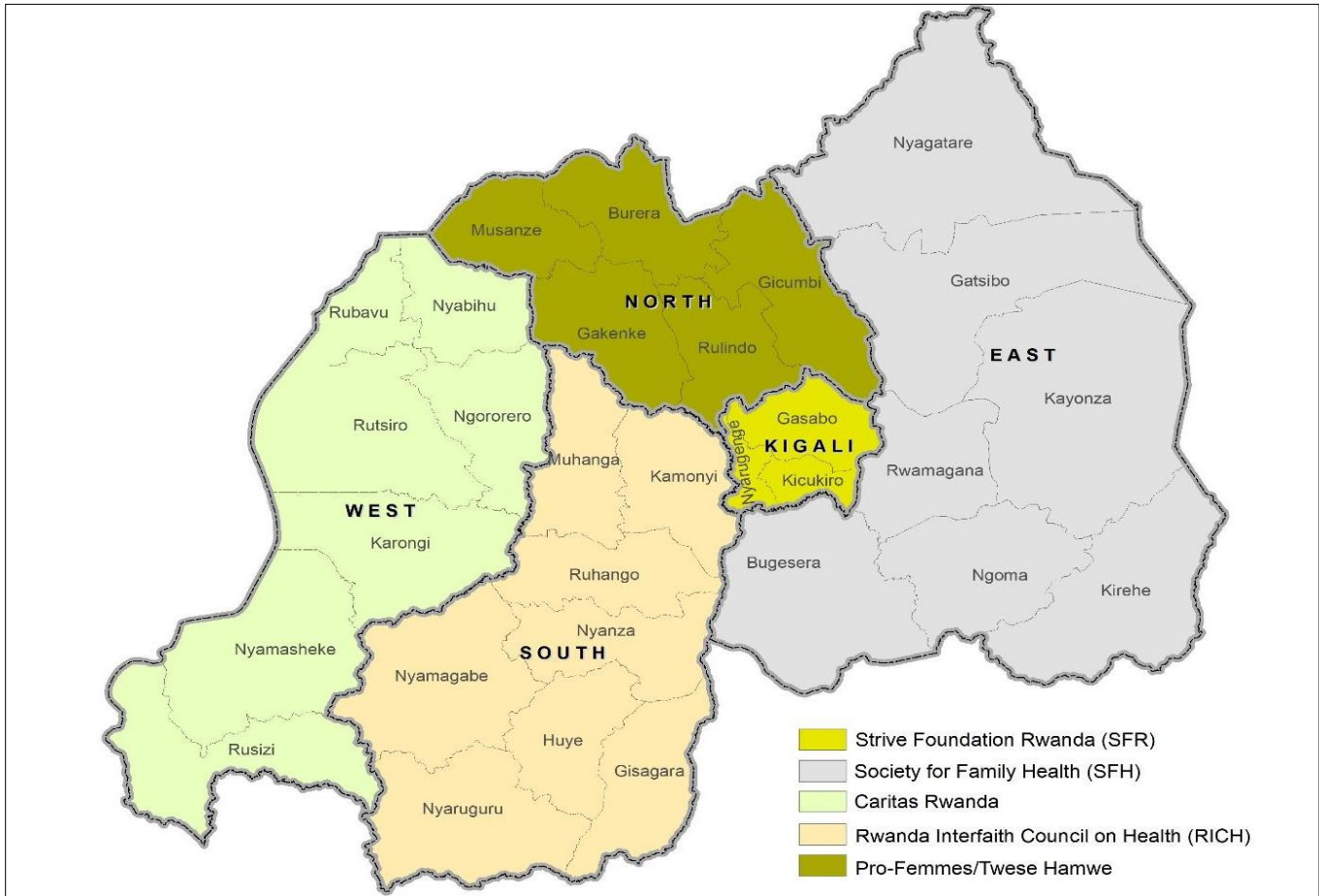
1. Introduction

The Government of Rwanda continues to advance malaria control efforts through a range of evidence-based strategies outlined in the Rwanda National Extended Strategic Plan (MSP) 2020–2027. Social and Behavior Change (SBC) interventions were implemented in line with the National SBC Strategy for Malaria Prevention and Control 2022–2024. This strategy focuses on addressing gaps in approaches, interventions, messaging, communication channels, and community engagement, and aligns with findings from the Matchbox Toolkit assessment on human rights and gender-related malaria vulnerabilities in Rwanda.

During the reporting period, SBC activities for malaria prevention and control were guided by the Health Promotion Policy, with emphasis on community mobilization, participation, health education, access to services, advocacy, and partnerships. These efforts aimed to promote acceptance, use, and long-term sustainability of core interventions, including Insecticide-Treated Nets (ITNs), Indoor Residual Spraying (IRS), early case management, and integrated vector control at all levels.

Implementation was carried out in collaboration with various partners, including seven Civil Society Organizations (CSOs) working nationwide. Of these, five CSOs led malaria SBC activities in each province targeting the general population, while two CSOs—RNGOF and ASOFERWA—focused on SBC interventions for high-risk groups across the country.

Figure 39 : Deployment of Five CSOs for Malaria SBC Interventions Implementation



2. Strengthen the Malaria SBC Framework

In the fiscal year 2024–2025, the Malaria and Other Parasitic Diseases Division (MOPDD), together with implementing partners and stakeholders, organized district-level SBC coordination meetings, bringing together 1,682 of the 1,765 planned participants. These meetings served to advocate for sustained government-led interventions, strengthen community mobilization, promote local ownership, and engage communities in addressing identified gaps.

Additionally, District Malaria Task Force meetings were convened with 1,910 participants to further reinforce local leadership in malaria prevention and control. While these coordination platforms enhanced community engagement, ensuring consistent high-level participation and ownership beyond project-driven support remains a challenge.

To achieve long-term impact, it is essential to institutionalize malaria coordination meetings and task force activities within existing government and community structures. This requires integration into district health plans and allocation of domestic resources to guarantee continued participation and leadership beyond external project support

During the same period, malaria case investigation and data stratification in hotspot sectors were implemented . These sectors, identified using data from HMIS, enabled data stratification at health facilities during field visits conducted in close collaboration with local health teams and Civil Society Organizations (CSOs) across the districts of Rusizi, Nyamasheke, Karongi, Rutsiro, Ngororero, Bugesera, Nyagatare, Kirehe, Musanze, Rulindo, Gicumbi, Gakenke, Gisagara, Nyanza, Nyamagabe, and Nyaruguru. As a result, a total of 40, 863 out of the planned 39,275 participants were reached, enhancing community awareness and participation in malaria prevention and control interventions. Furthermore, the implementation of reactive case detection and treatment was fully supported countywide by CSOs in the districts of Nyarugenge, Gasabo, Kicukiro, Gisagara, Bugesera, and Nyagatare, thereby a total of 26,705 cases were reached, representing 94% of the planned 28,465. This achievement reflects strong community engagement and effective coordination in strengthening early malaria detection and response at the community level.

Although the multi-stakeholder approach has strengthened, the lack of a formal coordination and accountability Although the multi-stakeholder approach has been strengthened, there is still a need to reinforce coordination to prevent duplication, delays, and variations in quality that could undermine efficiency and sustainability.

3. Increase Awareness on the Communities' Role in Malaria Prevention and Control

During FY2024-2025, malaria SBC interventions prioritized key messages on integrated vector management (IVM) such as larval source management and reduction of mosquito breeding site management , as well as early care seeking and adherence to treatment. These efforts were implemented from provincial to community levels to foster community ownership in malaria prevention and control, an essential element for accelerating the “***Zero Malaria Starts with Me / Kurandura Malariya Bihera Kuri Njye***” campaign.

Community engagement was conducted through interpersonal communication (IPC) sessions integrated into existing platforms such as Umuganda and Inteko z'Abaturage reaching a total number of 51,988 out of 51,567 the planned participants. In addition, a total of 43,339 out of 44,940 have reached through outreach awareness raising campaigns in malaria high burden sectors, 505 supervisions were carried out at health facilities and health posts, while 5,014 out of planned 6,036 people took part in community-level decision-making meetings. These activities actively involved leaders, health care providers , and various community influencers in identifying local challenges and developing both immediate and long-term solutions.

Edutainment activities, including poem competitions, debates, and sports further engaged 43,896 out of 41,000 targeted people. Moreover, special Umuganda and organized-targeted outreach campaigns events promoted collaboration with hard-to-reach groups, community members, and local leaders resulted in a total reach of 144,237 people, surpassing the 143,547 initially targeted. At health facility level, SBC supervisions addressed gaps identified through scorecards, focusing on key malaria indicators such as ITN coverage in ANC/EPI, malaria incidence, severe cases, home-based management, and parasitological testing at community level.

To enhance community awareness and ownership of malaria prevention and control, several SBC activities were carried out. These included 48 radio and TV talk shows providing malaria updates and prevention guidance, along with 16 DJ mentions and 16 radio spots. A range of IEC materials was also produced and widely distributed, such as 63 banners, 53 tear drops, 17 stickers, 4,640 t-shirts, and 3,500 flyers. Collectively, these efforts expanded public awareness and reinforced malaria prevention messages at scale.

Despite these efforts, limited engagement of key district-level stakeholders in malaria prevention and control has weakened information flow and decision-making, leading to delayed responses during malaria case surges. To address this consistently, district-level malaria coordination should be reinforced by ensuring active participation of all key stakeholders, strengthening communication and data-sharing systems, conducting regular joint reviews and simulation exercises, and building stakeholder capacity for effective surveillance and timely malaria response.

4. Increase Advocacy for High-Level Support to Sustain Malaria Prevention and Control Interventions

The fiscal year 2024/2025 marked significant progress in malaria prevention and control advocacy. Stakeholders at all levels reaffirmed their commitment to supporting the Government of Rwanda’s goal of reducing the malaria burden by systematically integrating malaria prevention and control into their daily activities and operational frameworks. In collaboration with Civil Society Organizations (CSOs) and local leaders, RBC/MOPDD successfully organized the national World Malaria Day commemoration on 25 April 2025, which gathered 4,222 participants—surpassing the target of 3,000.

Rwanda observed World Malaria Day 2025 under the global theme “*Malaria Ends with Us: Reinvest, Reimagine, Reignite*” and the national slogan “*Zero Malaria Starts with Me.*” The event, held in Ndera Sector, Gasabo District, brought together community members, local leaders, policymakers, and development partners to showcase achievements, inspire collective action, and highlight the central role of communities and stakeholders in malaria prevention and control

World Malaria Day 2025 in Rwanda also underscored the importance of aligning with global efforts, highlighting the urgent need for continued investment, innovative approaches, and sustained political will to accelerate malaria elimination.

Despite significant progress in malaria prevention and control, the Government of Rwanda continues to face limited resources and insufficient visibility for advocacy campaigns, which can reduce the effectiveness of efforts to mobilize high-level support. To address this, it is essential to secure dedicated funding for advocacy activities, utilize mass media and community platforms to expand outreach, and systematically document and communicate the impact of malaria interventions to reinforce sustained political and financial commitment.



Celebration of World Malaria Day & Launch of Rwanda Malaria MFT Strategy (Gasabo District)



5. Promote Community Engagement in Malaria Prevention and Control Interventions

During this fiscal year, RBC/MOPDD, in collaboration with partners and CSOs, implemented a range of SBC community engagement initiatives that significantly strengthened malaria prevention and control efforts. These interventions contributed to improved health outcomes, including early diagnosis and treatment at the community level, and reached both high-risk populations—whether easily accessible or hard to reach—as well as the wider community.

Throughout the reporting period, various malaria community engagement activities were carried out to enhance knowledge and influence behaviors related to malaria prevention. These utilized multiple platforms, including religious institutions, schools, mass media, and other community structures. The messages focused on raising awareness of the community's role in malaria prevention and control, emphasizing the use of Insecticide-Treated Nets (ITNs), mosquito repellents, maintaining household environmental hygiene to eliminate breeding sites, and seeking timely treatment.

Through the coordination and collaboration of RBC/MOPDD and CSOs, implementing partners successfully implemented different community based integrated vector management in the general population and malaria high-risk/vulnerable, implemented community awareness activities regarding Larval source management, using drones and environmental management targeting peri-domestic breeding sites through monthly community works “Umuganda”. In addition, training on Integrated Vector Management (IVM) was conducted for key sector-level stakeholders and peer educators among high-risk groups, reaching 996 out of 1003 planned participants.

Note that key risk factors undermining malaria prevention and control in communities include mainly resistance to recommended behaviors, primarily due to a mismatch between promoted interventions and the availability of essential resources, such as mosquito repellents, access points for insecticide-treated nets (ITNs), and other malaria commodities at the community level. Ensuring sustainable malaria prevention, it's essential to improve community-level access to ITNs, repellents, and diagnostics, aligning behavior change strategies with available resources,

engaging local leaders and health workers to address gaps, and strengthening supply chain management to prevent malaria commodity stockouts.

