Evaluation

Assessing the Economic Impact of Malaria on Vulnerable Populations in Côte d'Ivoire

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Cover photo: USAID PMI Mission team in Côte d'Ivoire, 2024

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Abbreviations

ACT	Artemisinin-based combination therapies
ANC	Antenatal care
ARC	Acute respiratory infection
AVEC	Association Villageoise d'Epargne et de Crédit
CCM	Country Coordination Mechanism
CHW	Community Health Worker
CMU	Universal Health Coverage
CNAM	National Health Insurance Fund
CSPro	Census and Survey Processing System
D4I	Data for Impact
DHIS2	District Health Information Software 2
DHS	Demographic and Health Survey
CFA	African Financial Community Franc
FGD	Focus group discussion
FHSP	Free Health Services Policy
GDH	General Directorate of Health
GF	Global Fund to Fight AIDS, Tuberculosis and Malaria
HIV/AIDS	Human Immunodeficiency Virus/AIDS
IEC	Information Education Communication
IPT	Intermittent Preventive Treatment
ITN	Insecticide Treated Net
JHU CCP	Johns Hopkins University/Communication Programs Center
KII	Key informant interviews
LHSPLA	Local Health Supply Procurement and Logistics Activity
LLIN	Long-lasting insecticide-treated nets
NAP	National AIDS Control Program
NGO	Non-Governmental Organization
NMCP	National Malaria Control Program
NMF	New Funding Model (Global Fund,)

NPSP	Nouvelle Pharmacie de la Sante Publique
NSP	National Strategic Plan for Malaria Control
PMI	US President's Malaria Initiative
PSI	Population Services International
RASS	Rapport annuel de la situation sanitaire
RBM	Roll Back Malaria
RDT	Rapid Diagnostic Tests
SBCC	Social and Behavior Change Communication
SP	Sulfadoxine-Pyrimethamine
SPA	Service Provision Assessment
SPSS	Statistical Package for the Social Sciences
TFP	Technical and Financial Partner
UNICEF	United Nations of International Children’s Emergency Funds
USAID	United States Agency for International Development
WAEMU	West African Economic and Monetary Union
WHO	World Health Organization

Executive Summary

Context

The government of Côte d'Ivoire has adopted a free health services policy (FHSP) over the past ten years in the aftermath of the post-election political crisis of 2011. This policy has been followed by other initiatives of free access to health services targeting certain segments of the population for specific health services, including malaria prevention and cases management throughout the country. To date, little is known about the impact of these policies on vulnerable people affected by malaria and their economic impact. At the request of the U.S. President's Malaria Initiative (PMI) in Côte d'Ivoire, the Data for Impact (D4I) project conducted an assessment of the impact of these policies on vulnerable populations affected by malaria and the economic impact they entail. The results of this assessment are expected to contribute to better targeting and organizing interventions and services for the most vulnerable populations (including pregnant women and children under 5 years of age) burdened with malaria or those who do not have easy access to malaria control services.

Evaluation objectives and questions

The study aimed to: (1) Assess the economic impact of malaria control services on vulnerable groups (children under 5 years of age and pregnant women) in Côte d'Ivoire, (2) Assess the effectiveness of free health services policies adopted by the Government of Côte d'Ivoire to increase or facilitate access to and use of health services for vulnerable populations.

Three questions guided the design of the evaluation. These questions focused on the accessibility of malaria control services, the economic impact of malaria, the contribution of the free health services policy, and gender equality in accessing health services.

Question 1: Has the free health services policy increased access to and use of malaria services by pregnant women and children under five?

Question 2: Are there socio-demographic differences in access to malaria services, including free services?

Questions 3: Has access to essential malaria services under the free policy reduced the malaria burden for vulnerable populations?

Design and methods

The evaluation was conducted using a non-experimental approach. This approach is commonly used in the evaluation of health programs aimed at assessing the impact of interventions, in contexts where experimental or quasi-experimental approaches are practically and ethically difficult to implement. In addition, the evaluation used a mixed approach combining quantitative and qualitative methods with data from multiple sources, including a grey literature review.

Quantitative methods consisted of a health facility survey, a client exit survey, secondary analysis of HDS data, and analysis of routine DHIS2 data.

Qualitative methods consisted of focus groups discussions (FGDs) and key informant interviews (KIIs).

The **grey literature review** examined various documents from the national malaria control program and

documents related to the country's free health services policies.

Quantitative component sample

Health facilities' survey

The survey was conducted in 50 health centers with 50 persons (one person per center: the head of the center or any authorized staff). The survey was conducted in the Moronou region, which is supported by PMI due to its very high malaria transmission.

Client exit survey

The survey was conducted among 192 people at exit (60 pregnant women and 132 children under 5 years old). The survey was conducted in the 50 health centers mentioned above (3 to 4 persons per center).

DHIS2 routine data analyses

Data came from all health centers and districts in the Bafing, Cavally, and Moronou regions.

Secondary analysis of DHS data

Data came from 2 DHS cycles: HDS-CI 2011–2012 and DHS-CI 2021.

Qualitative Component Sample

Key informant interviews

30 informants were interviewed, including 16 at the national level and 14 at the district and regional levels in the Moronou region.

Focus groups

31 focus groups were conducted in the catchment areas of 31 of the 50 health centers mentioned above. There were a total of 205 participants, including 85 pregnant women and 120 parents of children, (6 to 7 participants per group).

Results

Summary findings from the health facility survey

General characteristics of health center managers

The majority of health facility managers surveyed were men (86%). Eighty eight (88%) were nurses, 10% doctors, and 2% midwives. The average length of time working by the managers in their health centers was between 4 and 5 years.

Management of the FHSP

Malaria case management guidelines and FHSP policy guidelines were not available in all health centers. Overall, national malaria case management guidelines were available in less than three-quarters (70%) of the centers and the FHSP guidelines were available in less than half (40%) of the centers.

Supervision training

Almost all (90%) of the centers managers were trained in the management of malaria cases and 92% reported having received a supervisory visit from the district in the 6 months prior to the survey. Forty-nine of the center managers (98%) indicated that the provision of free malaria services was specifically addressed during district supervision.

Costs

Overall, the managers of the health centers estimated the avoided cost of the FHSP in malaria case management in pregnant women at 1,062 CFA francs. For children under 5 years old, the avoided cost was estimated at 514 CFA francs.

Availability of drugs and commodities

Respectively, 32%, 76%, 82%, 70%, 62%, and 30% of health centers reported a stockout of ACT, RDT, SP, injectable artesunate, rectal artesunate, and long-lasting insecticidal nets (LLINs) for at least seven consecutive days in the month preceding the survey.

Level of satisfaction

About a quarter (24%) of health center managers said they were totally satisfied with the implementation of FHSP. The others were partially satisfied (42%), not very satisfied (28%) or not satisfied at all (3%). For those not totally satisfied, the reasons were: frequent stockouts of commodities (35.8%), the limitation of free treatment to ACTs only (32.1%), the lack of awareness among the population (25%) and the low/non-involvement of private centers (7.1%)

Reinforcement of the free policy

More than half of the center managers (54%) suggested improving the supply of commodities (avoiding stock shortages). Other suggestions were to strengthen the coordination and implementation of the FHSP through training and supervision (16% of managers), strengthen public awareness of the free health policy (14%), and extend the free treatment to other medicines in addition to ACTs (10% of center managers).

Results of client exit survey

General characteristics

Male children represented more than half of the children under 5 years of age enrolled (53%), and the majority of children's caretakers were female (79%). Nearly half of the pregnant women enrolled (46.7%) had never been to school. Pregnant women that only attended primary school accounted for 25%. More than a third (34.1%) of the caretakers of children under 5 years of age had never been to school, and nearly 40% of these carers only attended primary school.

Distance from the place of residence to the health center

The majority of pregnant women (78.3%) and children (65.9%) enrolled lived less than one km from the health center.

Direct costs (expenses) during the consultation on the day of the survey

The majority of pregnant women and parents/carers of children (80%) were unaware of the average malaria management cost avoided with the FHSP. For the 20% of participants who responded, the average costs of malaria management avoided with the FHSP were 3,989 CFA francs (pregnant women) and 3,389 CFA francs (children under 5 years of age).

Indirect costs (transport from the place of residence to the health center for the consultation on the day of the survey)

These costs were estimated at 228 CFA francs on average for pregnant women and 324 CFA francs for children under 5 years old. Pregnant women and those accompanying children estimated the number of days of interruption of professional activities caused by an episode of malaria at three days and four days,

respectively.

Income

The average monthly household income reported by pregnant women and persons accompanying children was 20,341 CFA francs and 35,412 CFA francs respectively, amounts far below the minimum wage in Côte d'Ivoire set at 75,000 CFA francs.

Free services received

Diagnosis (RDT), treatment (ACT), IPT, and prevention with LLINs were respectively provided to 60%, 53.3%, 56.7%, and 70.0% of pregnant women on the day of the survey. Respectively, 66.7%, 66.7%, and 75.2% of children under 5 years of age received free diagnostic, ACT and LLIN services.

Communication

The majority of pregnant women (80%) and caretakers of children under 5 years of age (72.7%) reported they were informed of the FHSP. Among informed pregnant women, the sources of information were mainly the health center (70.8%), the community/other patient (18.8%) and other (radio/TV) 10.4%. The main source of information among caretakers of children under 5 years of age was the health center (76%), the community (12.5%) and radio/TV (11.4%).

Sharing information on the free policy

More than half of pregnant women (51.7%) and nearly half of those accompanying children under 5 years old (43.2%) said they had shared the information with other people.

Satisfaction of clients

About a quarter of pregnant women and accompanying children, 26.6% and 24.2% respectively, said they were totally satisfied with the implementation of free services. The rest of pregnant women (75.8%) and caretakers of children (56.8%) were partially, somewhat, or not at all satisfied. For pregnant women and children's caretakers not totally satisfied, the main reasons given were the limited coverage (medicines) and stockouts of commodities.

Summary findings from DHIS2 routine data analysis

LLIN prevention from 2018–2022

Similar trends were observed in the distribution of LLINs among pregnant women and children under 5 years of age in the Bafing, Cavally, and Moronou regions, regardless of absolute numbers that reflected the difference in target populations between regions. This trend was punctuated by the important increases in LLINs distributed during mass distribution campaigns.

Prevention of IPT1 and IPT2 from 2018–2022

Overall, there was a steady increase in the administration of IPT1 and IPT2 in the Cavally region between 2018 and 2022, apart from a slight depression in 2019 of IPT1. In the regions of Moronou and Bafing, the administration of TP1 and TP2 experienced a succession of increases and decreases between 2019 and 2022.

IPT-3 and IPT4 and above

Overall, there was an increase in the administration of IPT3 and IPT4+ in the three regions between 2018–2022, and this increase was much more marked in the Cavally region, although the trends were not

constant over the years. It should be noted that the regions of Bafing and Moronou saw decreases in IPT4+ in 2022 compared to 2021. However, in Cavally, there was an increase in IPT4+ in the same period.

Suspected malaria cases from 2018–2022

Similar trends in the number of suspected malaria cases in children under 5 years of age occurred in the three regions. This trend revealed a steady decrease in suspected cases from 2018 to 2020, followed by a continuous increase from 2020 to 2022.

RDT diagnosis from 2018–2022

The percentage of suspected malaria cases tested in children under 5 years of age was low (58%) in 2018 in the Moronou region and increased sharply to 98% in 2019. This level was maintained in 2020. The percentage fell slightly to 94% in 2021 and stabilized at the same level in 2022. The Cavally region had percentages well above 100% in 2018, 2019, and 2020 which then decreased, stabilizing at the recommended threshold of 100% in 2021 and 100% in 2022. The situation in the Bafing region was comparable to that of Cavally, with percentages above 100% in 2018 and 2019 in smaller proportions. The percentage remained stable at almost 100% in 2021 and 2022.

Treatment of ACT from 2018–2022

The percentages of confirmed cases of malaria in children under 5 years of age who were treated with ACT from 2018–2022 remained overall below the recommended threshold of 100% in the three regions. In the Moronou region, the percentage fluctuated (decreased and increased successively) between 2018 and 2022. Apart from the value of 171.2% observed in 2018, which appears to be a notification or transcription error, the percentage reached 93% in 2019 and 92% in 2021 but dropped below 90% in 2020 and 2022. The Cavally region also experienced a fluctuation between 2018 and 2022, however, with values above 90%, reaching 95% in 2018, 2020, and 2022. In the Bafing region, the percentages remained below 80% in 2018, 2019, and 2020 and then increased to 94% in 2021 and 95% in 2022.

Severe malaria cases from 2018–2022

Overall, there was a decline in the number of severe malaria cases reported in children under 5 years of age between 2018 and 2020 in the three regions. This general downward trend, which reached zero serious cases reported in the Bafing region in 2019, contrasts with a significant increase in 2021 and 2022, especially in the Cavally region, which peaked in 2021.

Malaria deaths from 2018–2022:

Overall, the relatively high number of malaria-related deaths in the three regions in 2018 experienced a significant drop in 2019 in each of the regions. The downward trend continued in 2020 in the Moronou region, followed by a very slight increase in 2021 and 2022. The regions of Cavally and Bafing saw an increase in 2020 and 2021 and then a decrease in 2022.

Summary findings from secondary analysis of DHS survey data: malaria prevention

Percentages of households with at least one LLIN (DHS 2021 versus DHS 2011)

In 2021, 72.1% of households had at least one LLIN, compared to 67.3% in 2011, a statistically significant increase. The increase is observed in both urban and rural areas as well as in all quintiles of economic well-being. Households in rural areas and the lowest wealth quintile experienced larger and statistically significant increases.

Percentage of households with at least one LLIN for every two people who stayed in the household the night before the survey (DHS 2021 versus DHS 2011)

In 2021, 51.2% of households met this criterion, a significant increase from 31.7% in 2011. This increase is observed in both urban and rural areas, with rural areas showing a more substantial increase. The lowest quintile of economic well-being has the highest increase.

Children under 5 years of age who have slept under LLIN (DHS 2021 versus DHS 2011)

There was a significant increase in the proportion of children under five who slept under LLIN the night before the survey in households with at least one LLIN: 72.0% in 2021 compared to 49.8% in 2011. The increase was observed in both urban and rural areas, as well as in all quintiles of economic well-being. The lowest quintile had the highest coverage.

Percentage of pregnant women who slept under LLINs the night before the survey, among those living in a household with at least one LLIN (DHS 2021 versus EDS)

There was a significant increase, 78.5% in 2021 against 57.3% in 2011. The improvement was observed in both urban and rural areas as well as in all economic well-being quintiles. Rural areas and the lowest welfare quintile had higher utilization in 2021.

IPT1 (SP/Fansidar one dose) (DHS 2021 versus DHS 2011)

There was a significant increase in the use of the IPT between 2011 (25.9%) and 2021 (77%). The increase was observed in urban and rural areas as well as in all quintiles of economic well-being. The middle and top quintiles recorded the largest increases.

IPT2 (SP/Fansidar two doses) (DHS 2021 versus EDS 2011)

There was a substantial increase between 2011 (17.6%) and 2021 (56.1%). The increase was observed in both urban and rural areas and in all quintiles of economic well-being. The highest quintiles showed the largest increases.

IPT3+ (SP/Fansidar three or more doses) (DHS 2021 versus DHS 2011)

There was significant increase in the percentage of women receiving three or more doses of MS/Fansidar (IPT3+) between 2011 (6.6%) and 2021 (33.1%). Increases were observed in both urban and rural areas, and in all quintiles of economic well-being. The highest quintiles showed the largest increases.

Fever in children under 5 years of age (DHS 2021 versus DHS 2011)

Decrease in the percentage of children under 5 years of age who had a fever in the two weeks preceding the survey: 17.3% in 2021 compared to 23.5% in 2011. The decline is observed in both urban and rural areas as well as in all quintiles of economic well-being.

Treatment of fever in children under 5 years of age (DHS 2021 versus DHS 2011)

There was a slight increase in the percentage of children under 5 years of age who had a fever for whom advice or treatment was sought: 62.4% in 2021 compared to 60.2% in 2011. The increase was observed in both urban and rural areas and in all quintiles of economic well-being.

Rapid access to care (DHS 2021)

The percentage of children under 5 years of age who had a recent fever and for whom advice or treatment was sought on the same day or the next day was reported only in the DHS 2021 (not in 2011). The percentage was higher in urban areas, 42.3%, than in rural areas, 35.4%. The lowest well-being quintile had

the lowest percentage (34%).

Diagnosis (DHS 2021 versus DHS 2011)

There was a significant increase in the percentage of children under five who had recently had a fever and had blood drawn from their finger or heel for diagnostic tests, 38.4% in 2021 compared to 11% in 2011. The increase occurred in both urban and rural areas as well as in all quintiles of economic well-being. The highest quintile showed the largest increase.

Treatment with ACT in children under 5 years of age (DHS 2021 versus DHS 2011)

There was a significant increase in the percentage of children who took an ACT among children under 5 years of age who had fever and took an antimalarial drug, 38.9% in 2021 compared to 18.8% in 2011. The increase was observed in both urban and rural areas, as well as in all quintiles of economic well-being. The bottom quintiles recorded smaller increases.

Prevalence of malaria among children under 5 years of age tested by RDT (DHS 2021 versus DHS 2011)

There was a decrease between 2011 (41.5%) and 2021 (37.3%). The decline was observed in both urban and rural areas as well as in all quintiles of economic well-being. The bottom quintiles recorded smaller decreases.

Measuring malaria prevalence in children under 5 years of age by microscopy (DHS 2021 versus DHS 2011)

There was a prevalence increase from 2011 (17.9%) to (26%) 2021. Prevalence increased in both urban and rural areas, with urban areas recording a relatively more moderate increase from 7.3% to 12.9%. The lowest quintile of economic well-being showed the largest increase.

Summary findings from key informant interviews

Interviews with the Directorate-General for Health, the Directorate-General for Universal Health Coverage and the Directorate for Community Health

Involvement and support of key actorsin the fight against malaria

Key informants from the Ministry of Health's Directorates reported that partners were supporting the system in relation to the national vision and the major strategic orientations given by the Ministry of Health. Resource mobilization was an important area where the support of partners was appreciable. Partners were helping with coordination and at the operational level.

Budget allocation

The state allocated an operating budget to the National Malaria Control Program (NMCP) and other technical departments in the Ministry of Health. In addition to government funding, the main technical and financial partners involved in financing the fight against malaria for the most vulnerable targets were the Global Fund, PMI, UNICEF, and Save The Children.

Gender considerations

Key informants from Ministry of Health Directorates did not find gender inequality in access to and use of malaria services. Similarly, they did not see any particular obstacles that women would face, especially since it is typically men who bear the cost.

Challenges for vulnerable populations

Challenges included the effective availability of medicines and inputs, the effective application of free access by health workers, the effective use of the mosquito nets distributed, and community mobilization with the involvement of village chiefs in raising awareness.

Bodies and mechanisms for the management of free health services policies

A national commission for the coordination of the implementation of targeted free health services is hereby created. The Commission is chaired by the Minister of Health and is responsible for proposing strategic orientations, ensuring interministerial collaboration, and participating in the mobilization of the budget essential to the implementation of free education.

Interviews with the National Malaria Control Program

Involvement and support of malaria control key actors

Most key malaria actors are involved in the various processes such as the development and validation of documents, the implementation of activities, the financing of activities and raising awareness among the population. Key partners support the Ministry of Health through the NMCP, providing support in the development of normative documents, the negotiation of funding, coordination, monitoring and evaluation of interventions.

Budget allocation

The State of Côte d'Ivoire allocates the budget during the budget conference, so the mobilization of resources is carried out with partners such as the Global Fund and PMI with a counterpart to be covered by the State. The TFPs involved in the financing are: the Global Fund, SMI, WHO, UNICEF, and RBM. The acquisition of drugs and inputs is one of the areas and interventions that receive the most funding.

Gender considerations

NMCP officials consider that there is no gender inequality in access to and use of malaria services. Regarding the particular barriers or challenges women face in accessing health services, the NMCP notes the lack of autonomy.