Table 29: Key SBC Malaria activities implemented during the year 2024-2025

No	Malaria SBC Activities Implementation	Annual Summarized Results		
	Activities	Target	Reached	%
1	Conduct Annual Coordination and taskforce meetings at the district and provincial level	3,675	3,592	98%
2	Conduct Training on IVM in the General population and high-risk groups	1,003	996	99%
3	Conduct community mobilization on Malaria prevention and control in hot spots using mobile sound system	145	145	100%
4	Organize Radio and TV talk shows	48	48	100%
5	Production and Airing radio spots and DJ Mention on (LLIN utilization, Malaria Early treatment, environmental management and HBM)	16	16	100%
6	Production of IEC materials: # of Banners	59	63	107%
7	Production of IEC materials# of tear drops	43	53	123%
8	Production of IEC materials# of T-shirts	4,550	4,640	102%
9	Production of IEC materials# of stickers	17	17	100%
10	Production of IEC materials# of flyers	3,500	3,500	100%
11	Organize and conduct Outreach Awareness raising campaigns in malaria high burden sectors on LLINs Hanging and use, on early care seeking (# of People Reached)	44,940	43,369	97%
12	Organize and conduct Outreach Awareness raising campaigns in malaria high burden sectors on LLINs Hanging and use, on early care seeking (Sessions)	12	12	100%
13	Conduct malaria prevention and control campaigns among youth (IVM, early care seeking with MFT Strategy, CHWs' role, Available Malaria prevention interventions) in hotspot sectors (# of people reached)	41,000	43,896	107%
14	Conduct malaria prevention and control campaigns among youth (IVM, early care seeking with MFT Strategy, CHWs' role, Available Malaria prevention interventions) in hotspot sectors (Sessions)	11	11	100%
15	Conduct Supportive supervision at Health centers/posts level targeting malaria high incidence	507	505	100%
16	Production of educative videos on Malaria prevention and control	14	14	100%
17	Produce and disseminate educative radio sketch on Malaria prevention and control	7	7	100%

17	Produce and airing educative Malaria TV Series with key message for Malaria prevention and control among hard-to-reach groups	3	3	100%
19	Organize and conduct special umuganda led and in collaboration with hard and easy to reach groups and local leaders	6,450	6,150	95%
20	Facilitate the initiation of repellents selling points and provide repellents package to 30 focal persons selected from hard-to-reach groups	6,000	5,254	88%
21	Distribution of repellents to 30 selected focal persons among hard-to-reach group members	6,000	5,254	88%
22	Organize follow up meeting and mentorship of peer educators already trained per district representing hard to reach groups under Malaria Prevention and control interventions	2,956	2,936	99%
23	Conduct Malaria targeted IPC sessions and supervisions in identified hotspots through existing community platforms	45,117	46,838	104%
24	Conduct decision making meeting at Community Level	6,036	5,014	83%
25	Distribution of Guidians of mosquito repellents	6,000	5,254	88%
26	Disseminating Malaria Prevention and Control messages through Bulk SMS	37,507	37,507	100%
27	Conduct Malaria case investigation with data stratification	40,863	39,275	96%
28	Targeted SBC to Support Malaria reactive Case detection and treatments	28,465	26,705	94%
29	Distribution of Smart Phones to the CHWs under Integrated community led Monitoring in Malaria Prevention and Control	2,222	2,222	100%
30	Training of CHWs on Malaria Reactive Case Detection and Treatment using Digital Tools (cEMR and eCHIS)	2,222	2,222	100%
31	National Celebration of World Malaria Day FY24_25	3000	4222	120%

PART VI: NEGLECTED TROPICAL DISEASES & OTHER PARASITIC DISEASES

Key Achievements

In Neglected Tropical Diseases (NTDs) and Other Parasitic Diseases control, the Mass Drug Administration as key control intervention for Soil-Transmitted Helminthiasis (STH) and Schistosomiasis (SCH) was marked with a high coverage >90%. To accelerate STH and SCH through the Interruption of Transmission (IoT), the baseline data and target were established, and built community and health facility-based capacity to enhance early healthcare seeking behavior and delivery of quality services. As we are near the elimination of SCH as a public health problem, we assessed the need for snail control through environmental impact assessment and secured the certificate to implement control intervention to accelerate the elimination of SCH.

During this FY we completed the NTDs program review and the finding informed the ongoing development of the new NTD strategic plan. The country committed to eliminate NTDs as public health by 2030, to achieve this goal there is a need to generate evidence to support the development of the WHO elimination dossier. In response we conducted the breeding site mapping of black flies responsible for Onchocerciasis transmission, 12 positive breeding sites were identified and planned the serological assessment in the communities around the breeding sites. The NTDs program streamlined a multisectoral collaboration on WASH and NTDs and it was maintained through the NTDs Sub-Technical Working Group.

Challenges

The NTDs program faced challenges in this FY including understaffing of the unit and impacted the implementation of all planned activities. In addition, during this FY the program faced a reduction of government funds allocated to NTDs specifically the funds needed to procure MDA drugs for adults for STH as they are not targeted in the WHO donation, and it has an impact on the effectiveness on future MDA.

Mitigation plan

To meet the elimination target, the NTDs program plans to integrate interventions with other programs including malaria, through one health and others. In addition the multisectoral collaboration will be enhanced to improve WASH and NTDs control interventions.

6.1. INTRODUCTION

In Rwanda, Neglected Tropical Diseases (“NTDs”), include intestinal worms–Ascariasis, Trichuriasis and Hookworm, Schistosomiasis (SCH), Scabies and other ectoparasites (Tungiasis or Jigger disease), Podoconiosis, Leprosy, Rabies, Snakebite envenoming (SBE), Trachoma, Taeniasis/Cysticercosis, Mycetoma, Lymphatic filariasis, Onchocerciasis and Human African Trypanosomiasis (HAT). Other parasitic diseases (OPDs) include amebiasis and giardiasis.

According to 2020, remapping of Soil Transmitted Helminthiasis (STH) commonly known as intestinal worms and schistosomiasis, STH is the most common NTDs with the overall national prevalence of 38.7%. The same remapping shows that adults (16 years and above) are the most affected age group with 46%, followed by School Aged Children -SAC (5-15years old) with 38.8% and Pre-SAC with 30%.

Persisting high prevalence was observed in 10 out of 23 districts that had high prevalence (>50%) in 2008 initial nationwide mapping. The persistence of high prevalent infections is observed in districts with high infections with *Trichuris trichiura*, a species that poorly responds to a single dose of benzimidazoles in mass deworming.

For Schistosomiasis, 1,013 out of 2,148 cells (47%) were found eligible for mass deworming. With the draft elimination plan under finalization, specific cells will be assigned to the strategy of deworming twice a year, once a year or every 2 years.

The activities implemented during the FY 2024-2025 are grouped in thematic areas, including NTDs prevention, case management, surveillance and research, WASH and NTDs coordination and awareness.

6.2. PREVENTION AND CONTROL OF NTDs AND OTHER PARASITIC DISEASES

6.2.1 Mass drug administration

a) Supply Chain of Drugs for Mass Drug Administration

Rwanda Ministry of Health has partnered with pharmaceutical companies for drug donations to treat all at-risk populations, including adults aged from 16 years and above in line with the NTDs elimination target set out in the country and WHO plans. Therefore, the increase of drug donation was remarkable including drugs for women of reproductive age target population.

Figure 40:MDA drugs procured during 2024-2025

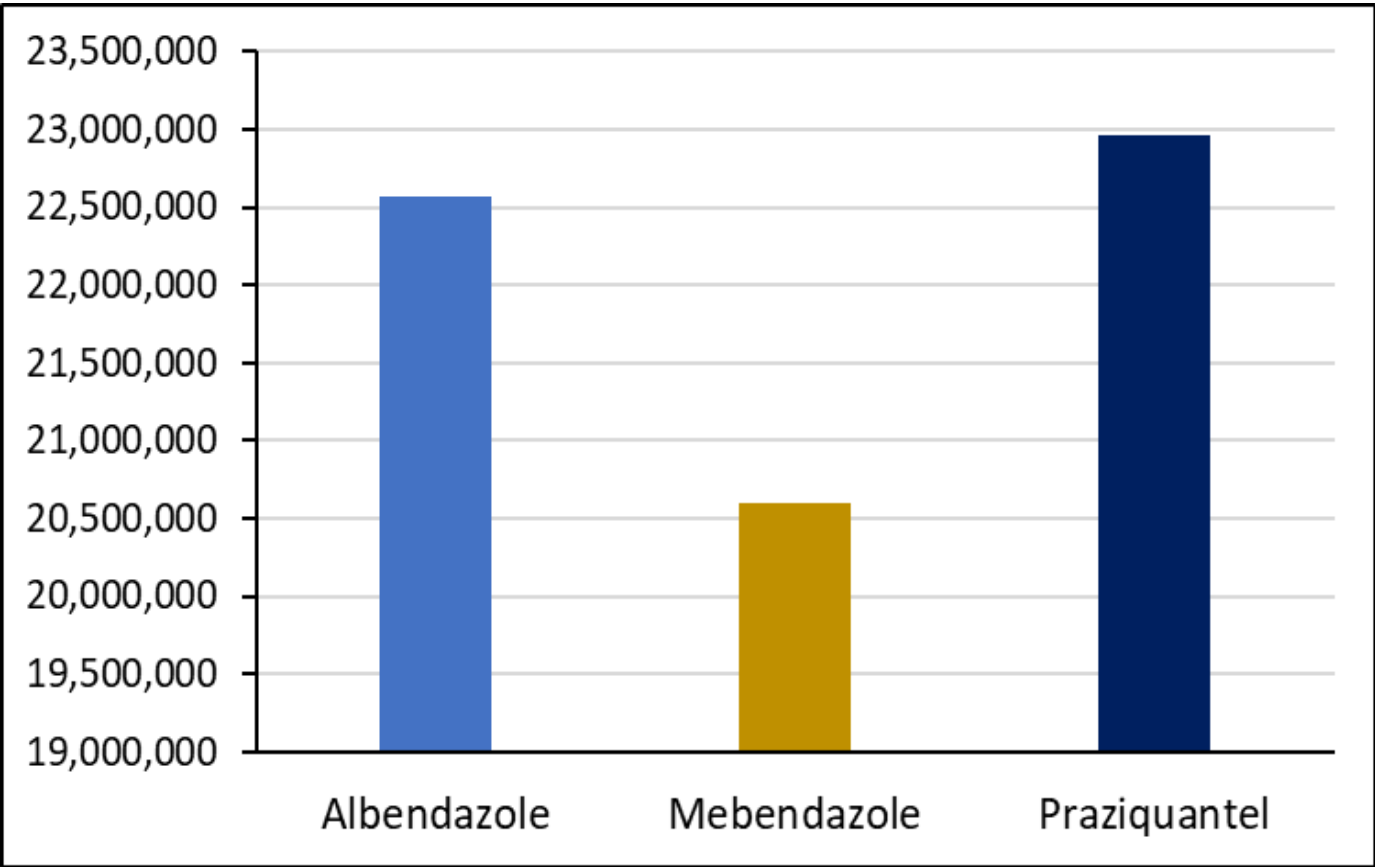
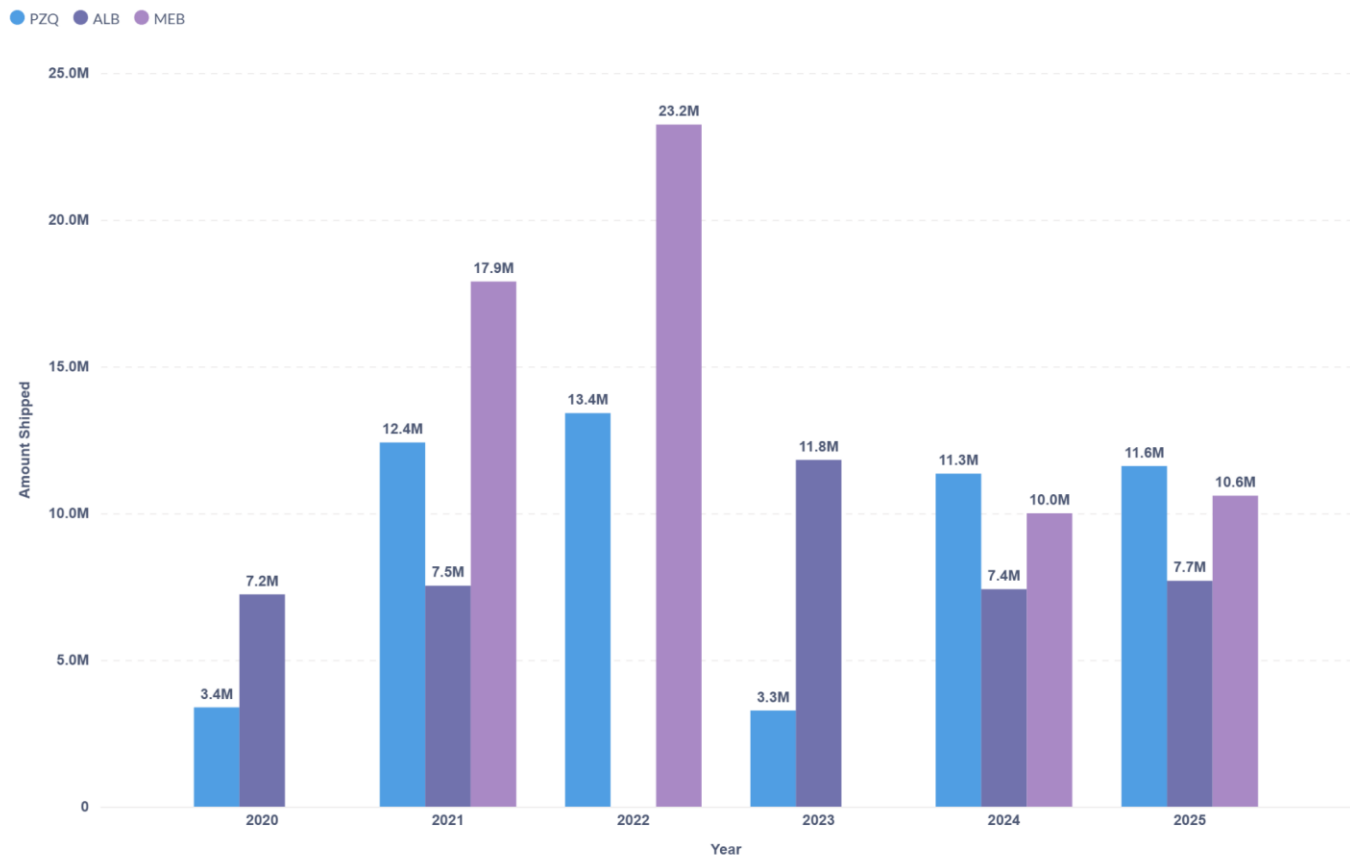


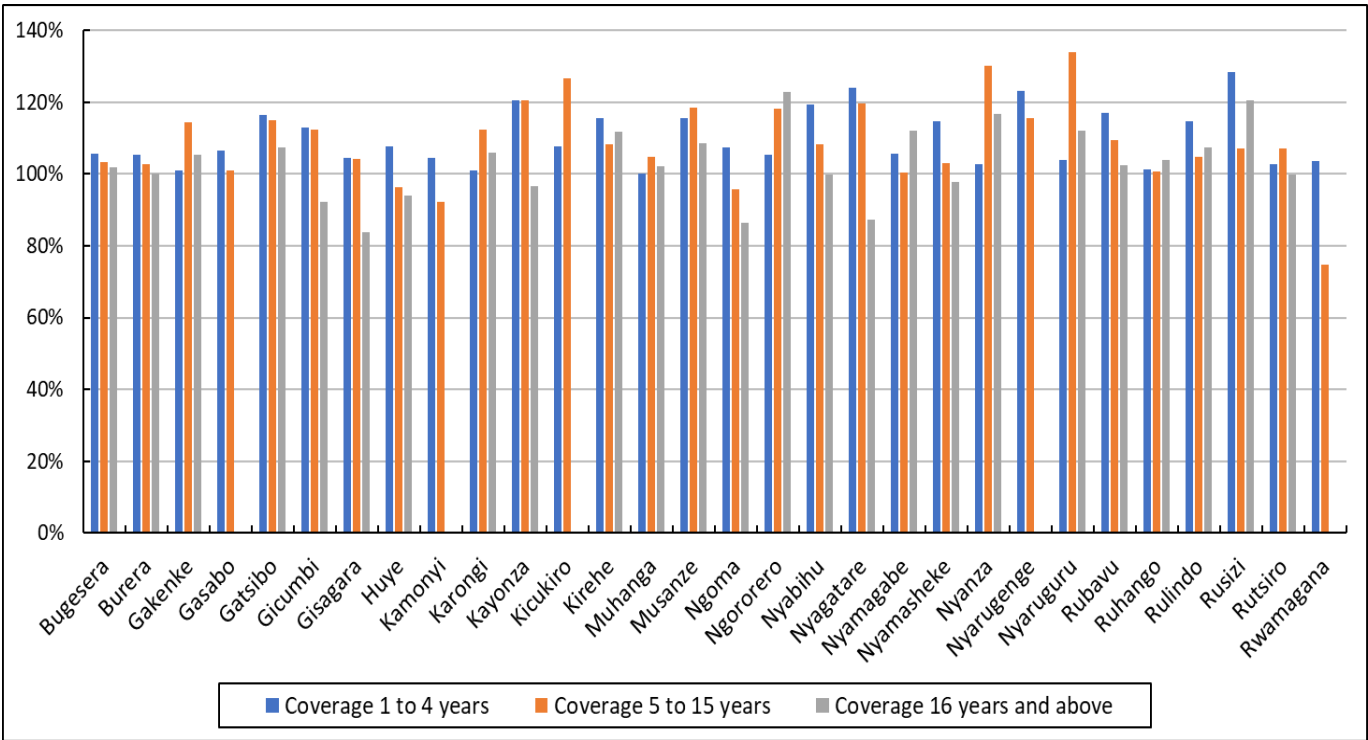
Figure 41: Trend of MDA drugs donated by WHO



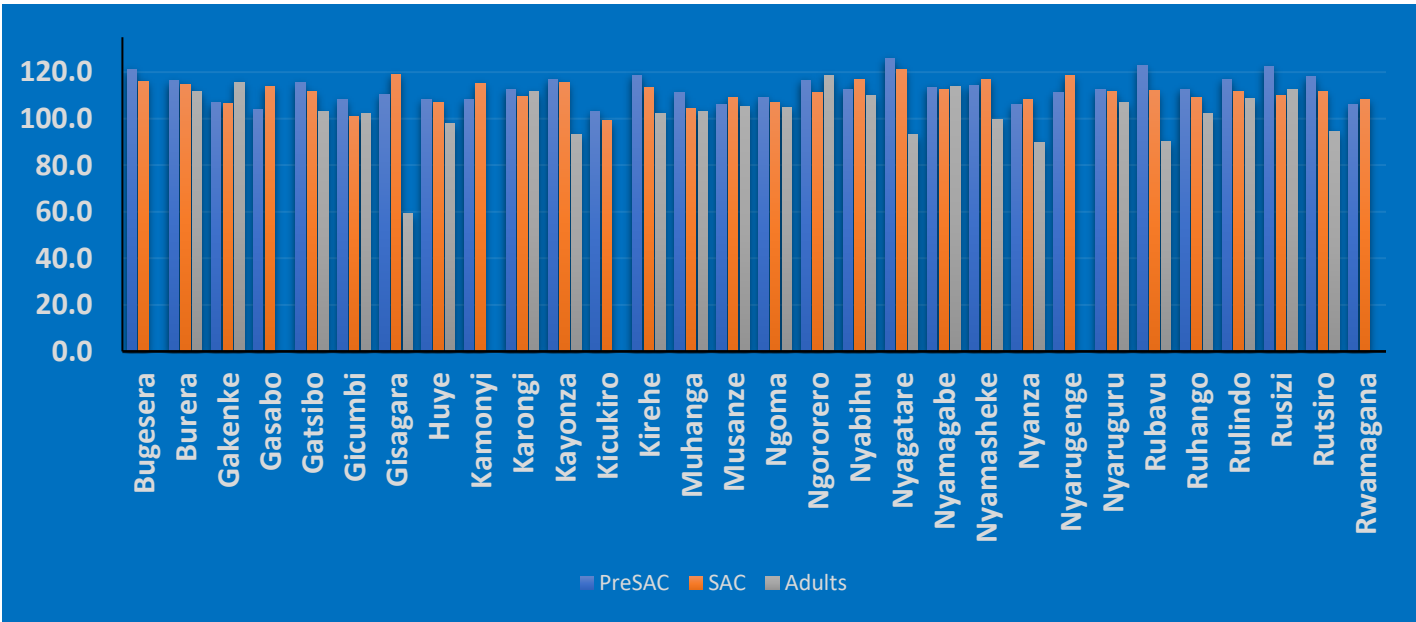
During FY 2024-2025, a total of 22,569,200 Albendazole, and 20,600,000 Mebendazole tablets were procured for distribution in MDA. The pharmaceutical companies through WHO donated 15,108,000 ALB, while 6,817,600 purchased with support of the END Fund and 6,43,600 supported by the Government of Rwanda.

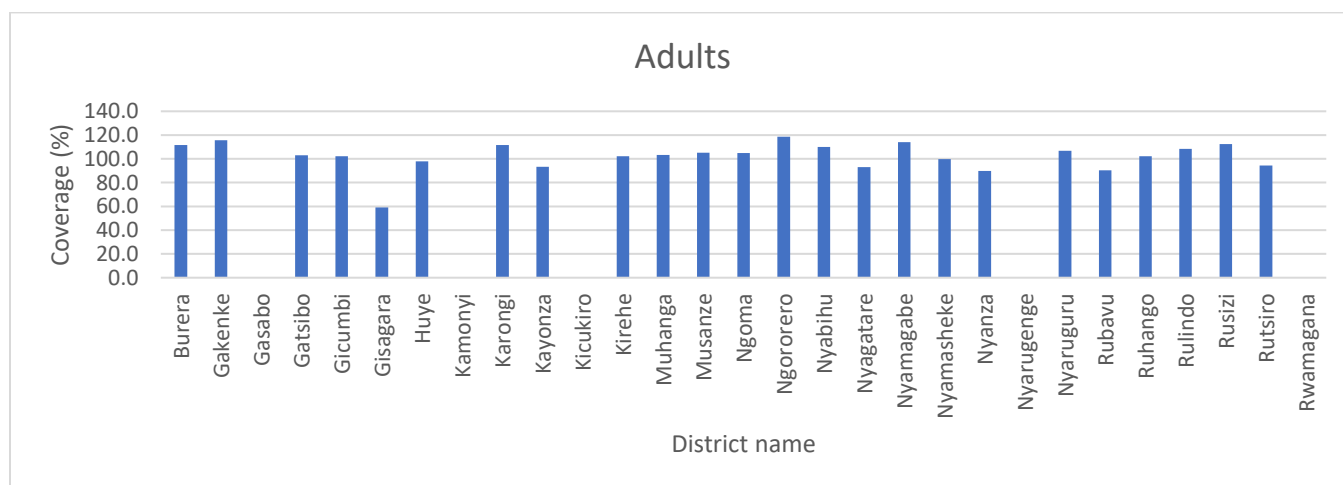
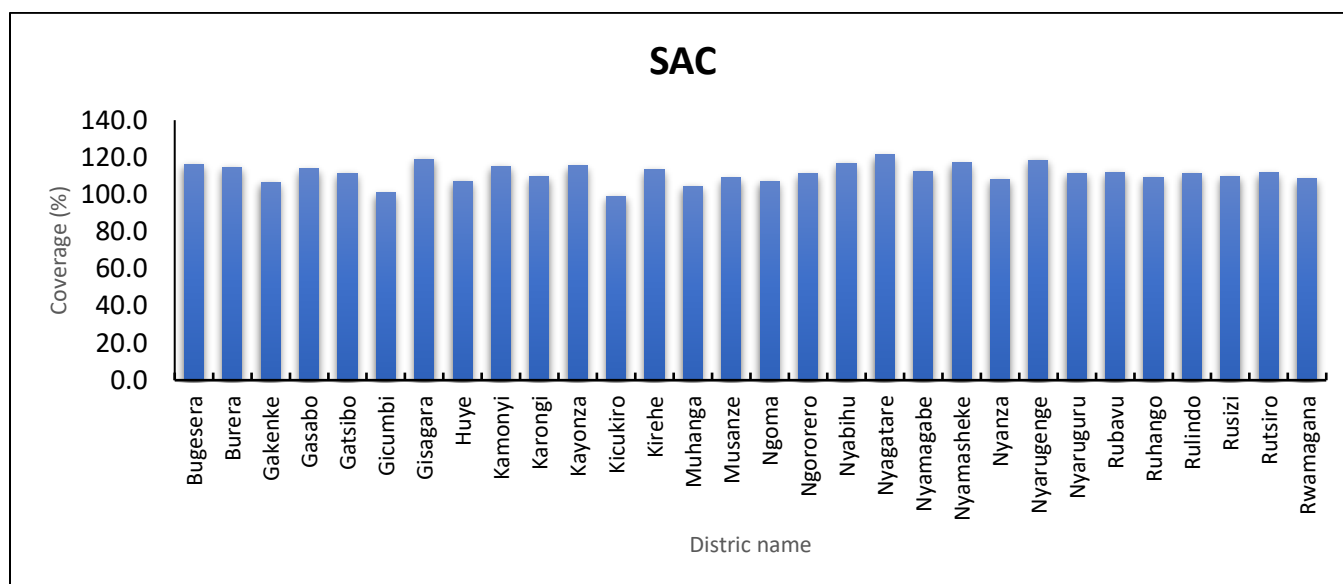
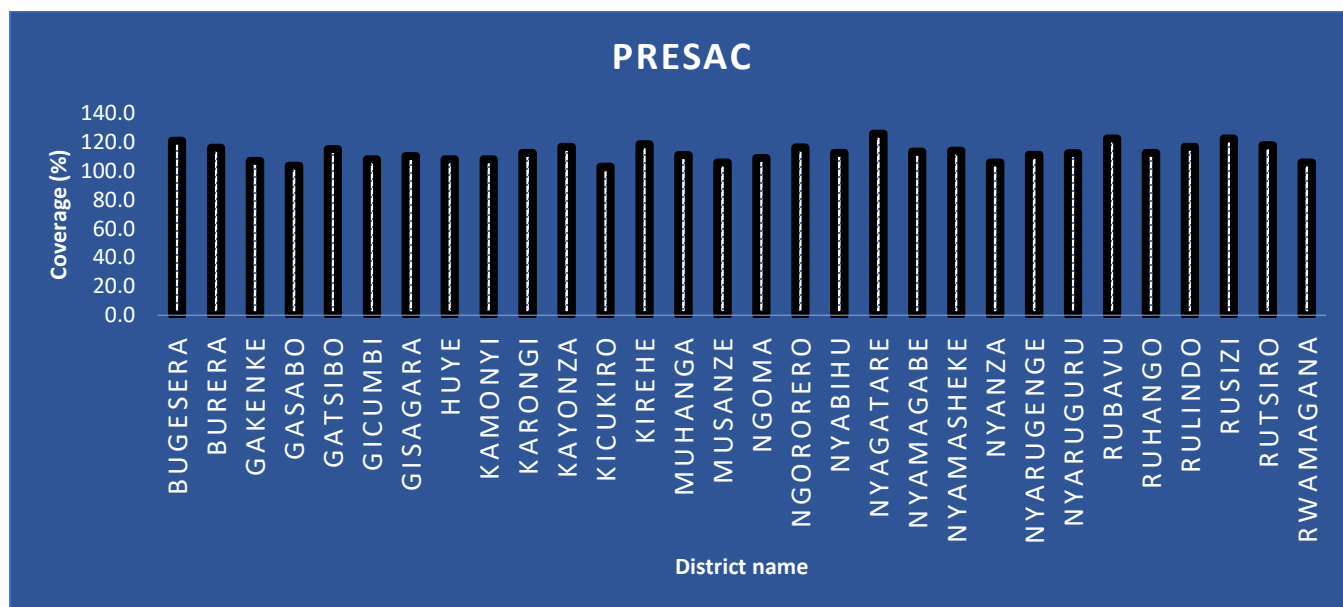
In addition, 22,959,000 Praziquantel tablets were donated through WHO. The WHO support with \$5,088,299 for MDA drugs procurement. During this year we experienced a decline in drugs purchased under the government budget.