Challenges for vulnerable populations

The main challenges identified were: (1) the use of mosquito nets; (2) early recourse to care, prenatal consultations for IPT; (3) difficulties in accessing health centers; (4) permanent availability of drugs and inputs to fight malaria; and (5) the involvement of women's groups and community leaders in community mobilization strategies.

Perception of the policy of free health services

NMCP officials consider that the policy of free health services has contributed to improving the utilization rate of health centers and reducing cases of severe malaria and deaths. For the NMCP, the policy of free health services has helped to reduce the economic burden of malaria on vulnerable households by reducing out-of-pocket payments, which are an obstacle to visits to health centers. The leaders of the NMCP believe that implementing free services is easier when insurance is available.

Awareness raising and community mobilization are weak points in the implementation of the policy of free health services. The consistent availability of supplies and medicines in sufficient quantities for the

population is also a major challenge to be addressed.

Interviews with technical and financial partners: WHO, CCM Global Fund, Save the Children, PSI Djekoidjo Project Project, JHU CCP (Breakthrough ACTION), NPSP/LHPLA Project

Involvement and support of malaria control key actors

For the officials interviewed, each stakeholder plays a specific role:

Budget allocation: The State finances the fight against malaria with the contribution of financial partners, the main ones being the PMI, the Global Fund, the WHO, UNICEF.

Gender considerations: Most technical and financial partners consider that there are no real differences between men and women or between male and female children. For some, however, there is a lack of equity for women or an imbalance for men. Some partners raised the problem of women's autonomy.

Challenges for vulnerable populations: The challenges in addressing the burden of malaria on vulnerable populations can be summarized in three key areas: (1) geographic and financial accessibility to quality services, including at the community level, (2) rational use of these services, including free services, and (3) effective communication to these populations to ensure their buy-in.

Bodies and mechanisms for the management of free health services policies and their effectiveness: The regulations provide for the establishment of a national commission for the coordination of implementation. This commission is placed under the authority of the Minister of Health. The national coordination commission should also estimate and validate the needs for medicines and health products of the targeted free of charge.

Perception of the policy of free health services: The policy of free health services has influenced access to and use of health services. This policy has enabled the most vulnerable sections of the population to cope with the other burdens of their households. Free care for vulnerable populations has been an economic gain at the household level. However, its implementation has been faced with the challenge of the availability of inputs and the respect of the deadlines for the provision of financing.

For some partners, the free policy has not contributed to a significant reduction in the economic burden of malaria on vulnerable households because the policy is not effectively respected.

Key informant interviews in the Moronou region: Regional Health Directorate, Arrah, Bongouanou and M'Batto districts, Bongouanou General Council, Maries d'Arrah, Bongouanou and M'Batto

The fight against malaria in Côte d'Ivoire

Officials in the Moronou Region consider that the malaria control is progressing positively. This has been made possible by the commitment of Côte d'Ivoire to create the malaria control program, which implementation covers all control strategies recommended at the global level. In addition, the FHSP for children under 5 years of age and pregnant women is likely to increase the use of services and reduce the burden of malaria.

However, the region's officials believe that strengthening awareness at the population level, involving community agents, and improving the availability of commodities is necessary to increase the effectiveness of all interventions.

Involvement and support of malaria control key actors

The authorities of the Moronou region indicated that several partners are involved in malaria control, with each having specific roles. These officials report the good collaboration between all key actors, including the community and health workers and between partners (WHO, UNICEF), CHWs and the Health Districts.

Budget allocation

The authorities of the region consider that technical partners are helping the government to finance malaria control. Interventions are mainly focused on children under 5 years old and pregnant women.

Gender considerations

Authorities in the health region generally find that there is no gender inequality in access to and use of malaria services. However they note that the responsibility for expenditures is most often borne by the man who is the head of the household because of the lack of financial autonomy of women.

Obstacles or challenges that women may face in accessing services are the lack of autonomy and leadership in the decision to go to the health service, because she has to ask permission from her husband who will cover the expenses, including transport costs.

Challenges for potential hard-to-reach populations

The populations considered difficult to access in the Moronou region are made up of people living in remote and isolated camps, created within cocoa farms. These camps, which are difficult to serve by the centers, are mainly found in the Bongouanou district. These populations are faced with the problem of means of transport to access health centers. Transport costs are a challenge to get to health centers even at times of the year when roads are passable.

Summary findings from Focus Group Discussions

Knowledge, perception, and attitudes in malaria

In most of the villages attached to the health districts of Bongouanou, M'Batto and Arrah, pregnant women and parents of children under 5 years of age are familiar with malaria and its severity. They identify it in the local Agni language as *DjèKouadio* and *Djégouman.* For the focus group participants, malaria is known as a disease caused mainly by mosquito bites, to which some women add factors such as sun, hygiene, and mangos. The commonly mentioned symptoms are fever, fatigue, and vomiting.

To avoid or prevent this disease, the participants mentioned the use of mosquito nets, the sanitation of their living environment and the medicines given by health centers during consultations. Regarding treatment, pregnant women and parents of children under 5 years old do not hesitate to go to a health center to be diagnosed and administer care when symptoms begin.

Recourse to traditional medicine is frequent, especially for women and parents of sick children who say they do not have the financial resources, but when cases worsen, modern medicine is considered best. In general, populations combine the two therapies: modern and traditional.

Economic impact of malaria on households of vulnerable populations

Pregnant women

Malaria is an economic burden on pregnant women, as they can spend up to 10,000 francs per episode. The minimum amount that a woman with malaria spends may be as high as 3,000 francs. Women may live in localities where there is no health center pay for transport. In addition to direct and indirect expenses, there is the loss of income due to the cessation of economic activities due to malaria.

Children under 5 years of age

Malaria expenses in children are an economic burden on parents, especially for those living in precarious situations. Parents say that they can spend up to 10,000 francs for each episode of malaria in children. In addition to the direct costs of treating children's malaria, there may be indirect costs related to transport from home to the place of care (health center). In addition, the occurrence of malaria in children leads to a loss of income for families who have to take time off work to take the child to the health center.

Impact of the policy of free health services on vulnerable populations

Pregnant women: Most pregnant women are aware of the policy of free malaria care for pregnant women. But in practice, pregnant women find coverage insufficient and very unsuitable for their needs in the event of malaria. Several pregnant women conclude that this policy of free access is illusory because in health centers, this free treatment is not remarkable since they have to pay money for care in the event of declared malaria.

Children under 5 years old: For some parents (minority opinion), the policy of free health services for children ages 0–5 years is beneficial, but its impact remains limited because of the high expenditure made on the treatment of children. For them, there are only a few products that are given free of charge to sick children while these products are not enough for the healing of children.

Gender in economic impact in the fight against malaria

Pregnant women: With regard to the coverage of malaria-related expenses for pregnant women, it appears that the costs are mainly borne by men in their capacity as heads of households who meet the needs of all.

Children under 5 years old: Parents do not have a preference when it comes to taking care of children. Parents feel the same responsibility whether the child is female or male—treating them without distinction of sex is self-evident. Participants felt that even on the side of health workers, when parents come with children, it is up to the staff to treat children in the same way regardless of gender. But the fair attitude towards children's illness (the case of malaria) is not experienced in all families. It may sometimes be noted that preferential treatment for one sex may be noted.

Discussion

Impact of the FHSP-Free health policy on malaria access, utilization, and burden in vulnerable populations

The evaluation showed progress in the fight against malaria through the improvement of indicators observed with routine DHIS2 data from 2018–2022 and those from the two cycles of DHS between 2011 and 2021. This improvement is notable among vulnerable populations, specifically pregnant women and children under 5 years of age (increase in the possession and use of LLINs, significant increase in coverage

of IPT 1, IPT2, IPT3 and above, increase in the percentages of suspected cases tested, increase in the percentages of cases treated with ACTs). The desired impact of these improvements in the long term is the reduction of malaria incidence and mortality in these populations.

Given the temporal correlation, its national scope, and the complementarity of its functions and those of the NMCP, the FHSP can reasonably be considered—through the plausibility argument—as a major contributor to the improvement in indicators observed in Côte d'Ivoire through routine DHIS2 data from 2018–2022 and those from the two cycles of the DHS between 2011 and 2021.

Impact of the FHSP on the economic burden of malaria among vulnerable populations.

The issue of the impact of the FHSP on the burden of malaria among vulnerable populations was addressed from the dual angle of: (1) the materiality of the impact and (2) the magnitude of the impact and its perception.

Materiality of the impact

The cross-referencing and triangulation of the evaluation data supports the hypothesis of a definite contributing effect of the FHSP in reducing malaria-related expenditure among vulnerable populations.

Magnitude of the impact and its perception

As the information/data from several components of the study reveal, contextual factors, acting in isolation or in combination with each other, can outweigh and "stifle" the actual "gains" of the costs avoided through the FHSP). Thus, the magnitude of the benefits of the FHSP is reduced and therefore little or not perceived at all by the target populations.

Socio-demographic differences in access to malaria services

Although there is an overall increase in coverage, the evaluation data, in particular, the data from the two cycles of the DHS show significant disparities in the coverage of interventions. It is (1) disparities between urban and rural areas, which are unfavorable to rural areas for most indicators, and (2) disparities between quintiles of economic well-being unfavorable to the lowest quintiles for several indicators.

The question of gender in general

The issue of gender is also addressed from two angles: (1) equity in the search for care and more generally in the provision of services for the benefit of patients and (2) the management and allocation of household resources, mainly financial resources.

Equity in the demand for and administration of care and provision of services

At the household level: The information and data from the evaluation do not establish the existence of gender-related practices or preferential attitudes in the decision-making process of requesting and seeking care for sick people, especially children.

At the level of the health system: The data show the non-existence of selective structural practices of care and treatment based on the patient's sex.

Management/allocation of household financial resources

The evaluation data consistently indicate that within households, mainly low-income households, health expenditures are generally provided by men who manage household financial resources, including resources allocated to health. Thus, strengthening gender balance requires greater involvement of women in the direct management of household financial resources, which cannot be achieved without real financial empowerment of women.

Conclusions

The assessment of the economic impact of malaria on vulnerable populations in Côte d'Ivoire has generated data and information whose cross-checking shows overall progress in the fight against malaria despite some socio-demographic disparities.

The FHSP has contributed to the progress made

Similarly, the FHSP can objectively be considered to have a proven role in reducing malaria-related expenditure among vulnerable populations. However, the impact of the FHSP in reducing the overall economic burden of malaria among vulnerable populations is poorly perceived.

Regarding the issue of gender

There are no systematic sex-related attitudes or preferential practices in the process of requesting, researching or administering health services for people with disabilities, especially children. The issue must be addressed in the sense of women's empowerment in terms of decision-making capacity and/or financial capacity in the process of requesting, seeking, and "purchasing" health services.

Context

General context

The government of Côte d'Ivoire has adopted a policy of free health services (FHSP) over the past ten years, since the post-election political crisis of 2011. This policy has been followed by other initiatives of free access targeting certain segments of the population for defined health services, including malaria prevention and management services throughout the country. To date, little is known about the impact of these policies on vulnerable people affected by malaria and their economic impact. At the request of the U.S. President's Malaria Initiative (PMI) in Côte d'Ivoire, the Data for Impact (D4I) project conducted an assessment of the impact of these policies on vulnerable populations affected by malaria and the economic impact they entail. The results of this evaluation will help to better target interventions to the most vulnerable populations (including pregnant women and children under five) who are burdened with malaria or who do not have easy access to malaria services.

Côte d'Ivoire's health system

Côte d'Ivoire has a pyramid-shaped health system with two components: a service delivery component and a management component. The service delivery component moves from the first contact health centers to the primary general hospitals, to regional hospitals (intermediate level), to the university hospitals and specialized institutes at the higher level. The corresponding administrative and managerial component is composed of 113 health districts at the grassroots level (operational level) and 33 regional directorates at the intermediate level. The national level includes the central directorates, the directorates for the coordination of health programs (including the NMCP), the Directorate-General, and the Directorates of the Cabinet of the Ministry of Health.

Overall, the health system is composed of the public sector, which extends to the community level via community health workers providing a minimum package of services including promotional, preventive and curative activities. Alongside the public sector is a burgeoning private sector and a traditional medicine sector regulated by law.

Epidemiological profile

Côte d'Ivoire's epidemiological profile is marked by communicable diseases, including neglected tropical diseases and non-communicable diseases. Major communicable diseases include malaria, tuberculosis, HIV/AIDS, hepatitis B and C, and diseases with epidemic potential, such as meningitis, measles, and yellow fever. The country is also facing emerging diseases such as Ebola, dengue fever and Covid-19. In this epidemiological picture, malaria represents a heavy burden on the health system. Malaria is, in fact, the leading cause of morbidity in children under 5 years of age, with an incidence of 440.97 per 1,000, followed by acute respiratory infections (ARI) (167.44 per thousand) and anemia (158.66 per thousand) (Ministry of Health, 2021). -

Mortality

The overall mortality rate in Côte d'Ivoire was 9.9 per 1000 inhabitants in 2020, placing the country at the top of the eight countries of the West African Economic and Monetary Union (WAEMU): Benin, Burkina Faso, Côte d'Ivoire, Mali, Niger, Senegal, and Togo (Ministry of Health, 2021a). Regarding infant mortality in the last 5 years, 52 children out of 1,000 live births died before reaching their first birthday (30 died in the first

month of life) (National Institute of Statistics and ICF, 2023). More than one in 14 children dies before reaching the age of 5 (74 deaths per 1,000 live births). Overall, infant mortality rates decreased significantly between 1998–1999 and 2011–2012, followed by a more moderate decrease in the last decade (2011–2021) (National Institute of Statistics and ICF, 2023).

Regarding malaria, an audit of 1,364 deaths recorded in hospital registries between 2016 and 2018 shows that 229 (17%) of the cases meet the definition of malaria deaths (Ministry of Health, 2023).

Health financing in Côte d'Ivoire

The share of public resources devoted to health in Côte d'Ivoire has increased from 6.03% in 2016 to 7.29% in 2020 but remains well below the targets of 15% of national budgets set by West African countries through the Abuja Declaration. The share of the government of Côte d'Ivoire in primary health care expenditure is only 19%. Despite the growth of the economy, the share of public expenditure devoted to health has remained almost unchanged and is one of the lowest in the West African sub-region. According to government estimates in 2018 (Health Accounts 2018), the main sources of health financing in Côte d'Ivoire are: households (39.43%), the public sector (Government: 28.81%), the private sector (19.44%), and partners (12.32%) (Ministry of Health, 2021).

Fight against malaria in Côte d'Ivoire

The fight against malaria is the priority intervention of strategic axis n°3 of the National Health Development Plan 2021–2025 "Axis n°3: Fight against the disease and strengthen health promotion." Malaria is endemic in Côte d'Ivoire throughout the year, with peak transmission during the rainy seasons between April and June, in the center of the country and, along the coast in the south, between July and September (PMI Côte d'Ivoire Malaria Control Operational Plan Fiscal Year 2023). Malaria is the leading cause of morbidity in children under 5 years of age with an incidence of 440.97 per thousand (Ministry of Health, 2021b).

Although parasitic prevalence among children ages 6 to 59 months has decreased by 10 percentage points in about 10 years: from 37% (DHS CI 2012) to 26% (DHS CI 2021), malaria remains a major public health problem in Côte d'Ivoire, with 56% of the population living in areas where the annual incidence is greater than 200 cases per 1,000 people (Ministry of Health, 2023). Forty-five of the country's 113 health districts have a high level of endemicity (200–299 per 1,000) and 39 districts have a very high level of endemicity (≥300 per 1,000).

About 2.3 million suspected and confirmed cases of malaria are reported annually in children under 5 years of age. The national annual incidence rate is 441 cases per 1000 in children under 5 years of age and 173 cases per 1000 people in the general population. In 2021, 26% of children under 5 years of age with malaria were tested by microscopy, and 37.3% were tested by RDT (National Institute of Statistics and ICF, 2023). In addition, 58.5% of children under 5 years of age and 64.2% of pregnant women slept under LLINs the night before the survey, while 34.6% of women received three or more doses of intermittent preventive treatment (IPT) in their last pregnancy in the past two years, representing an increase of 12% compared to 2016 (National Institute of Statistics and ICF, 2023). At the level of health facilities, suspected cases of malaria represent the largest volume of the total number of consultations. Malaria prevention and control activities in Côte d'Ivoire face major challenges, including low use of mosquito nets and a widespread belief that traditional healers play an important role in case management (U.S. PMI, 2023).

Malaria control in Côte d'Ivoire is marked by a political commitment and declaration made in 1996 as a priority disease of public health importance. Political commitment led to the creation of the National Malaria Control Program (Order No. 133 MSP/CAB/9 May 1996). Commitment at the institutional level was strengthened in 2005 with the adoption of a national malaria control policy and strategies such as the introduction of artemisinin-based combination therapies (ACTs) and intermittent preventive treatment (IPT) for the prevention of malaria in pregnant women. The development of the first national malaria strategic plan 2006–2010 was also a key step in the restructuring of malaria control. The national malaria strategic plan is aligned with the universal coverage targets recommended by the Council of Ministers of Health in Abuja in 2001. From this first plan, Côte d'Ivoire has continuously reviewed, updated, and developed successive strategic plans, of which the current National Strategic Plan 2021–2025 is the 4th (Ministry of Health, 2023).

Successive revisions and updates have aligned national guidelines and strategies with recommendations at the global level, particularly those of the World Health Organization (WHO) Global Technical Strategy for Malaria 2016–2030. This includes *inter alia*, management and treatment guidelines, routine confirmation prior to administration of antimalarial treatment, guidelines for the treatment of uncomplicated and severe malaria, case management in children under 5 years of age at the community level, and surveillance.

Regarding partnership and funding, Côte d'Ivoire has regularly submitted funding proposals to the Global Fund since 2002 and has thus benefited from several grants including Round 6 in 2006, Round 8 in 2008, the New Funding Model (NMF-1) in 2014 and 2016, the NMF-2 and the NMF-3 in 2021. Among other strategies, the Global Fund's financial support has largely contributed to the first mass distribution campaign of long-lasting impregnated mosquito nets (LLINs) in 2010, followed by 3 other mass campaigns in 2014, 2017–2018 and 2021 to achieve a population LLIN coverage of more than 92%. The new Global Fund Round 7 grant for the period 2024–2026 is expected to support the national LLIN mass distribution campaign in 2024. In addition, technical and financial support for the fight against malaria increased from 2017 onwards with the contribution of PMI (Ministry of Health, 2023).

The policy of free health services

Côte d'Ivoire launched free health services after its independence in 1960, through the country's commitment to provide people with defined services to boost social development. Over the years and due to economic crisis, the country's commitment ran out of steam during the 1980s (Coulibaly & Atchoua, 2019). The policy of free health services has been reintroduced as part of the government's social development policy with a view to achieving the slogan of "emergence by 2020." In addition to the launch in 2011 of some free health care for sections of the population, some treatments and services have been declared free, including for tuberculosis, malaria, childbirth and care for children under five.

The high endemicity of malaria in Côte d'Ivoire is responsible for direct costs with individual expenses that are often heavy for the population, especially the most vulnerable groups. In addition, the indirect costs of lost household income and absenteeism have an impact on households and on the productivity of the country as a whole. To alleviate this burden, aggravated by the economic impact of the political and military crisis of 2011, the Ministry of Health has strengthened the FHSP in order to further support the population in coping with the economic burden of the disease. Through this policy, the Ministry of Health

aims to provide quality, accessible and free services to the most vulnerable segments of the population. Inspired by the vision of "a prosperous Côte d'Ivoire without malaria-related deaths," the FHSP establishes an exemption from certain malaria-related fees for pregnant women and children under 5 years of age through four pillars:

1. Free universal access to malaria prevention through the distribution of LLINs
2. Free diagnosis of suspected cases by RDTs
3. Free treatment of simple cases of malaria with ACT
4. The IPT is free for pregnant women

The implementation of the policy of free services has continued since then. However, despite the commitment of the Ivorian government, and the real needs perceptible among the target populations who welcome the initiative, the FHSP encounters constraints and challenges, the most common of which are linked, according to Coulibaly, N.D., Atchoua, N.J. (Politique de "libre" enjeux de soins et de communication pour la santé en Côte d'Ivoire, 2019) to the following elements:

- Stockouts of antimalarial supplies in some localities: RDT, ACT, LLIN, *Sulfadoxine-Pyrimethamine* (SP)
- Ineffective communication strategies to support policy implementation
- Insufficient support measures/mechanisms
- Lack of guidelines and documentation to facilitate the implementation of the policy
- Insufficient training and guidance of service providers (health workers) for the implementation of the malaria policy
- Insufficient motivation and commitment of service providers

In addition to these elements, there could be issues related to geographical accessibility.