Figure 42: MDA Coverage for STHs Using Albendazole/Mebendazole July 2024 to June 2025



MDA coverage for Preschool age, School age and Adults





During FY 2024-2025, the first round of MDA for STHs using ALB/MBZ and for SCH using Praziquantel was conducted from 13th to 17th January 2025. The second round was conducted only in Bugesera and Ruhango from 9th to 13th June 2025 for both STHs and SCH. The other districts were not covered during the second round due to the ongoing implementation of “**Transition strategy to sustain key interventions of MCH week campaign in routine care**”. It included as well the integration of MDA into CHWs routine services.

During the MDA conducted in the current FY along with the Maternal and Child Health (MCH) week, coverage was above 90% in most of the districts. A total of 9,339,647 treatments were delivered, 1,615,639 children aged from 12 to 59 months, 2,705,018 aged from 5 to 15 years, and 5,018,990 adults aged 16 years and above.

Regarding MDA for Schistosomiasis using Praziquantel tablets 5,957,815 people were treated against 5,448,590 giving a coverage of 109%. The coverage of above 100% was due to the target population estimation challenges and the remaining balance distributed in the selected districts for a partial coverage during the MDA conducted in January 2025.

6.2.2. Increasing awareness on NTDs and other Parasitic Diseases

The community mobilization was conducted using different platforms to ensure that messages reach the community for behavior change to prevent NTDs and OPDs. These included radio spots, radio talks, TV shows. In this report, Bilharzia story telling lab, celebration of the world NTD day and media engagement to streamline the uptake of preventive measures are highlighted.

a) Bilharzia Story Telling initiative

The project was supported by Merck KGaA in collaboration with the END Fund with 10,000USD aiming at assessing possible behavior change interventions to improve knowledge, attitude and perception of School Aged Children (aged between 5 and 15 years) about schistosomiasis. It was conducted at selected schools in Rweru sector, Bugesera District. The demonstrated innovation in teaching children for behavior change for Schistosomiasis prevention.

The activities included health education to children through distribution of notebooks with pictorial preventive message “Ikayi y’umukoro”, capacity building of teachers and local leaders, and educational sessions with parents. Capacity Building for teachers on Soil Transmitted Helminths and Schistosomiasis on 25th April 2025. Base line Data Collection within 4 partner schools in Gatsibo sector on 23rd May 2025.

Project Launch within the district as an official start of the project within the district on 25 June 2025. The project will be scaled up in Bugesera and Ruhango district with support of the END Fund.



Launch of Bilharzia Story Telling Initiative project in Gatsibo district on 25 June 2025.

b) Celebration of World NTD Day (WNTDD 2025)

To raise awareness of NTDs and increase multi-sector collaboration, World NTD Day was celebrated on January 30th, 2025, in Bugesera district/Juru Sector in the marshland where Juru and Mwogo Sectors meet. The purpose of this event was to raise awareness and burden of NTDs, the social and economic consequences they cause.

NTD Day celebration intended also to raise voices for advocacy to get more support towards NTDs control, elimination and eradication in line with the programmatic targets set out in the WHO roadmap 2021–2030 on Neglected Tropical Diseases, Kigali declaration on NTDs and Government commitments on NTDs elimination as public health problem by 2030. Different

WASH-NTD partners (Government Institutions, International Institutions, NGOs....) attended this event. The worldwide theme of WNTDD2025 was the following: *Unite in WASH Implementation in the control and elimination of diseases related to Poor Sanitation and Hygiene*. The theme was contextualized as “*Tujyanemo mu Isuku n’isukura, duhashye indwara ziterwa n’umwanda*”

The NTD Day celebration was honored by the presence of Dr Albert TUYISHIME, the Head of Diseases Prevention and Control Department (HDPC) in Rwanda Biomedical Centre (RBC)



Before the due date, **NTD media tour** was conducted in Rubavu and Bugesera districts for community mobilization. Journalists from different media (Radio, TV, Newspapers, etc.) and social media influencers participated in the campaign.

The NTD Media Tour aimed at raising awareness on NTDs control and elimination strategies, their burden and multi- sectoral collaboration to speed up achievement of WHO roadmap 2021-2030 for NTDs and country commitment targets on NTDs elimination by 2030.

In Rubavu district, a media tour dedicated two days where the first day was visit in Mudende sector to document on the impact of intensive social behavior change (SBC) on STH reduction due to abandonment of using human faeces as fertilizer. Testimonies from the local population were broadcasted and left an impact on the audience. On the second day, participants to the media tour visited Nyundo HC in the same district to document the success made by RBC and partners in podoconiosis management. On the third day, Bugesera district (Nzangwa HC) received a delegation from the media tour. Interviews

with health care providers and patients with leprosy and those who recovered from the illness were conducted.

In total, 24 journalists from different media houses and social media influencers participated in the three-day NTDs-WASH media tour and 92 NTDs-WASH media pieces were produced/broadcasted in Kinyarwanda, English and French.

Table 30: Articles published from the Media tour

DISEASES / TOPICS	ARTICLES PRODUCED
Snake Bites envenomation	6
Prohibition of the use of human faeces as fertilizer	7
Stakeholders' engagement in WASH	3
School WASH promotion/Health Club	2
Schistosomiasis	14
Taeniasis (Cysticercosis)	2
Soil Transmitted Helminthiasis	8
Jigger Diseases/Tungiasis	4
Hygiene & Sanitation	14
Promoting Access to clean water	11
Advocacy to raise funds on WASH/NTDs	5
Prevention on NTDs in general	16
TOTAL	92

In conclusion, the NTD media tour proved to be a resounding success, capturing the attention of both traditional and social media. The combined impact of radio, television, online articles, and extensive social media engagement showcases the tour's effectiveness in reaching diverse audiences and promoting the significance of World NTD Day.

Journalists and social media influencers in interview with Head of Mudende Health Center



c) WASH-NTD Media Journalism Award

Media engagement was also conducted through WASH-NTD Media Journalism Award 2025 in partnership with Rwanda NGOs Forum and the End Fund. The objective of this activity was to recognize and celebrate the outstanding work of journalists who have made significant contributions to raising awareness about NTDs, especially Schistosomiasis and soil-transmitted helminthiasis prevention and control, WASH related behavior change in Rwanda.

The award also aimed to inspire and motivate other journalists to continue their efforts in promoting informed and responsible journalism in health promotion, specifically in NTDs. Awards were primarily targeting media in the following categories: Radio, TV/Online, Online newspapers, social media and other digital communication platforms X (formerly Twitter), LinkedIn, Facebook...) and Print.

Articles published emphasized NTDs prevention, control, and elimination and the role of WASH in NTD prevention, control, and elimination agenda. This activity involved 59 contestants from media houses and those publishing online/youtube channels, 9 best performers received different awards.

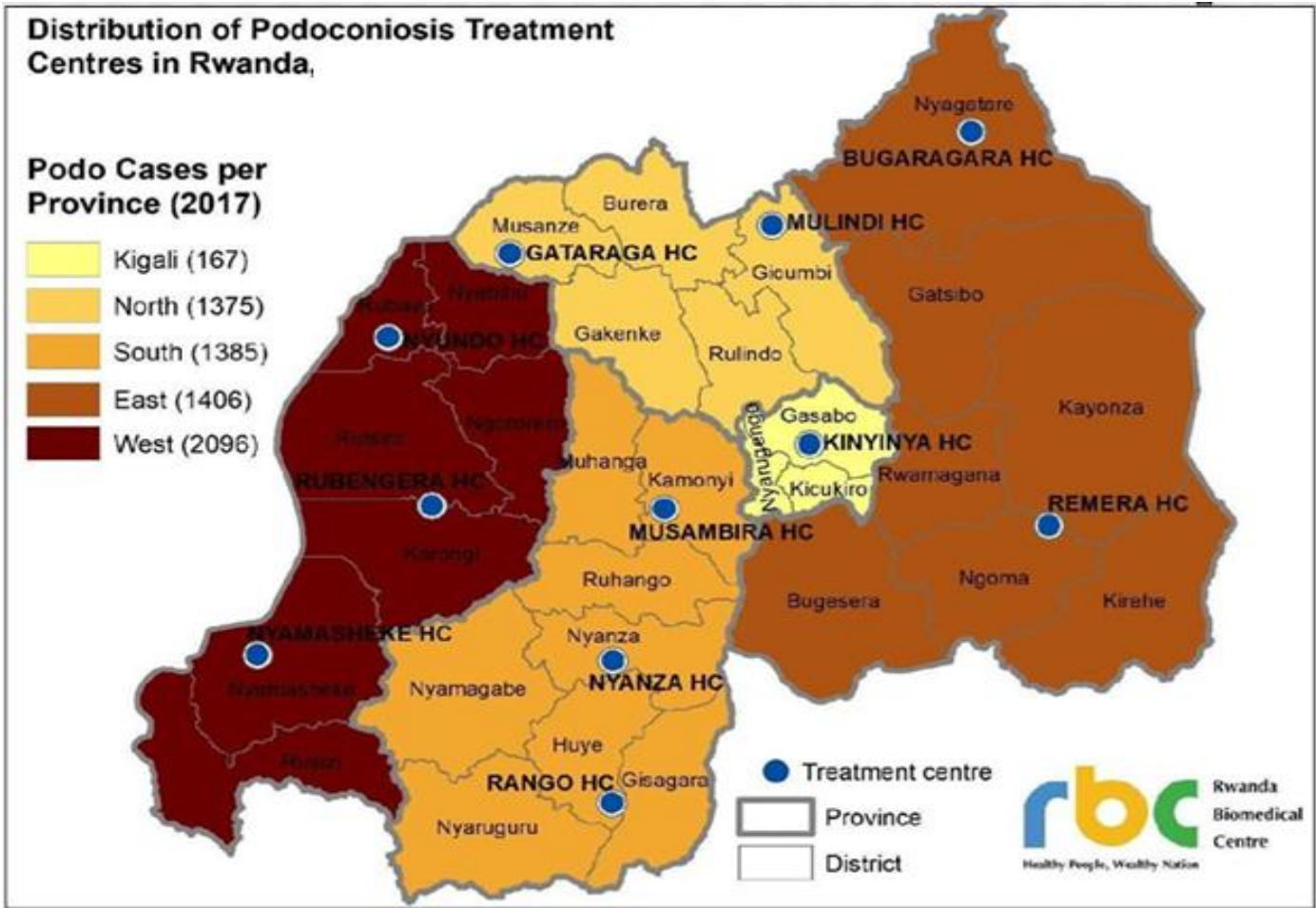


6.3. NTDs AND OTHER PARASITIC DISEASES CASE MANAGEMENT

6.3.1. Scaling up NTD Case Management Interventions for Chronic NTDs

The patients with podoconiosis get services from 13 treatment centers supported in collaboration with Heart and Sole Africa (HASA). The services are delivered by trained nurses in the health centers and physiotherapists from corresponding district hospitals. A total of 1415 patients were followed up during the FY 24/25.

Figure 43: Distribution of Podoconiosis Treatment Centers in Rwanda, 2024-2025



In collaboration with HASA we distributed needed supplies to treatment centers including custom shoes to Mulindi, Kinyinya and Nyundo Health Centers, and Gataraga HC. Other supplies distributed included soaps, ointments, whitefields, vinegar. In addition, screening and onsite training was conducted to the health centers with new focal persons such as Nyundo HC.

6.3.2. Routine NTDs and OPDs Cases Management

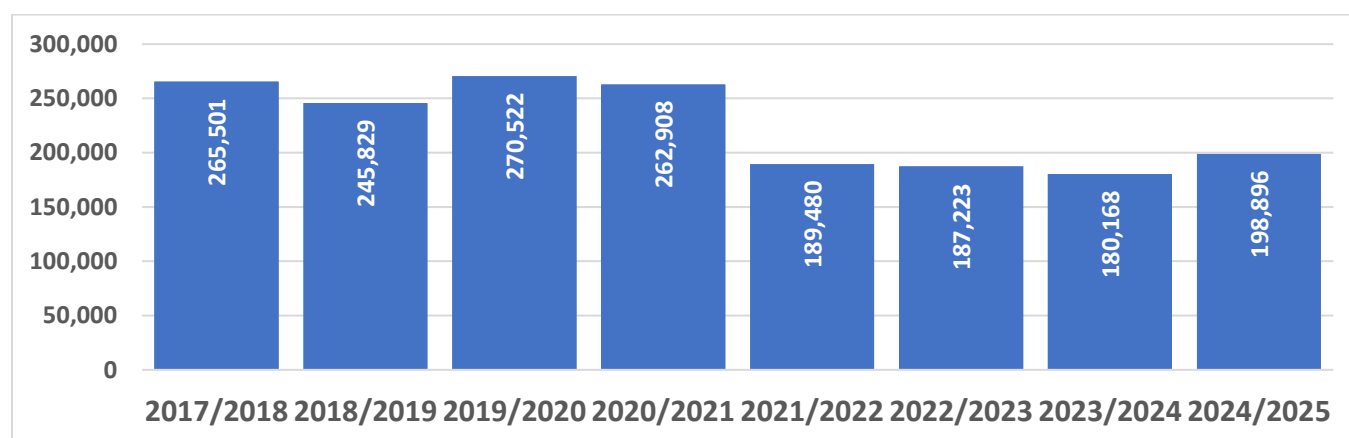
a) Soil Transmitted Helminthiasis

STH, a composite of *Ascaris lumbricoides*, Hookworms (*Ankylostoma* species) and *Trichuris Trichiuram*, still present a public health problem in Rwanda with surgeries due to intestinal obstructions.

Progress has been made in the last 15 years where the national prevalence was reduced from 66% in 2008 to 38.7% in 2020 with significant decline expected in the next impact assessment in 2026.

The health routine data showed a significant reduction of STH in 2021/2022 due to the initiation of Adults' MDA. The same reduced number of cases have been constant (in 180 thousand) until the current year where that is marked by an increase of >18,000 STH cases diagnosed in routine services at health facilities in Rwanda compared to the last fiscal year (see fig B1). *Ascaris* and Hookworms were the species that increased in the number of reported cases compared to recent years (see Fig B2). This calls for close monitoring and surveillance to prevent an upsurge of STHs after 4 years of Community-wide MDA. The persisting high number of cases diagnosed annually despite community-wide MDA shows a high transmission in the community which is suggestive of the highly contaminated environment with STH eggs (potentially due to open defecation, use of human excreta as fertilizers) and poor WASH practices. This situation calls for unconventional counter measures with all sectors onboard (WASH coordination efforts are underway as described in this report).

Figure 44: Trends of STH cases over the last 8 Years



Looking at the positivity rate for STH cases received in health facilities, it reduced significantly from 32% in 2017 to 11% in 2025

The average annual positivity rate remained unchanged (12%) as for the last year. A slight reduction was observed for *Ascaris lumbricoides* with 0.7% (from 11.2% of the last year compared to 10.5% in this FY).

Trichirus trichiura and Ankylostome species still showed a positivity rate of less than 1% the same as last year. The trend of STHs positivity rate in HFs consistently shows a decreasing tendency. The average annual positivity rate was 12% with Ascaris predominance 11.2%. Trichirus Trichiura and ankylostome species showed a positivity of rate less than 1%. Northern, Western and Southern Provinces are the most endemic.

The high positivity rates $\geq 20\%$) of STH were observed in Rutsiro, Nyamagabe, Nyaruguru, Rubavu, Ngororero and Nyabihu districts (Fig 3 and Fig 4). The results illustrate the need of strengthening interventions focusing on education for behaviour change toward prevention of NTDs and WASH improvement.

Figure 45: Laboratory STH positivity rate in HF FY 2024/2025

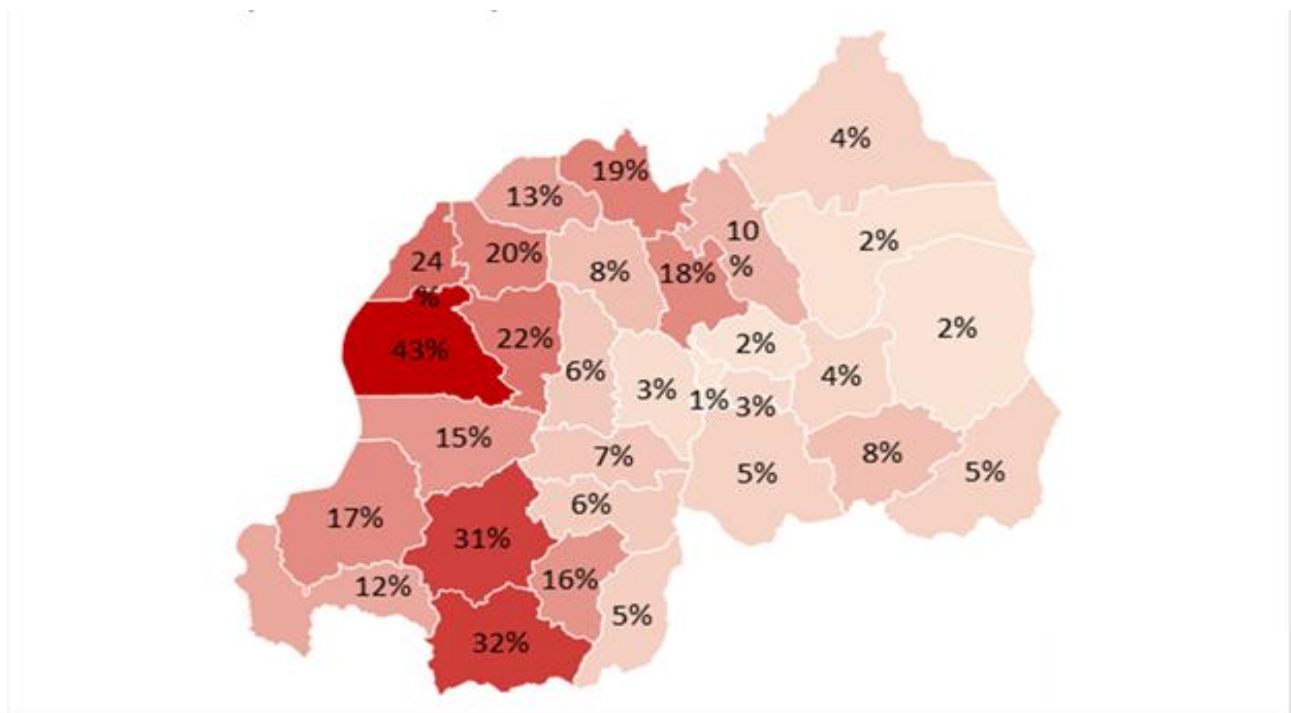


Figure 46:Trend of monthly STHs Positivity rate from Health Facilities Routine Data

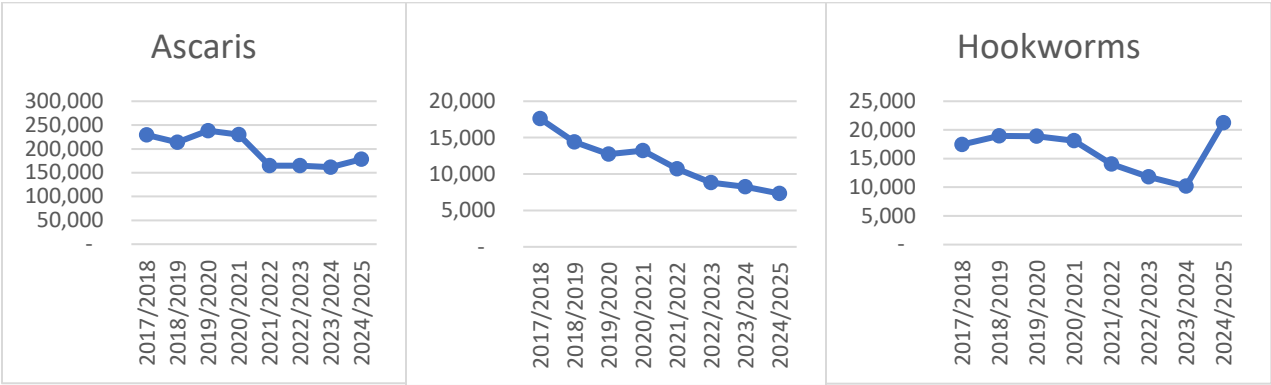
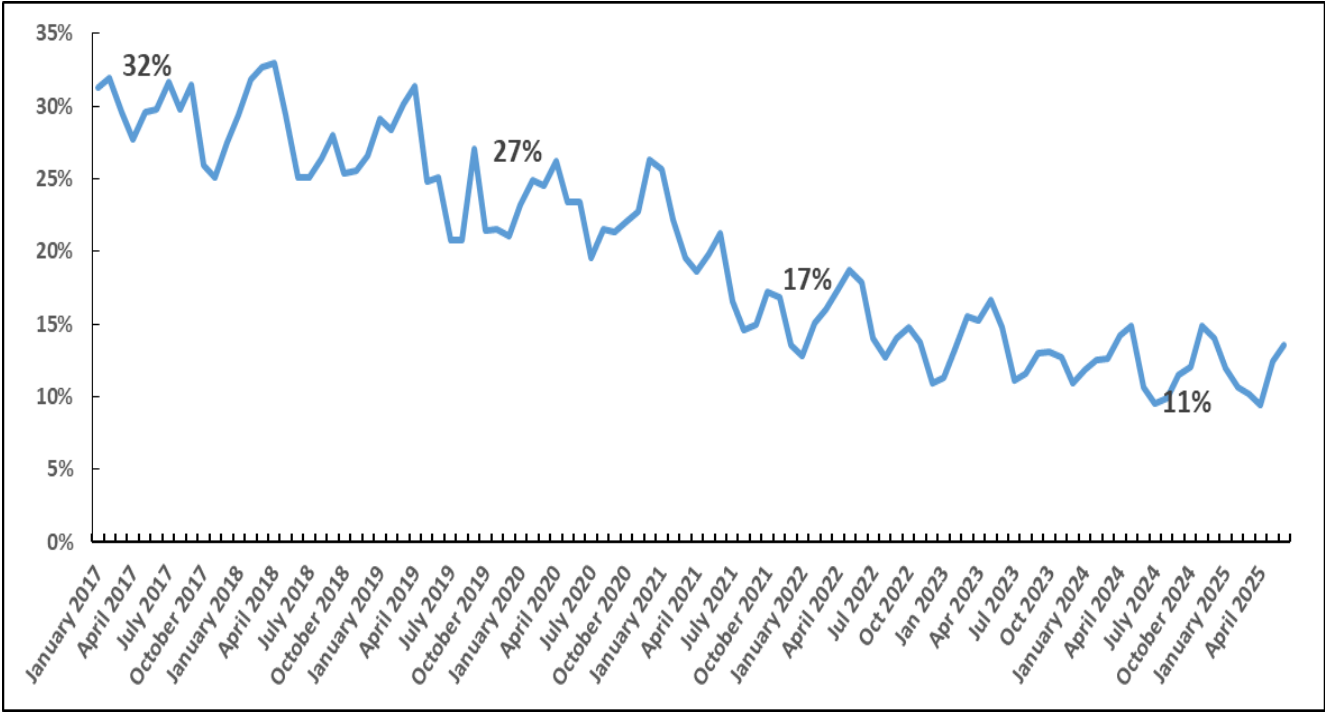


Figure 47:Proportion of STHs Positive Cases in Stool Exams Performed in Health Facility Laboratories per District



b) Other NTDs and Parasitic Diseases

Table 28: Number of Reported Diseases in 2024 - 2025

From July 2024 to June 2025, amoebiasis was the most diagnosed intestinal parasitic disease in patients visiting the health facilities, as of last year, followed by *Ascaris lumbricoides* and giardiasis.