Financing the policy of free health care

While the services are free for recipients, they are sponsored or paid for by a third party, which is often the Ivorian government through public funding or donors. The main donors involved in the financing of the fight against malaria, including the implementation of the free policy, are USAID/PMI, the Global Fund, other bilateral partnership initiatives, and some national and international non-governmental organizations (NGOs).

Design and Methods

Evaluation questions

The dual objectives of this assessment of the burden of malaria in Côte d'Ivoire were to:

- Assess the economic impact of malaria services on vulnerable groups (children under 5 years of age and pregnant women) in Côte d'Ivoire
- Assess the effectiveness of the free health care policies adopted by the Government of Côte d'Ivoire in increasing or facilitating access to and use of health services for vulnerable populations

The evaluation was designed to answer three questions related to accessibility, economic impact , and gender equality. These questions are:

Question 1: Has the policy of free health services increased access to and use of malaria services by pregnant women and children under five?

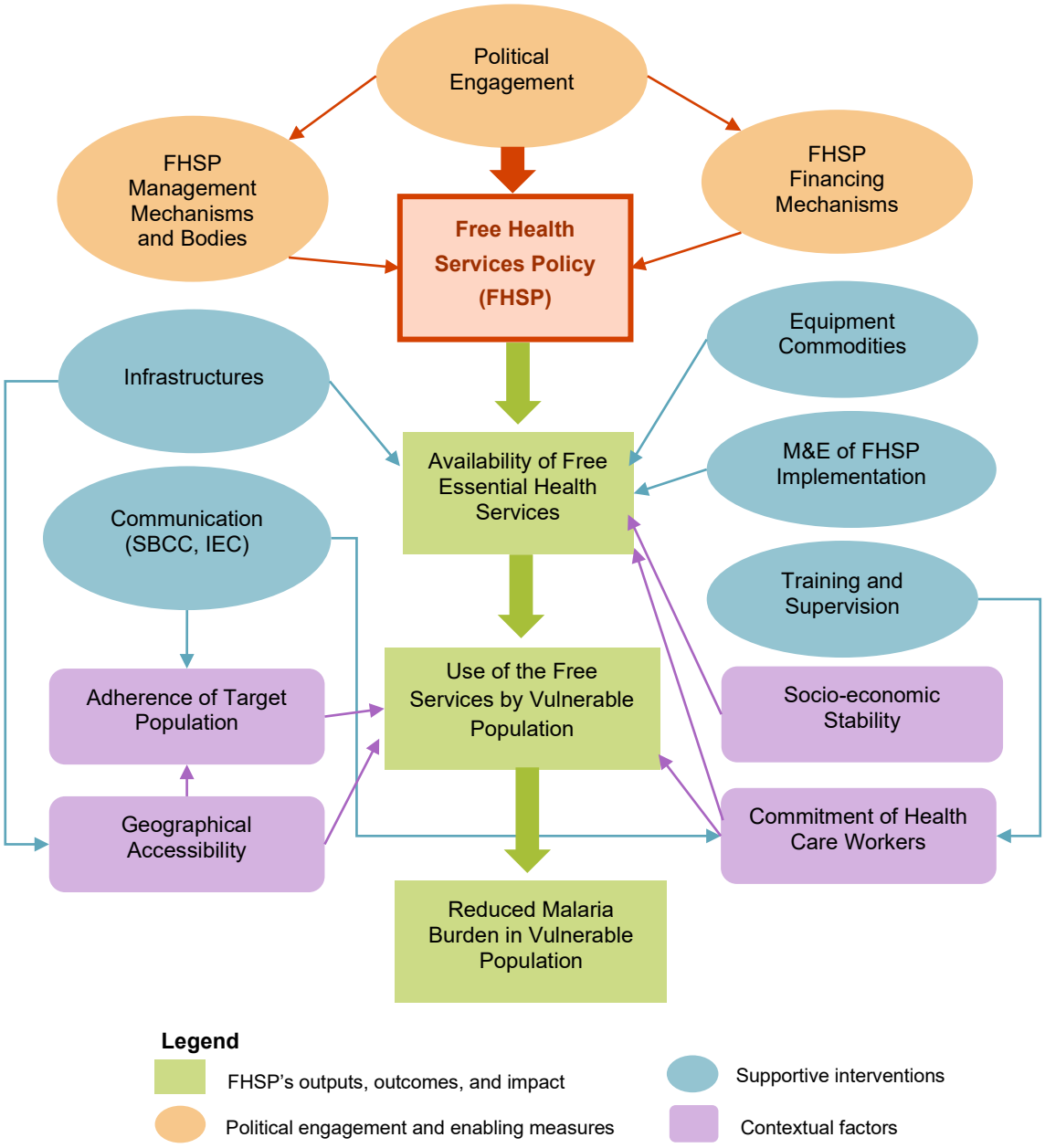
Question 2: Are there socio-demographic differences in access to malaria services, including free services?

Questions 3: Has access to essential malaria services under the free policy reduced the malaria burden of vulnerable populations?

Theory of Change and Logic Model

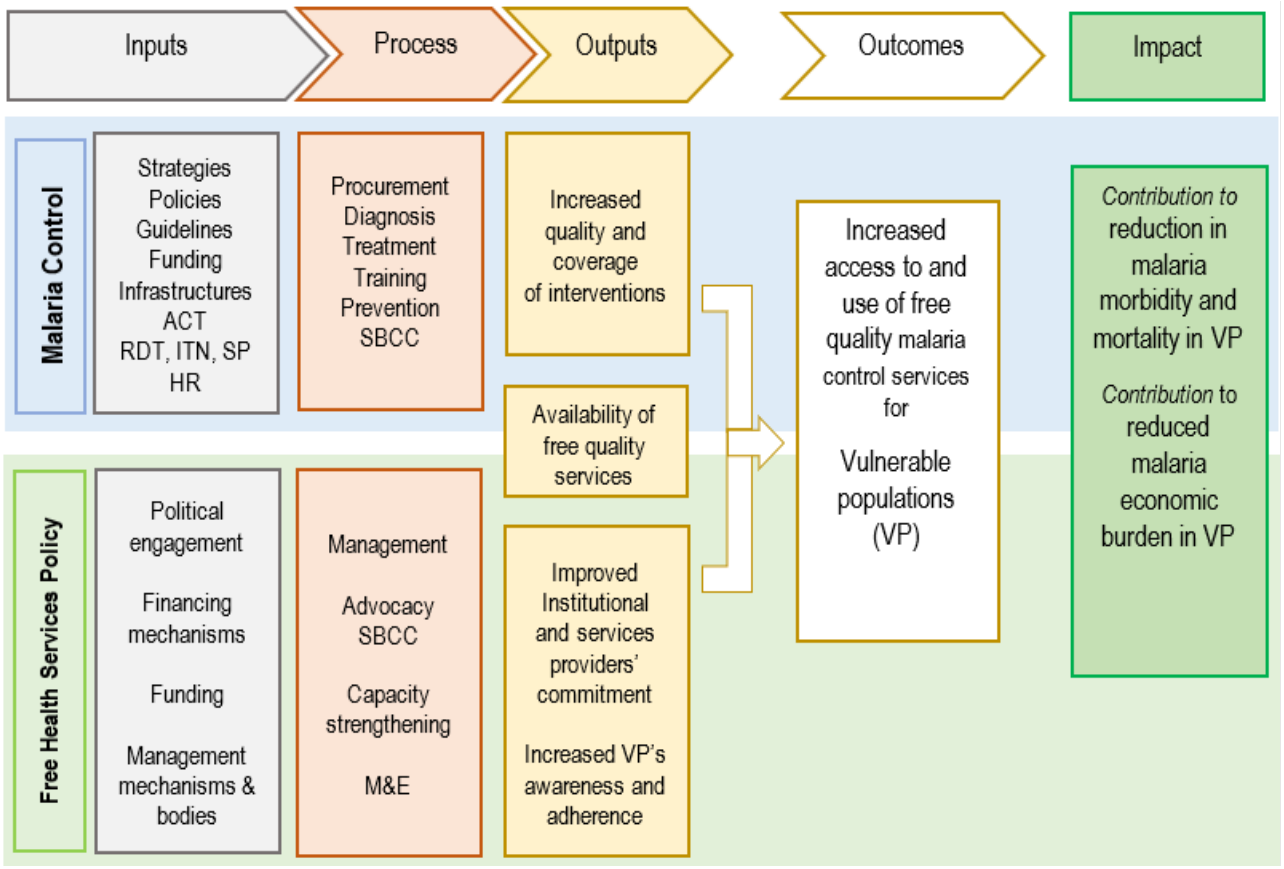
The theory of change of this evaluation conceptualizes how the FHSP is supposed to work (Figure 1). The theory presents a chain of relationships and interrelationships between multiple elements that influence the implementation and success of the FHSP. These elements include: (a) institutional commitment and accompanying factors: political commitment, management mechanisms and bodies, financing mechanisms; (b) supporting interventions: infrastructure, management mechanisms and bodies, equipment and inputs, communication (SBCC, IEC), monitoring and evaluation, training and supervision; (c) contextual factors: socio-economic stability, geographic accessibility, engagement of health workers, buy-in of the target population; and (d) the outputs, outcomes and impact of the FHSP: availability of free essential health services, use of free health services by vulnerable populations, and reduction of the burden of malaria among vulnerable populations. The theory of change helped inform the evaluation design, facilitate the interpretation of FHSP indicators, and clearly identify the challenge of attributing observed changes to the FHSP.