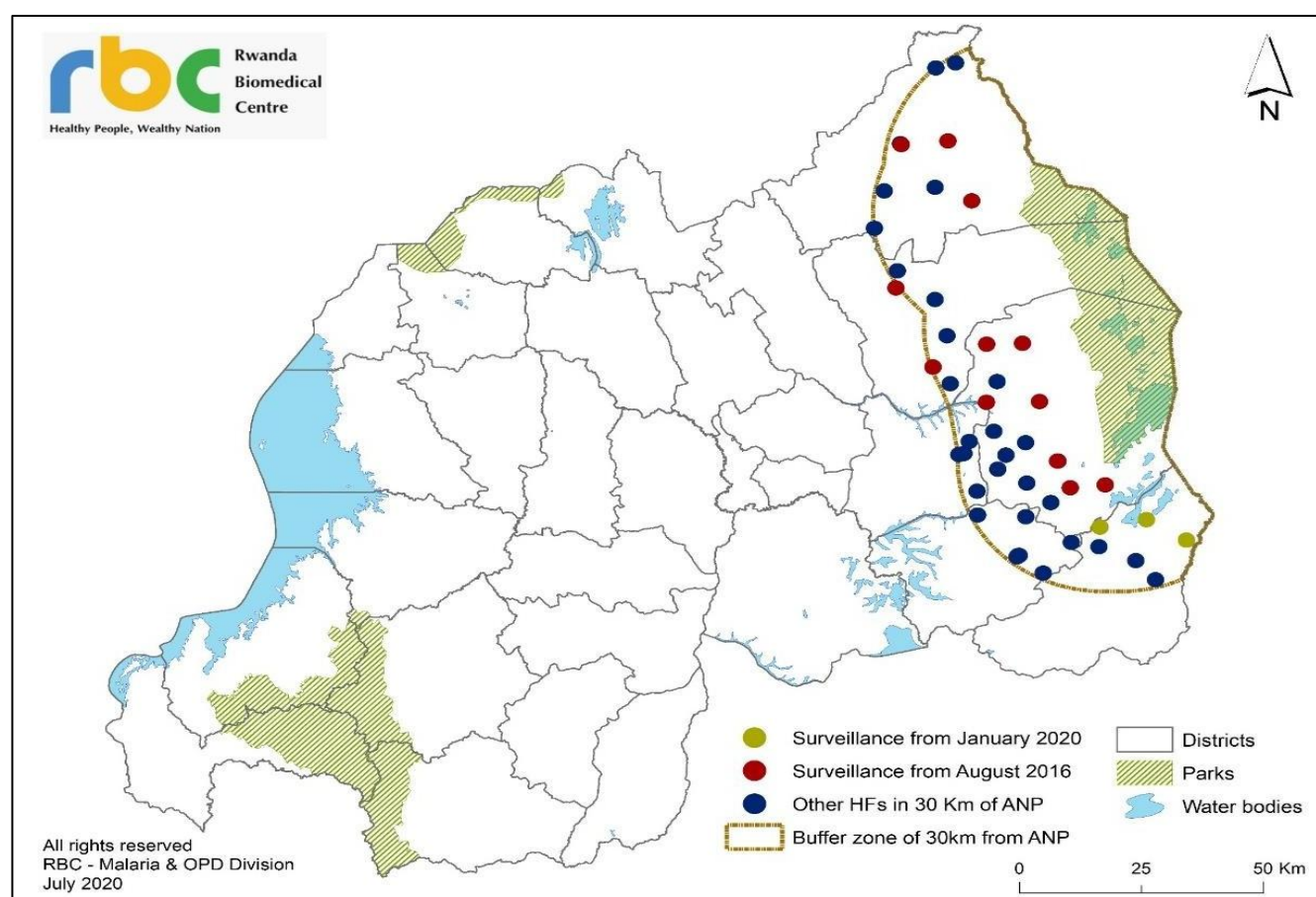
NO	VARIABLES (PARASITES/ STOOL EXAMINED)	NUMBER
1	Stools total samples analyzed Negative	1,493,431
2	Entamoeba (Unspecified species)	680,750
3	Ascariasis lumbricoides	178,219
4	Giardia lamblia or intestinalis	109,750
5	Taenia species	14,491
6	Hookworms (Ankylostomiasis)	12,368
7	Trichuris trichiura	8,309
8	Strongyloides stercoralis (Angillule)	1,944
9	Enterobius vermicularis (Oxyure)	1,756
10	Entamoeba histolytica (specified species)	1,242
11	Schistosoma in Stool	1,109
12	Trichomonas intestinalis	137

6.4. NTDs & OPDs SURVEILLANCE, EPIDEMIOLOGY, AND RESEARCH

6.4.1. Surveillance of Rhodesiense Human African Trypanosomiasis (r-HAT)

During the FY 2024-2025, the passive surveillance was conducted for Human African Trypanosomiasis (HAT) surveillance in 16 sentinel sites from Nyagatare, Gatsibo, Kayonza, and Kirehe district.

Figure 48: Sentinel Sites for Human African Trypanosomiasis



On 26 April 2022, WHO validated Rwanda as having eliminated rhodesiense Human African trypanosomiasis (r-HAT) as a public health problem. Efforts were made to maintain passive surveillance in 16 sites (health centers and hospitals) surrounding the Akagera National Park where tsetse flies are present. r-HAT diagnosis is similar to the diagnosis of malaria by screening a blood smear with a microscope. From July 2024 to June 2025, 85,397 blood smears screened, no single case of r-HAT was identified.

In addition, the central level team conducted a regular supportive supervision to the surveillance site.

6.4.1.1. Supportive supervision and quality control

During the current FY with WHO support, the supervisions were conducted from 12th to 17 January 2025 and from 23rd to 27th June 2025. Although the diseases are not existing, the surveillance will be maintained along with bi-annual supportive supervision to sentinel surveillance sites.

The following table provides numbers of people screened for rHAT in Rwanda sentinel health centers and hospitals

Table 31: Data of HAT and Malaria by Passive Surveillance in Sentinel Sites, July 2024 - June 2025

District	Surveillance Sites	Suspected	Malaria (-)	Malaria (+)	HAT Positive
Nyagatare	Nyagatare DH	3723	3493	230	0
	Bugaragara HC	6121	5269	852	0
	Ndama HC	8493	5040	3453	0
Subtotal		18337	13802	4535	0
Gatsibo	Kiziguro DH	3670	3550	120	0
	Rwimbogo HC	6829	6338	491	0
Subtotal		10499	9888	611	0
Kayonza	Gahini DH	2273	2111	162	0
	Nyakabungo HC	2741	2417	324	0
	Buhabwa HC	7920	5317	2603	0
	Ryamanyoni HC	4676	4585	91	0
	Rwinkwavu DH	2552	2458	94	0
	Cyarubare HC	2137	2095	42	0
	Ndego HC	1853	1798	55	0
Subtotal		24152	20781	3371	0
Kirehe	Kirehe DH	3415	3186	229	0
	Nasho HC	7391	6826	565	0
	Mulindi HC	3515	3397	118	0
	Kabuye HC	6620	4525	2095	0
Subtotal		20941	17934	3007	0
General Total		73929	62405	11524	0

6.4.1.2. Capacity building for health care providers and lab technicians

Rwanda achieved elimination of Rhodesiense Human African Trypanosomiasis and received WHO certification in April 2022. WHO recommended the strengthening of rHAT surveillance to ensure that rHAT remains eliminated. During the supportive supervision RBC team noticed gaps in terms of lab capacity for rHAT diagnosis, nurses, and doctors' preparedness and clinical for rHAT screening, case management, and documentation.

It is against this background that RBC in collaboration with WHO organized a training on rHAT surveillance from 28 to 31 October 2024. The objective of the training was to maintain and ensure functionality and quality of surveillance activities in Sentinel Health facilities and ensure that rHAT remains eliminated in Rwanda as a public health threat. Facilitators of the training were staff from RBC and WHO.

The trained staff included 43 lab technicians, 41 nurses, 3 doctors, 31 heads of health centers and 4 director generals from 11 sentinel sites/health centers, 28 surrounding health centers, and 5 district hospitals surrounding the Akagera national park in the Eastern province.



Dr Aimable DM/MOPD Giving closing remarks

Dr Jules/WHO delivering opening remarks

6.4.2. Monitoring the prevalence of SCH and STHs in Sentinel Villages

With support of the END Fund in collaboration with the Heart and Sole Africa/Action (HASA), ten sentinel villages were established, and followup data were collected in November 2024 of SCH and STHs. Stool and urine samples were collected from randomly selected household members and tested for STH and SCH. Below are the sentinel villages selected:

Table 32:Schistosomiasis and STH Sentinel Villages

District	Sector	Cells	Villages
Gasabo	Jabana	Kidashya	Nyamweru
Gatsibo	Remera	Kigabiro	Byimana
Gatsibo	Gatsibo	Manishya	Manishya
Gisagara	Mukindo	Nyabisagara	Butare
Gisagara	Gishubi	Nyakibungo	Nkunamo
Gisagara	Mukindo	Runyinya	Agakomeye
Karongi	Mubuga	Kagabiro	Mweya
Kirehe	Nyarubuye	Mareba	Nyacyonga II
Nyagatare	Mukama	Bufunda	Nyakajeje
Nyanza	Ntazo	Katarara	Muyenzi

Figure 49:Location of Schistosomiasis and STH Sentinel Villages

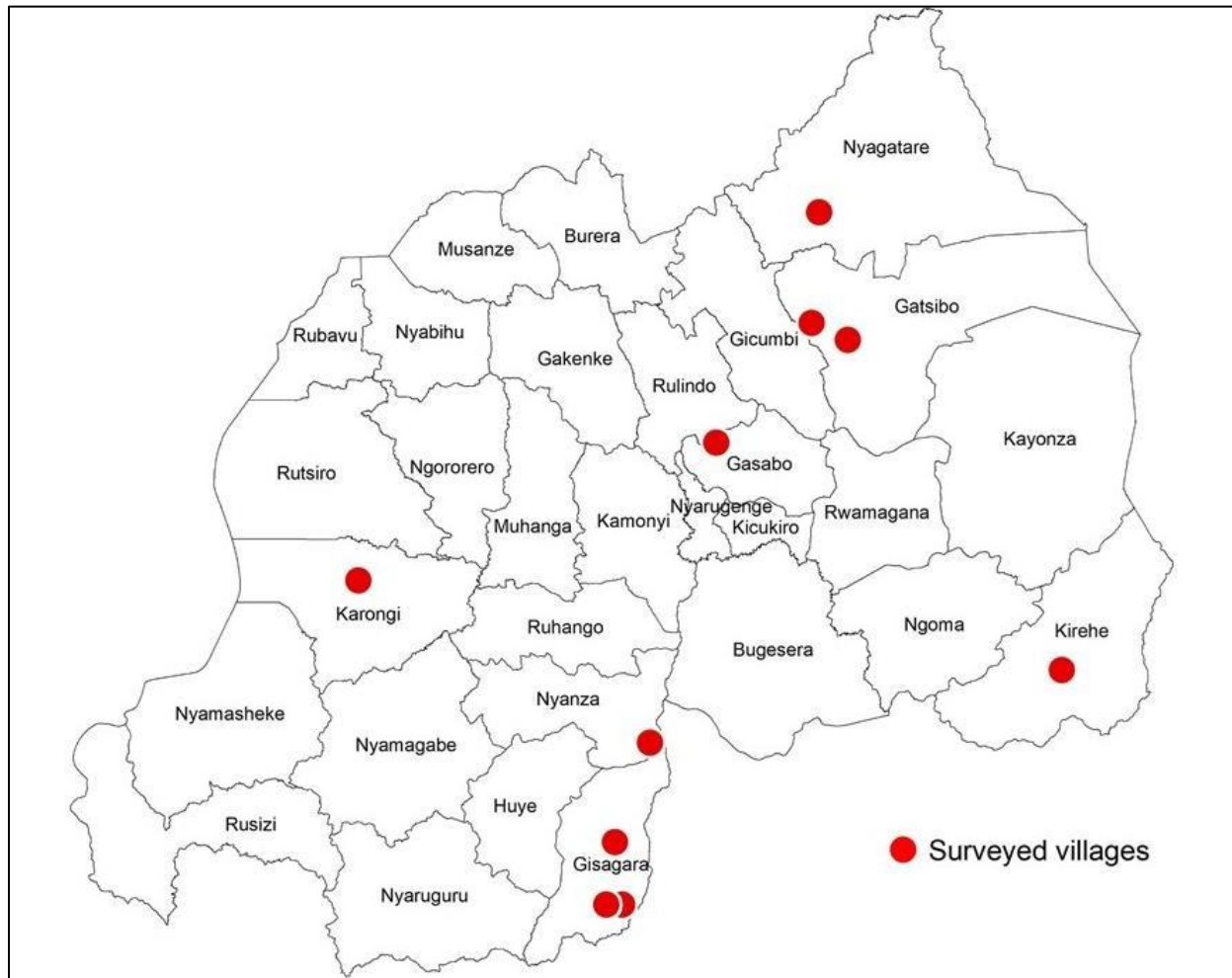


Table 33:Prevalence and intensity of infection per species

Parasite species	Baseline (2023)				After 12 months follow-up (2024)			
	<5 years n=257	5-15 years n=975	>15 years n=1263	Overall n=2495	<5 years n=188	5-15 years n=1019	>15 years n=1308	Overall n=2515
Hookworm								
n(%)	3(1.2)	34(3.5)	124(5.0)	161(9.8)	0(0.0)	28(2.8)	138(10.6)	166(6.6)
<i>Trichuris trichiura</i>								
n(%)	2(0.8)	16(1.6)	22(1.7)	40(1.6)	4(2.1)	20(2.0)	17(1.3)	41(1.6)
<i>Ascaris lumbricoides</i>								
n(%)	10(3.9)	77(7.9)	59(4.7)	146(5.8)	11(5.9)	47(4.6)	39(3.0)	97(3.8)
Total STH status								
n(%)	15(5.8)	127(13.0)	205(16.3)	347(13.9)	14(7.5)	88(8.6)	182(13.9)	284(11.3)
Schistosomiasis (Kato Katz technique)								
n(%)	2(0.8)	36(3.7)	23(1.8)	61(2.4)	1(0.5)	33(3.2)	31(2.4)	65(2.6)
Schistosomiasis (Circulating Cathodic Antigen test)								
With trace as Positive	n=249 18(7.2)	n=953 87(9.1)	n=1240 75(6.0)	n=2442 180(7.4)	n=188 10(5.3)	n=1019 55(5.4)	n=1308 63(4.8)	n=2515 128(5.1)

Overall, the results show the reduction of SCH and STH prevalence after 12 months of the follow-up. Compared to 2020 mapping results in the same villages, the data shows a reduction in the prevalence of any STH of 64% [mean sites prevalence of 31.6% in 2020, 12.6% in 2023, and 11.3% in 2024], hookworm was predominant STHs (6.6%). For schistosomiasis, there was no reduction in prevalence using KK, however the POC-CCA showed a reduction of 2.3% compared to the 2023 results. The results highlight the positive direction towards STH and SCH elimination but more efforts are needed for WASH improvement and behavior change for their preventions.

Although these 10 sentinel sites are not representative nationally, they provide a snapshot of the impact of the current treatment strategy on reduction in prevalence, and progress achieved under the revised treatment strategy through the inclusion of adults, a key reservoir of infection for STH.

The STH and SCH mapping planned in 2026 will complement the evidence toward their elimination.

6.4.4. School WASH Supportive Supervision

In partnership with World Food programme (WFP), district authorities and other RBC WASH partners, RBC conducted school WASH supportive supervision in Kayonza, Karongi and Nyamagabe districts. In total, 24 WFP supported schools were supported: 7 schools in Karongi district, 9 schools in Kayonza district and 8 schools in Nyamagabe district. The purpose of the school WASH supportive supervision was to empower school leaders, teachers and district staff on WASH improvement not only in schools but also in the community, as WASH is the backbone of school feeding programme. Discussions were conducted with schools and district authorities, strengths were documented, gaps identified, and ways of improvement recommended. Main findings are highlighted here:

a) Strengths

- Cleanliness in schools (classes, school compounds and school learners are clean with hair cut, nails clipped and cloths well washed),
- Good management of (running/rain) water using rain water harvesting tanks
- Functional school health/hygiene clubs
- Presence of safe drinking water inside the classrooms
- Good coverage of deworming

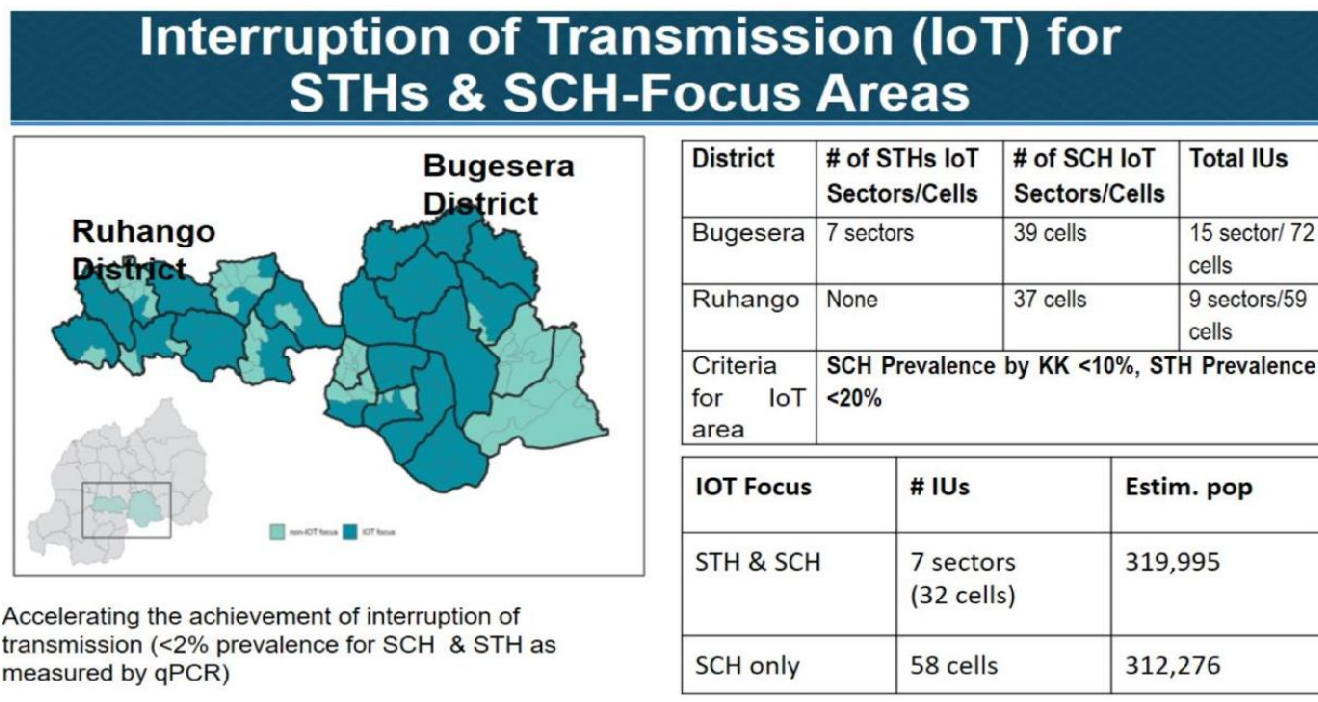
b) Area of improvement

- There is wastage of water in some schools
- Presence of human excreta on latrines floor
- Lack of WASH ownership for some school leadership and teachers
- Damaged rain water harvesting tanks but not maintained
- Insufficiency of latrines compared to the number of users
- Doors of the latrines not closed either inside nor outside or on both sides

The supervision team was composed of RBC, WFP, World Vision staff and staff from some health centers and sectors.

6.4.5. Interruption of SCH and STHs in Bugesera and Ruhango districts

With the support from the END FUND, Bugesera and Ruhango districts were selected for interruption of SCH and STH transmission. The project is being implemented in collaboration with HASA and Rwanda NGOs Forum on HIV/AIDS and Health Promotion.



The goal of IoT is to reduce to < 2% prevalence of STH and SCH as measured by qPCR in targeted areas, by 2027.

The objectives of IoT are:

- 1) To increase the correct knowledge and healthy practices of STH & SCH to at least 95% of community members in targeted areas by 2027.
- 2) To increase access to improved WASH to 100% of all households and public places in targeted areas, by 2027.
- 3) To increase to at least 95% of people with occupational risk in targeted areas having effective protective equipment, by 2027.
- 4) To reach at least 95% of all people in the IoT intervention areas with drugs for both STH and SCH per each mass drug administration (MDA) round, by 2024-2027.
- 5) To diagnose and treat 100% of suspected cases of STH&SCH according to national guidelines, in 2024-2027.
- 6) Strengthen surveillance and reporting of STH&SCH at all levels for impact measurement and timely response.
- 7) Strengthen coordination, and collaboration for STH&SCH Elimination at all levels



The IoT plan was developed during the workshop in December 2023, IoT coordinator and district coordinators were recruited. In addition, the protocol to develop need assessment was developed to generate evidence to inform IoT interventions IoT's interventions will be implemented until 2027.

Key achievements

- 789 participants reached through introductory community engagement meetings
- 308 Youth Champions trained on NTDs/WASH/SBCC
- 490 CHWs and opinion leaders trained on IoT program and related supervision on WASH/SBC
- 125 Lab technicians trained on SCH/STH diagnosis using Kato-Katz and POC-CCA, which are diagnostic tests with improved performance.
- 502 Faith leaders engaged in targeted sensitization sessions across 24 sectors of Bugesera and Ruhango
- Conducted WASH and SBC need assessment
- Conducted SCH verification survey in area assumed with low risk in IoT setting.
- Conducted environmental impact assessment for snail control to eliminate Schistosomiasis. Secured the RDB's certificate to implement control intervention. The interventions will be conducted the next fiscal year.

6.4.6. Feasibility for Elimination of STHs as Public Health Problem in High Endemic Areas

The study was conducted in the Mudende and Cyanzarwe sectors of Rubavu district, western province where overall prevalence of STH remained very high in the 2020 mapping with 89% despite 12 years of mass drug administration.

Since 2021, Rwanda has included adults in the Mass Drug Administration twice a year in 24 districts including Rubavu district and only children (1-15 years old) in the remaining 6 districts. During the FY24/25 under reporting, the one-year implementation period of the study was completed (November 2023 - December 2024) as well as data cleaning and analysis of efficacy data.

Keeping the gains achieved with 1-year implementation of the study in Mudende sector, with minimal mentorship supervision to CHWs, interventions were routinely kept in entire sector with digital data collection (IVM+ALB combination scaled-up to entire sector under frequency of 3 times a year, and Monthly household visit for WASH inspection alongside targeted education using videos and consensus on key WASH aspects to improve). Mudende sector will serve as a persisting STH high endemicity sentinel sector (PSTH) and annual measurement will inform the impact of interventions but also the feasibility of eliminating STH if similar interventions could be scaled-up in other districts.

Analysis of the risk factors, implementation research studies, and impact study are under process and will be reported in the next FY. Below is a summary of prevalence and efficacy findings.

Efficacy:

Both Albendazole (ALB) and Albendazole +Ivermectin (ALB+IVM) showed excellent efficacy against *Ascaris lumbricoides* where ALB achieved an egg reduction rate (ERR) of 99.7% (Egg per gram of stool-EPG- from 26,490.8 to 70.5 whereas ALB+IVM achieved an ERR of 99.9% (EPG from 43,694.3 to 22.2). Cure rates were 94.6% for ALB and 96.8% for ALB+IVM. High efficacy was consistent across age groups, including school-age children (SAC) with very high baseline EPG. ALB+IVM outperformed ALB against *Trichuris trichiura* (ERR 75.8% vs. 16.6%).

Cure rates for *T. trichiura* were 45.3% with ALB+IVM versus 12.5% with ALB. For the short-term impact, ALB+IVM reduced *T. trichiura* MHI infections below the WHO 2% threshold (87% reduction) contrary to ALB monotherapy which showed limited effect on *T. trichiura* MHI (20% reduction overall; 7.5% in SAC). For "any STH," ALB+IVM achieved a 97.2% MHI reduction and 48.8% prevalence drop, versus 80.3% and 18.3% for ALB monotherapy

Table 34: Therapeutic efficacy and short-term impact of ALB and ALB & IVM by age category

Metric	Adults_16 + (N=373) ALB	SAC_5_15 (N=208) ALB	Total (N=581) ALB	Adults_16+ (N=340) ALB_IVM	SAC_5_15 (N=200) ALB_IVM	Total (N=540) ALB_IVM
Ascaris lumbricoides						
Egg Reduction Rate	98.8%	100.0%	99.6%	99.9%	99.9%	99.9%
Cure rate	93.0%	97.2%	94.9%	94.6%	93.9%	94.3%
Reduction rate of MHI	98.4%	100.0%	99.2%	100.0%	99.3%	99.7%
Trichuris Trichiura						
Egg Reduction Rate	25.2%	12.1%	16.3%	70.8%	75.7%	74.0%
Cure rate	16.2%	7.4%	12.5%	53.7%	32.8%	44.4%
Reduction rate of MHI	45.0%	5.9%	16.9%	88.0%	85.7%	86.6%
AnySTH						
MHI reduction rate	90.7%	67.3%	78.3%	98.0%	95.5%	96.7%
Positivity reduction rate (PRR)	16.5%	8.0%	13.2%	52.9%	34.0%	45.3%

Safety monitoring of Albendazole and Albendazole + Ivermectin

The safety assessment aimed at monitoring any signs and symptoms before and post treatment, focusing on new reported ones. The study included 3,056 participants in the parasitological follow-up group and 26,355 in the general community group . The general community group reported fewer new symptoms (ALB+IVM: 5; ALB: 58) compared to the parasitological follow-up group. In the parasitological group, both ALB+IVM and ALB were safe, with no major differences in frequency or severity of signs and symptoms. Worm excretion was more common in the ALB+IVM group than ALB. Gastrointestinal symptoms made up 77.7% (1,113/1,433) of all new adverse events.

The most frequent symptoms were worm excretion (1,042 cases), diarrhea (70), vomiting worms (60), and headache (58) and all linked to the worm infections. Excreting worms occurred more often in ALB+IVM (32.9%) vs ALB (13.7%). The peak day of worm excretion differed: Day 2 for ALB+IVM (21.3%) vs Day 3 for ALB (7.8%). By intensity, worm excretion was highest in MHI infections (ALB+IVM Day 2: 24.8%; ALB Day 3: 9.8%). All symptoms were mild, transient, and resolved without medical intervention, with no severe adverse events reported.

Policy implications: These findings highlight an additional advantage of the ALB+IVM combination over ALB monotherapy and call for resource mobilization for scale-up.

6.4.7. Onchocerciasis Mapping in Rwanda

Breeding sites mapping of black flies

During the FY 2024-2024 trained local entomologists guided by the END Fund's experts prospected 600 rivers, 709 fast flow river stretches for breeding sites of black flies, vectors of Onchocerciasis. The collected black flies were identified at the entomology laboratory and 12 breeding sites were identified positive for black flies *Simulium damnosum* complex responsible for Onchocerciasis transmission.