Figure 1: Theory of Change



The logic model of the evaluation allows to apprehend and understand the joint effects of malaria program interventions and the FHSP on the economic burden of vulnerable populations, thus using an approach that can capture the mutual and/or specific elements of the malaria program and the FHSP. (Figure 2)

Figure 2: Evaluation Logic Model



Methods

The evaluation was conducted using the non-experimental approach commonly used in health program evaluations to assess the impact of interventions in contexts where a controlled experimental (or quasi-experimental) intervention is not feasible in practical terms, including cost and ethics.

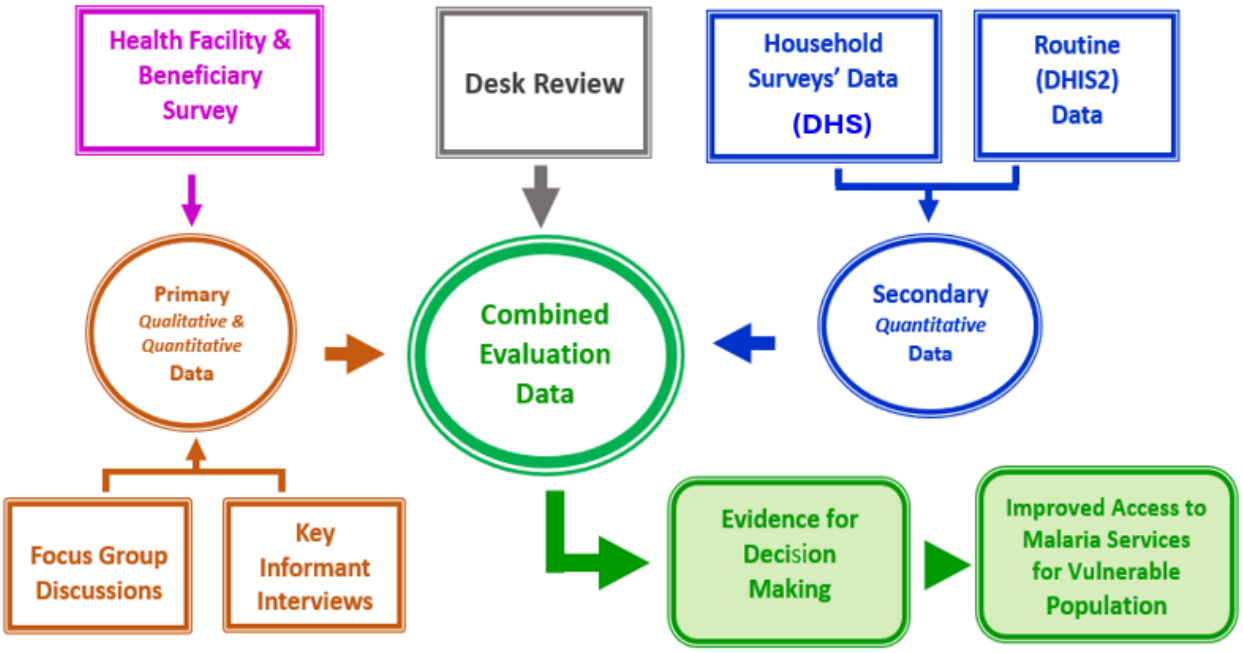
In addition, the evaluation used a mixed approach combining quantitative and qualitative methods with data from multiple sources, including a literature review.

Quantitative methods consisted of a survey of health facilities and clients, as well as analysis of secondary data from: (1) the routine database of the DHIS2 health information system and (2) data from the Demographic and Health Surveys (DHS) EDS-CI 2011–2012, DHS-CI 2021.

Qualitative methods consisted of focus group discussions (GDF/Focus Group) and key informant interviews (CIAs).

The **literature review** examined the various documents of the national malaria control program and documents related to the country's free health services policies.

Figure 3: Evaluation Components



Sampling

The sampling was based on the stratification of malaria transmission areas, represented by the annual incidence: low endemicity (≤100 per 1,000), moderate endemicity (100–199 per 1,000), high endemicity (200–299 per 1,000) and very high endemicity (≥,300 per 1,000).

Sample size (quantitative component)

The sampling was inspired by the Demographic and Health Survey approach using the Service Provision Assessment (SPA) method in a defined "domain." As the first level of decentralization of the country's health system, the health region was selected as the area of evaluation. The sample size was defined as follows:

$$n = \frac{(1-p)}{\varepsilon^2 \rho}$$

n: sample size in the domain

ρ : proportion of facilities with the factor of interest. Based on historical DHIS2 data, we assume that at least 35% of facilities (p = 0.35) have acceptable coverage of malaria control interventions (indicators).

ε: precision or margin of error of 0.2 (20%) used as the precision threshold in DHS surveys with a 95% confidence level.

50 health facilities were selected by simple random sampling in the Moronou Region. The region was selected in a reasoned way among the regions supported by PMI in areas of high malaria endemicity (incidence of 908 per 1,000 in children under 5 years of age, according to the 2021 Annual Health Status Report). The 50 health facilities in the sample were selected from among the health establishments in the three health districts of the Moronou region: Arrah, Bongouanou and M'Batto districts.

Survey of health facilities and exit survey of clients

The survey in health establishments was conducted among 50 people (one person per establishment). Respondents were facility managers or any authorized personnel. The exit interview with clients was conducted with 3 to 5 people in each of the 50 health establishments. Patients were identified in the waiting room prior to the first contact with the health worker. Eligible individuals were consenting pregnant women visiting the facility's Prenatal Consultation Services (PNC) Unit or General Consultation Unit and children under 5 years of age consulting for febrile symptoms or a recent history of fever according to the consenting parent/caregiver.

Sample size (qualitative component)

Key Informant Interviews

A purposive sampling approach was used to identify and select key malaria actors and experts directly involved in the national malaria control program efforts. Based on a saturation level of 30 key informants, a total of 30 people were interviewed: 16 informants at the national level and 14 informants at the district and regional levels.

Focus groups

Focus groups were held in the catchment area of the selected health facilities. A total of 31 health centers selected health facilities from among the 50 health centers where the survey was conducted. Each GDF brought together between 5 and 7 participants, for a total of 201 participants.

Data collection

Five teams of 2 interviewers and a supervisor each provided data collection from the survey in health facilities, the client exit survey, focused focus group discussions and key informant interviews, in the Moronou region from April 25–May 10, 2024. Interviews with key informants at the national level were launched on April 25, 2014 and continued until May 20, 2014 to adapt to the availability of the officials to be interviewed.

Survey in health facilities

The data collected included basic demographic information and the respondent's occupational profile, in addition to technical information on malaria interventions and the implementation of free health services in the facility. In particular, the questions focused on the management of malaria cases at the center level, the cost of care for vulnerable segments of the population, the implementation of the services supposed to be provided by the center (free services), availability of malaria control inputs, FHSP guidelines, and management tools at the school level.

Collection tools

Interviews were conducted using the electronic application of the form/questionnaire (see Appendix A) made with CSPro Mobile and data entered on a tablet.

Client exit survey

The exit interview of clients collected data on the burden of malaria and the economic impact on households, the cost of health expenditure, and the level of satisfaction with the FHSP from the perspective of the clients. The interviews also focused on the type of service received by patients, in particular *(a)* malaria case prevention and management care (provision of LLINs, IPTs, diagnostic tests,

treatment, gender issues) and *(b)* whether or not the services received were free of charge.

Collection tools

Interviews were conducted using the electronic application of the form/questionnaire (see Appendix B), carried out with CSPro Mobile, and data entered on a tablet.

Key informant interviews

Discussions focused on the effectiveness of malaria control interventions, challenges in service delivery, successes and the policy of free health services, resource allocation, and coordination.

Collection tools

Interviews were conducted using the Wronged Informant Interview Guide in Appendix C and recorded as audio.

Focus panel

Panel discussions focused on participants' knowledge of malaria prevention and treatment, malaria burden, free health services policy, perceived barriers, and facilitators for access to and use of malaria services (in particular FHSP), and household expenditure on malaria.

Collection tools

Interviews were conducted using the interview guide in Appendix D and recorded as audio.

Training of investigators

The data collection was preceded by training of the interviewers. The training took place in two phases over four days, including three days of theoretical training in the workshop (phase 1) and one day of pre-testing of the collection tools in the field in a real situation (phase 2).

Data analysis

Data from surveys in health facilities and among clients

The data entered on CSPro was imported into SPSS and STATA for analysis. The data analysis syntax includes the frequency of all variables that were used to create the tables and figures presented in the results section.

DHIS2 routine data

Descriptive statistical analyses were used to assess trends in selected regions over the five-year period (2018–2022). To compare trends, data from the Moronou region were analyzed with those from two other regions: the Bafing region in the north, supported by UNICEF, and the Cavally region in the center-west, supported by the Global Fund. The analysis focused on key national malaria indicators, and data are presented using frequency and percentage distributions to summarize key findings. Figures were generated to visualize regional trends and differences over the period evaluated.

Data from the DHS surveys

Secondary analysis of the EDS data was performed using statistical software compatible with EDS data formats. Data were stratified by key sociodemographic characteristics, such as residency and well-being quintiles, to investigate differences in access to malaria services. Differences tests between the two cycles of the nationally representative survey were conducted to detect statistically significant changes in

indicator values over time, where possible. Statistical significance was set at $p<0.05$, and 95% confidence intervals were generated for each indicator.

Focus group data

Transcription

Two preparatory meetings facilitated by the sociologist in charge of coordinating the focus groups provided an opportunity to discuss the methodology and process of the transcription. The audio recordings were made available to the transcribers according to their skills in the local languages, "Agni" and "Dioula." The transcription was done in two stages: (1) transcription in the local language (language of discussion facilitation) and (2) translation into French.

Analysis

The method consisted of a content analysis of textual data from transcription accompanied by (1) coding of the pieces of text most related to the themes of the evaluation: Knowledge, perception and attitude on malaria, Economic impact of malaria on households of vulnerable populations, Impact of the policy of free health services on vulnerable populations and the issue of gender in the context of the economic impact of malaria control services, and (2) the synthesis of the information corresponding to each code in order to address the themes. The analysis used the frame analysis method with the Nvivo software.

Key informant interview data

Transcription

The audio recordings were transcribed by the investigator/expert who made them. The transcripts were supported by the investigator's notes.

Analysis

Data were analyzed according to the themes of the evaluation and stratified by central and regional levels.

Ethical considerations

The protocol was submitted for approval and approved by ICF's Institutional Review Committee (IRB) and the National Ethics Committee of Côte d'Ivoire. In addition to verbal informed consent, an informed consent form was signed by each consenting participant and a paper copy was provided to the participant. Necessary measures have been taken to ensure and maintain the confidentiality and protect the identity of the individuals and institutions involved in the evaluation. During the training of the collection teams, emphasis was placed on the importance of confidentiality and protection of the identity of individuals (health facility managers, patients, key informants) and institutions.

Gender

All qualitative data collection tools (IEC guide, SFM guide) and quantitative data collection tools (survey questionnaires in health facilities, and client exit survey) have integrated gender. The analysis/synthesis of the data and the interpretation of the results gave the necessary importance to the issue of gender.

Limitations of the study

A number of limitations should be noted with regard to the overall design of the study, the exploration and interpretation of its data. The evaluation was carried out through a non-experimental approach in order to circumvent the cost problems and the practical and ethical difficulties inherent in experimental studies,

important when it comes to assessing the effects and especially the impact of interventions in the field of health. The limitation of this method is its impossibility to objectively establish a direct causal relationship between the FHSP and the effects, *a fortiori* when studying the impact of malaria control. Thus, the interpretation of the results on the basis of plausibility arguments was favoured, an approach that could be used because of the multiple data sources of the evaluation.

In addition, with regard to the DHS data, a limitation of the analysis was the 10-year gap between the two cycles of the DHS, during which the country underwent significant administrative changes, including the redistribution and renaming of districts and regions. During the 10 years between DHS, some districts and regions have been split or have had their names changed, making it difficult to compare data at the district level. Therefore, district-level analysis was not reported.

DHIS2 routine data: The country has undergone three significant transitions in the DHIS2 interface, and some regions/districts have been created from others making it difficult to harmonize, extract, analyze, and interpret the historical data. Moreover, the data from university hospitals (CHU), where severe malaria cases are treated, have not yet been integrated into DHIS2.

Client exit survey: The survey was conducted with pregnant women and caregivers of children at the exit of a consultation, within the vicinity of the health centers. In most cases, the survey was able to include only those living nearby (less than 1 km) from the health centers. Those living more than 5 km away from a health facility did not have the opportunity to participate in the client exit survey.

Results

Survey results in health facilities

The survey was conducted in all 50 health facilities targeted by the study. The interview questionnaire with health center managers was administered to center managers or their representatives after informed consent. (Table 1)

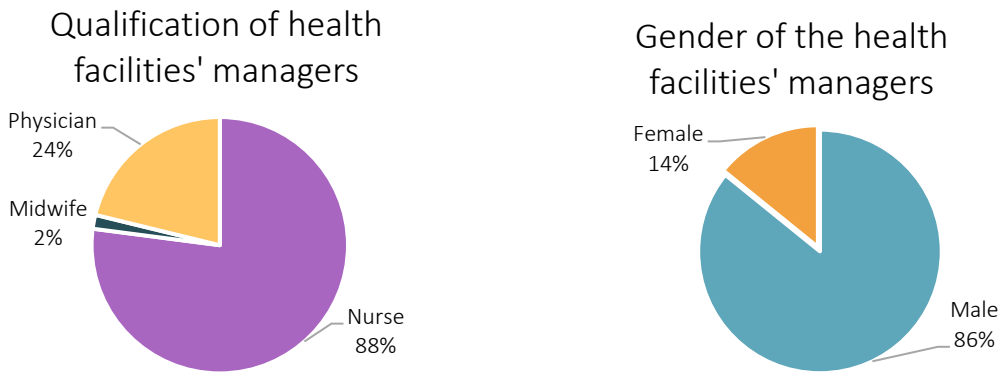
Table 1: Number of health centers assessed by district

District	Number of Planned Facilities	Number of establishments visited	Number of school managers surveyed
Arrah	9	9	9
Bongouanou	22	22	22
M'batto	19	19	19
Total	**50**	**50**	**50**

General characteristics of health center managers

The majority of the health facility managers are male (86%) and nurses (88%). Ten percent (10%) are physicians and 2% midwives. (Figure 4)

Figure 4: Qualification and gender of health center managers



The average length of experience of the managers of the centers in their profession is more than 10 years in the district of Arrah, and about 6–7 years in the districts of Bongouanou and M'Batto. The average length of time managers have been in the health center surveyed is between 4–5 years. (Table 2)

Table 2: Duration of experience and duration of presence of health center managers

District	Average duration of experience in years	Average length of stay in the school in years
Arrah	11.11	4.89
Bongouanou	6.73	5.36
M'Batto	7.37	4.79

FHSP Management

National malaria management guidelines and guidelines for the implementation of the FHSP are not available in all health facilities. Overall, national malaria management guidelines are available in less than three-quarters (70%) of the centers and FHSP guidelines are available in less than half (40%) of the centers surveyed.

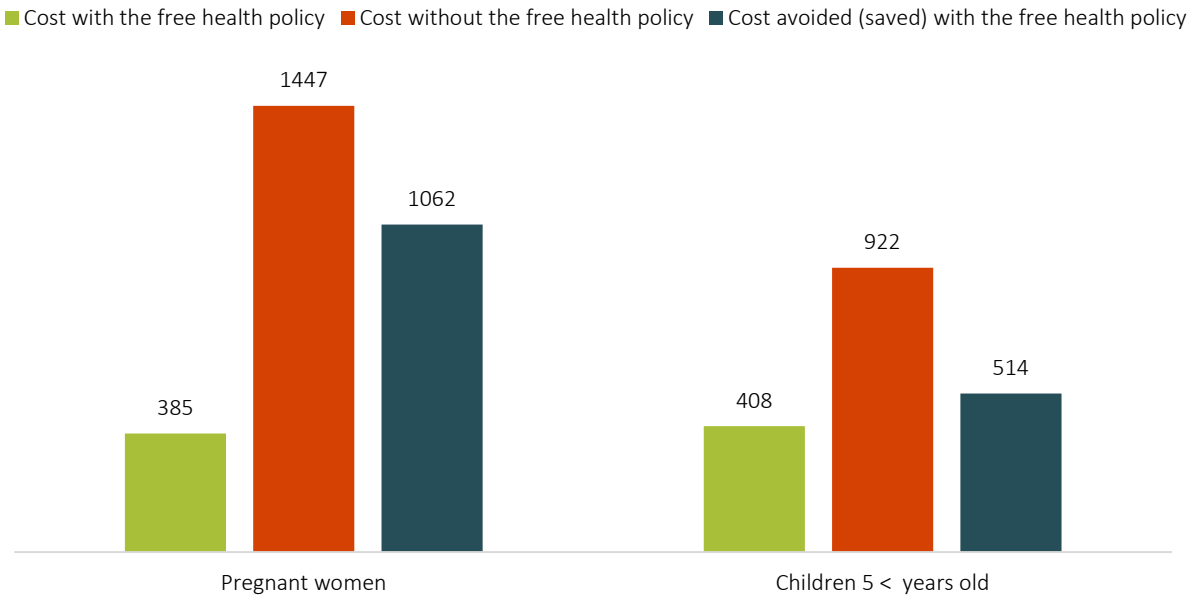
Almost all (90%) of the centers are trained in the management of malaria cases and 92% report having received a supervisory visit from the district in the last 6 months prior to the survey. Forty-nine of the center managers (98%) indicate that the provision of free malaria services is specifically addressed during district supervision. (Table 3)

Table 3: Availability of guidelines, training, and supervision in health centers

Guidelines/Guides	Number	Percentage
Health centers with national malaria management guidelines	35	70%
Health centers with the guidelines for the application of the FHSP	20	40%
Training and supervision		
Health centers with staff trained in the management of malaria cases	45	90%
Health centers that have received a district supervision visit in the last 6 months prior to the survey	46	92%
Health centers where the provision of free malaria services is specifically addressed during district supervision	49	98%

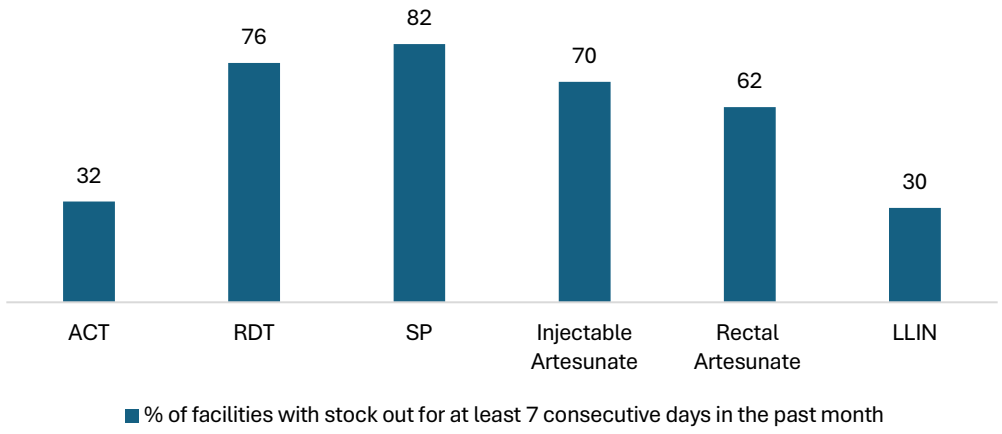
Overall, the managers of the health centers estimate the cost of treating simple malaria in pregnant women at 385 CFA francs on average with free treatment compared to 1447 CFA francs without free care, which gives an avoided cost of 1062 CFA francs because of free care. For children under 5 years of age, these costs are 408 CFA francs with free care compared to 922 CFA francs without free care, resulting in an avoided cost of 514 CFA francs thanks to free care. (Figure 5)

Figure 5: Average cost in CFA francs of the management of a case of simple malaria (including diagnosis and treatment)



Regarding the availability of inputs, respectively 32%, 76%, 82%, 70%, 62%, and 30% of the health centers evaluated reported a stockout of ACT, RDT, SP, Injectable Artesunate, Rectal Artesunate, and LLINs for at least 7 consecutive days, the month prior to the survey. (Figure 6)

Figure 6: Availability of commodities in health centers



Level of satisfaction of health center managers

About a quarter (24%) of the managers of the centers evaluated say they are completely satisfied with the implementation of free services. The others are partially satisfied (42%), not very satisfied (28%) or not at all satisfied (3%).