Photo: *River prospection during Breeding Site Mapping*

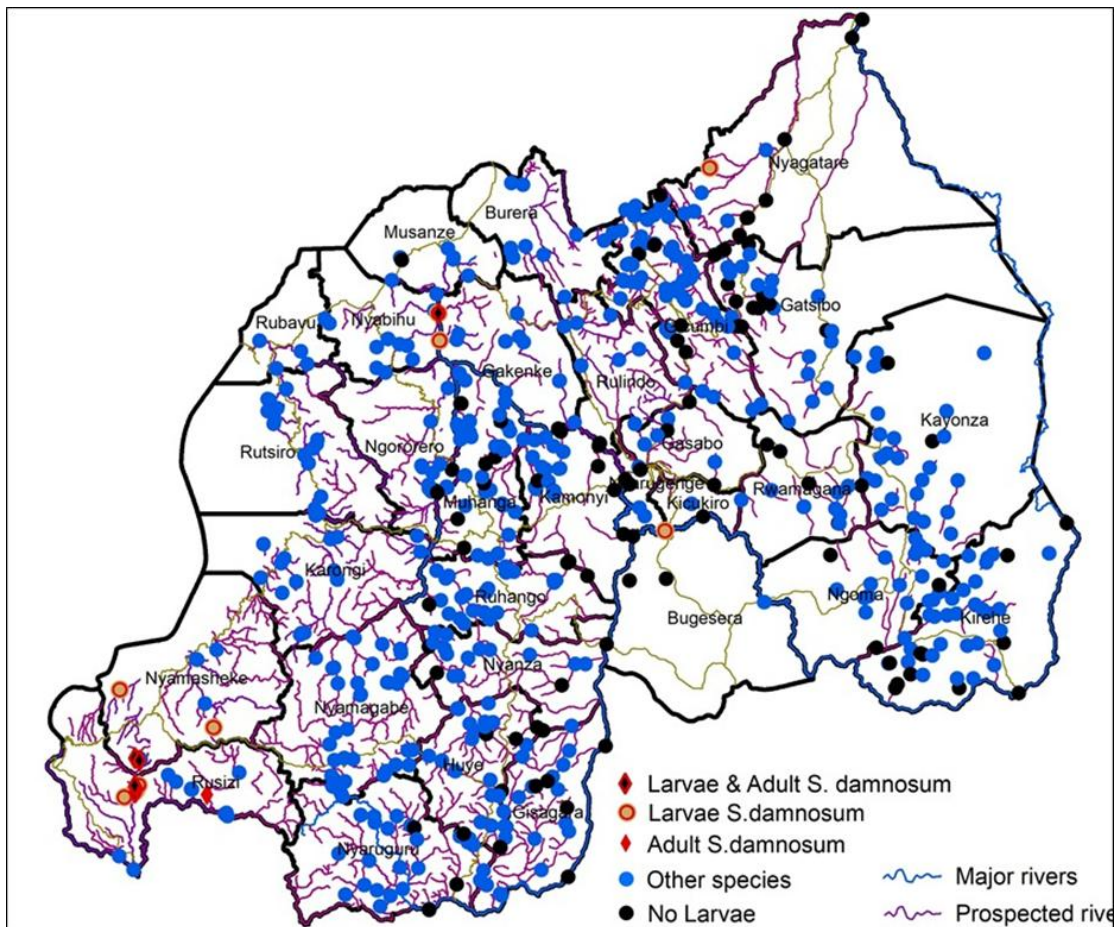


Fig. 50 Identified positive breeding sites of *Simulium Damnosum*

The NTD program in collaboration with partners plans to conduct serological assessment in the communities around the identified breeding sites including children aged 5 to 9 years old (3600) and adults aged 20 years and above (1800). The participants will be tested using a WHO recommended Rapid Test (OV16) and the results from the assessment will inform the future interventions for Onchocerciasis control in Rwanda.

6.4.8 Post MDA Coverage Survey for SCH and STH

Conducted MDA coverage survey in 5 selected districts (Ruhango, Karongi, Bugesera, Gasabo, and Gicumbi) to validate the reported coverage of the MDA conducted during January 2025. The findings validated the coverage and the surveyed coverages were above the recommended WHO's effective coverages validating the process of reporting MDA data. The surveyed STH MDA coverage was above 90% while the coverage of SCH MDA was above 85%. The SCH showed a large number of people who did not take the drugs compared to STH. There is a need to strengthen health education for behavior change, community engagement and ownership of the MDA.

Table 35: Survey-based coverages (Reach and uptake) for MBZ/ALB and PZQ and Comparison with administrative coverage by district)

District	Albendazole/Mebendazole				Praziquantel			
	Reported/ Administrative coverage		Survey estimates % [95% CI]		Reported/ Administrative coverage		Survey estimates % [95% CI]	
	%	Average	Reach	Drug uptake	%	Average	Reach	Drug uptake
Bugesera	97	96%	92.5 [85.8 – 96.2]	91.9 [84.3 – 96]	-	80%	88.7 [79.4 – 94.2]	88 [78.7 – 93.6]
Gasabo	93				72			
Gicumbi	97.7				90			
Karongi	92.3				78			
Ruhango	99.7				-			

6.5. WASH AND NTDs COORDINATION

6.5.1. Cascading Training on WASH Improvement

Through a multisector collaboration approach, NTD&OPDs conducted cascading training on WASH improvement down to the community in Kayonza, Ngoma Kicukiro districts. This cascade training started by training of trainers at district level followed by training at sector and school level.

However due to conflicting agenda (end of year examination), training in all schools was not conducted in Kayonza district. It will be conducted in September 2025. The purpose of this roadmap is to strengthen multisectoral collaboration between WASH-NTD stakeholders at national and district level so as to speed up STH and SCH elimination as a public health problem and other parasitic diseases as well. Training materials and M&E tools were delivered to districts and hospital officials for use during the training.

The following table highlights attendance status in the districts of Kayonza, Ngoma Kicukiro districts.

#	District name	#cells	#villages	# of schools	#trained teachers	#trained SEDO & ES	#Trained CHWs & Village leaders	Grand Total
1	Kicukiro	41	327	150	115	61	494	710
2	Ngoma	64	473	223	892	128	943	2,054
3	Kayonza	70	598	246	224	129	1,111	1,554
	Total	175	1,398	619	1,231	318	2,548	4,318

The training was conducted in 3 districts among the remaining at the end of June 2024; 4,318 participants from village to district level were trained. The remaining district is Huye where training is ongoing.



Training of trainers on WASH improvement in Ngoma district

The NTD sub-Technical Working Group was conducted from 24 to 26 March 2025. The workshop brought together Government and non-Government Institutions and partners intervening in WASH-NTD interventions. The objective of the meeting was to update participants on the progress and success achieved in NTDs prevention and control, and the way forward in NTDs elimination journey in line with WHO roadmap 2021-2030 for NTDs. Specific objectives were the following:

- Discuss the NTDs control activities per each committee, and assign the activities to each committee until June 2025;
- Validate Rwanda Joint Roadmap for WASH-NTD Coordination activities;
- Validate NTD program review report, strategic intervention and activities of the new NTD strategic plan. The finding from the NTDs program review informed the development of the new NTD strategic plan aligned with the Fifth Health Sector Strategic Plan (HSSP V)

At the end of the workshop, there was a planning session where every committee produced a quarterly action plan for April-June 2025.



PART VII: FINANCING THE MALARIA AND NTD PROGRAMS

1. Introduction

The financing of the Malaria Strategic Plan becomes a high priority for the GoR. The MSP is funded by the Government of Rwanda, the Global Fund for HIV & AIDS, TB and Malaria Results Based Financing (GF), the US President's Malaria Initiative and END FUND.

Through SMART FMIS (Integrated Financial Management Information System), data of the actual financial report was generated given that HRTT captured the budget and expenditures of the reporting period. To facilitate the collection of financial information for this year's report, a separate data collection process was adopted for Global Fund grant and Government contribution.

2. Public and External Funding Sources for Malaria Program

Below a summarized table illustrates the malaria budget by source of funding with: Global Fund, Government of Rwanda and Presidential Malaria Initiative (PMI) for Financial year 2024-2025. The current total expenditures are amounting to USD 52,731,372 which represents 101% of total budget of USD 51,992,244 this overspend was due to abnormal increase of Malaria cases.

Table 36: Malaria and NTDs Budget and Expenditures by Source of Funds, FY 2024-2025

Funding Sources	Approved Budget FY 2024-2025 USD	Expenditures FY2024-2025 USD	Variance USD	Performance Rate (%)
GF	16,363,317	17,731,181	-1,367,864	108%
GoR	16,935,033	16,430,601	504,432	97%
PMI	18,000,000	18,000,000	0	100%
END FUND	693,894	569,590	124,304	82%
TOTAL	51,992,244	52,731,372	-739,128	101%

3. Government Expenditures by MTEF Chapter for Financial year 2024-2025

The total GoR contribution to malaria expenditures is USD 16,935,033 from this budget the total expenditures are USD 16,430,601 representing 97 % of total budget.

As presented in Table below, of the total expenditure was allocated to: (i) Compensation of employees, (ii) Use of goods and services, (iii) Subsidies (iv) Grants (v) Social assistance; (vi) Other expenditures; (vii) Inventory and (viii) Fixed tangible non-financial Assets MTEF Chapter.

Table 37: Government Expenditures by MTEF Chapter for Financial Year 2024-2025

MTEF Chapter	Approved Budget FY 2024-2025 USD	Expenditures FY2024-2025 USD	Variance USD	Performance Rate (%)
21 Compensation of employees	9,791,782	9,569,573	222,210	98%
22 Use of goods and services	3,799,906	3,724,268	75,638	98%
25 Subsidies	466,977	465,714	1,263	100%
26 Grants	1,210,392	1,170,863	39,529	97%
27 Social assistance	1,338,419	1,177,582	160,837	88%
28 Other expenditures	224,688	219,755	4,932	98%
33 Inventory	81,226	81,226	-	100%
34 Fixed tangible non-financial Assets	21,641	21,620	22	100%
Total	16,935,033	16,430,601	504,431	97%

b. Government Expenditures by Budget Agencies for Fiscal Year 2024-2025

As reflected in the table below, the GoR budget per budget agency is USD 16,935,033 whereas the expenditure is USD 16,430,601. The type of budget agencies with the highest budget ceiling is Districts hospitals with USD 5,230,253, Ministry of Health with USD 4,847,357 and RBC with USD 2,259,467. The expenditures were respectively USD 4,918,507 for Districts, for USD 4,601,263 for Ministry of Health and USD 2,253,517 for RBC.

Table 38: Government Expenditures by Budget Agencies for Fiscal Year 2024-2025

Budget Agencies	Approved Budget FY 2024-2025 USD	Expenditures FY2024-2025 USD	Variance USD	Performance Rate (%)
CHUB	1,005,222	1,005,222	-	100%
CHUK	1,415,273	1,415,273	-	100%
Districts	5,230,253	4,918,507	311,745	94%
HNN	397,159	562,883	- 165,724	142%
MINISANTE	4,847,357	4,601,263	246,094	95%
RBC	2,259,467	2,253,517	5,950	100%
RMH	1,106,002	1,106,002	-	100%
RWANDA FDA	674,299	567,933	106,367	84%
Total	16,935,033	16,430,601	504,431	97%

4. Global Fund contribution to Malaria Program

As reflected in the table below, the Global Fund contribution, the budget for the year 2024-2025 was USD 16,363,317. Out of this budget, a total of USD 17,731,181 using the overspending request.

Table 39: Global Fund Expenditures by MTEF Chapter for 1 July 2024 to 30 June 2025

MTEF Chapter	Approved Budget FY 2024-2025 USD	Expenditures FY2024-2025 USD	Variance USD	Performance Rate (%)
22 Use of goods and services	10,976,218	12,069,155	-1,092,937	110%*
26 Grants	2,546,571	4,042,385	-1,495,814	159%**
28 Other expenditures	2,840,529	1,619,641	1,220,888	57%***
Total	16,363,318	17,731,181	-1,367,863	108%

Comments:

*This Overspend on GF due to Malaria Resurgence leading to increased need (RDTs and ACTs)

** This overspend was due to intensive activities of spraying and the detection of new cases of Malaria

***This variance was reallocated to cover the gaps in RDT and drug procurement

5. PMI Expenditures for the Fiscal Year 2024-2025

The PMI contribution for malaria expenditures went specifically to malaria preventive intervention and to malaria case management interventions. The budget for preventive interventions was spent mainly on the procurement of LLINs and IRS. The total budget of USD 18,000,000 was used in totality at 100% end June 2025.

6. END FUND

Out of the total budget received of USD 693,894 was used with total expenditures of USD 569,590 representing 82%.

7. Conclusion

The overall Malaria Budget execution for Fiscal year 2024-2025 is at **101%**.

PART VIII: MALARIA PERFORMANCE FRAMEWORK

Table 40: Impact Indicators

ITEMS	INDICATORS	Baseline	Year of Baseline	2024-2025 Targets	2024-2025 Results	%
Goal	Impact Indicators					
By 2027, reduce malaria morbidity and mortality by at least 50% of the 2019 levels.	Annual Parasite Incidence per 1,000 persons	321	2018-19	40	76	52%
	Inpatient malaria deaths per 100,000 persons per year	2.1	2018-19	0.4	0.6	67%
	Number of confirmed malaria deaths	264	2018-19	35	87	40%

Table 41: Coverage and Outcome Indicators

ITEMS	INDICATORS	Baseline	Year of Baseline	2024-2025 Target	2024-2025 Results	%
Objective 1:	Coverage Indicators					
By 2024, at least 85% of population at risk will be effectively protected with preventive interventions	Proportion of structures in targeted areas that received indoor residual spraying (IRS) during the reporting period	98%	2018-19	98%	99.86%	100%*
	Proportion of population protected by indoor residual spraying within the last 12 months in targeted districts	98.9%	2018-19	85%	99.88%	100%*
Objective 2:	Outcome Indicators					
All suspected cases are promptly tested and treated in line with national guidelines	Proportion of suspected malaria cases that receive a parasitological test at public sector health facilities	NA	2018-19	99	100%	100%**
	Proportion of suspected malaria cases that receive a parasitological test at the community level	NA	2018-19	99	99.8%	100%*
	Proportion of confirmed malaria cases that received first-line antimalarial treatment according to national guidelines at public sector health facilities	100%	2018-19	99	100%	100%*
	Proportion of confirmed malaria cases that received first-line antimalarial treatment according to national guidelines at the community	100%	2018-19	100	100%	100%*

Note:

* The percentage was greater than 100%

**The number of tests was greater than the number of fever cases due to some tests being performed with no documentation of fever by clinicians. This is a new indicator and more efforts are needed to improve the documentation of fever