The reasons given by the managers of the centers who are not totally satisfied are: the frequent stockouts of inputs (35.8%), the limitation of free treatment to ACTs only (32.1%), the lack of awareness among the population (25%) and the low/non-involvement of private centers (7.1%). (Table 4)

Table 4: Level of satisfaction of health center managers with the implementation of free services

Level of satisfaction *(n=50)*	**Number**	**Percentage**
Totally satisfied	12	24.0%
Partially Satisfied	21	42.0%
Not satisfied	14	28%
Not at all satisfied	3	6%
Reasons if not completely satisfied *(n=28 respondents)*		
Frequent stockouts of commodities	10	35.8%
Free treatment limited to ACTs (does not include other medications)	9	32.1%
Insufficient awareness among the population	7	25.0%
Other (low/no private sector involvement)	2	7.1%

To strengthen the free health policy, more than half of the center managers assessed (54%) suggest improving the supply of inputs (avoiding stock shortages). Other suggestions are strengthening the coordination of the implementation of the policy, in particular through training and supervision (16% of managers), strengthening public awareness of the free policy (14%) and extending free treatment to other products in addition to ACTs (10% of center managers). (Table 5)

Table 5: Main suggestions from health center managers for strengthening the free health care policy (n=50)

	Number of centers	**Percentage**
Improve the supply of inputs (avoid stockouts)	27	54%
Strengthen the coordination of the implementation of the free policy (training and supervision)	8	16%
Strengthen public awareness of the free policy	7	14%
Extend free care to other products (e.g. antipyretics, antianaemics, antiemetics, etc.)	5	10%

Results of the client exit survey

The survey was conducted in all 50 health facilities targeted by the study: 9 centers in Arrah district, 22 in Bongouanou district and 19 in M'Batto district. A total of 201 people (pregnant women and children under 5 years of age) who came for consultation were invited to participate in the evaluation. Of the 201 people invited, 192 (60 pregnant women and 132 children under 5 years old) were enrolled with informed consent (parent/guardian consent for children under 5 years old). (Tables 6 and 7)

Table 6: Number of patients expected and number of respondents per district

District	Number of Planned Facilities	Number of establishments visited	Number of patients expected	Number of patients seen	Number of patients surveyed
Arrah	9	9	27 to 45	37	36
Bongouanou	22	22	66 to 110	86	80
M'batto	19	19	57 to 95	78	76
Total	50	50	150 to 250	201	192

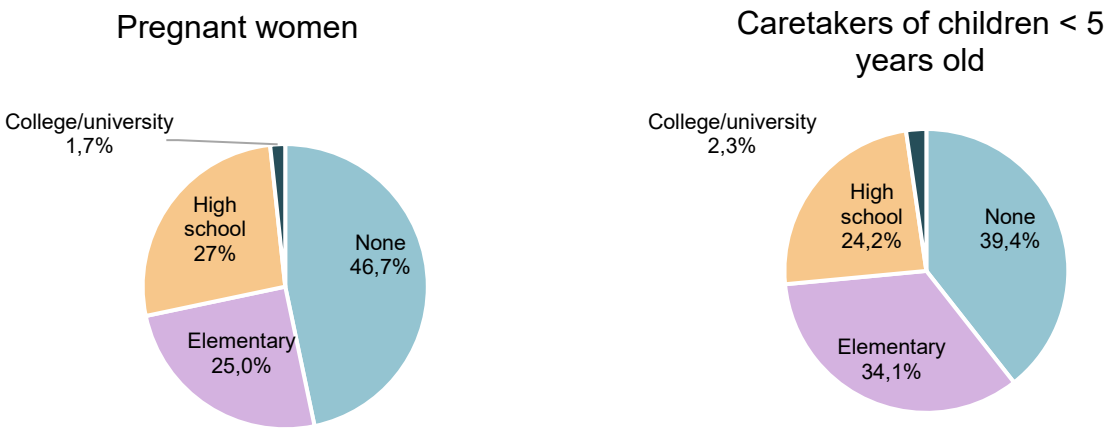
Table 7: Distribution of participants by type (pregnant women and children <5 years) and by district

District	Pregnant woman who came for a consultation	Children under 5 years of age accompanied by the pregnant mother	Children under 5 years of age accompanied by another person/parent	Total
Arrah	9	2	25	36
Bongouanou	26	9	45	80
M'Batto	25	2	49	76
Total	**60**	**13**	**119**	**192**

Male children account for more than half of the children under 5 years of age enrolled (53%) and the majority of accompanying children are female (79%) (Figure 7). Nearly half of the pregnant women enrolled (46.7%) have never been to school. Pregnant women in primary school account for 25%. More than a third (34.1%) of carers of children under 5 years of age have never been to school and nearly 40% of these carers have only been to primary school. (Figure 8)

Figure 7: Sex of children under 5 years of age and their caretakers

Figure 8: Level of education of pregnant women and caretakers of children under 5 years of age



The majority of pregnant women and children under 5 years of age, 78.3% and 65.9% respectively, live less than one km from the health center. The rest of pregnant women live between 1 and 5 km (20%). Only one woman lives more than 5 km away. For the rest of the children under 5 years old, 25% live between 1 and 5 km and 5.3% more than 5 km. (Table 8)

Table 8: Distance from place of residence to health center

Distance	Pregnant women *(n=60)*	Children <5 years old *(n=132)*
< 1 km	78.3%	65.9%
1-3 km	11.7%	15.2%
4-5 km	8.3%	9.8%
> 5 km	1.7%	5.3%
Don't know	-	3.8%

The majority of women and parents/carers of pregnant children (80%) do not know the average cost of malaria management expenses avoided through free malaria control services at the time of the consultation on the day of the survey. For the 38 participants (20%) who responded, the average cost (estimated by patients) of malaria management expenses avoided thanks to free malaria control services during the consultation on the day of the survey was 3,989 CFA francs (pregnant women) and 3,389 CFA francs (children under 5 years of age).

As for indirect costs (transport from the place of residence to the health center), the costs are estimated at an average of 228 CFA francs for pregnant women and 324 CFA francs for children under 5 years of age. The respondents (pregnant women and accompanying persons) estimate the duration of interruption of professional activities caused by an episode of malaria in the pregnant woman and the person in charge of the sick child at three days and four days respectively.

The average monthly income reported by respondents (pregnant women and accompanying women) are respectively 20,341 CFA francs and 35,412 CFA francs for the families of pregnant women and the families of those responsible for the sick child, amounts from far below the minimum wage in Côte d'Ivoire which is 75,000 CFA francs. (Table 9)

Table 9: Avoided direct costs and indirect costs

	Pregnant women	Children <5 years old
	Cost CFA	*Cost CFA*
Average cost of malaria management expenses avoided through free malaria control services at today's consultation (38/192, 20%)	3,989	3,389
Average cost of transportation costs (patients/relatives diagnosed/treated for malaria who paid for transportation)	228	324
Average number of days of interruption of work activities caused by an episode of malaria*	3 days	4 days
Average monthly income reported (families of patients surveyed)	20,341	35,412

** Number of days of interruption of activity of the accompanying person (for children <5 years old)*

The following free malaria control services: diagnosis (RDT), ACT treatment, IPT and LLIN, were delivered to 60%, 53.3, 56.7% and 70.0% of pregnant women interviewed on the day of the survey, respectively. Among children under 5 years of age, 66.7%, 66.7% and 75.2% respectively received free diagnostic, ACT and LLIN services. (Table 10)

Table 10: Free malaria services received by patients

	Pregnant women		Children <5 years old	
	Number		Number	
Free services received on the day of the survey				
Diagnosis *(RDT/Microscopy)*	36/60	60.0%	86/129	66.7%
ACT treatment	32/60	53.3%	86/129	66.7%
IPT (SP)	34/60	56.7%	NA	NA
LLIN	42/60	70.0%	97/129	75.2%

Most pregnant women (80%) and carers of children under 5 years of age (72.7%) say they are aware of the existence of free health services to fight malaria. Among informed pregnant women, the sources of information are mainly the health center (70.8%), followed by the community/other patient (18.8%) and other/audiovisual media (10.4%). The main source of information among the carers of children under 5 years of age is the health center (76%), followed by the community (12.5%) and the audiovisual media (11.4%).

Regarding the sharing of information on the free of charge policy, more than half of pregnant women (51.7%) and nearly half of those accompanying children under 5 years of age (43.2%) say they have shared the information with other people. (Table 11)

Table 11: Communication, knowledge of clients

	Pregnant women		Children <5 years old	
	Number		Number	
Patients/parents informed of free malaria health services	48/60	80%	96/132	72,7%
Source of information on free malaria health services				
At the health center	34/48	70.8%	73/96	76.0%
In the community (other patient)	9/48	18.8%	12/96	12.5%
Other (audiovisual media, etc.)	5/48	10.4%	11/96	11.4%
Patient who informed others about free malaria services	31/60	51.7%	67/132	43.2

Client satisfaction

About a quarter of pregnant women and carers of children, 26.6% and 24.2% respectively, say they are completely satisfied with the implementation of free services. The others, the majority (70% of pregnant women and 56.8% of accompanying children) are partially satisfied. The rest of pregnant women and those accompanying children are not very satisfied or not at all satisfied. For pregnant women and caregivers of children who are not totally satisfied, the reasons given are mainly limited coverage (not many free medicines), and stock shortages.

Table 12: Level of satisfaction of clients

	Pregnant women		Children <5 years old	
	Number		Number	
Level of satisfaction				
Totally satisfied	16/60	26.7%	32/132	24.2%
Partially Satisfied	42/60	70.0%	75/132	56.8%
Not satisfied	1/60	1.7%	20/132	15.2%
Not at all satisfied	1/60	1.7%	5/132	3.8%
Reasons if not totally satisfied				
No Medication/Products (Out of Stock,)	15/44	29.5	22/100	22
Not a lot of free medicines	17/44	43.2	52/100	52
Free not true (not effective)	5/44	11.4	15/100	15
Not informed of the free	4/44	9.1	7/100	7
No answer	3/44	6.8	4/100	4

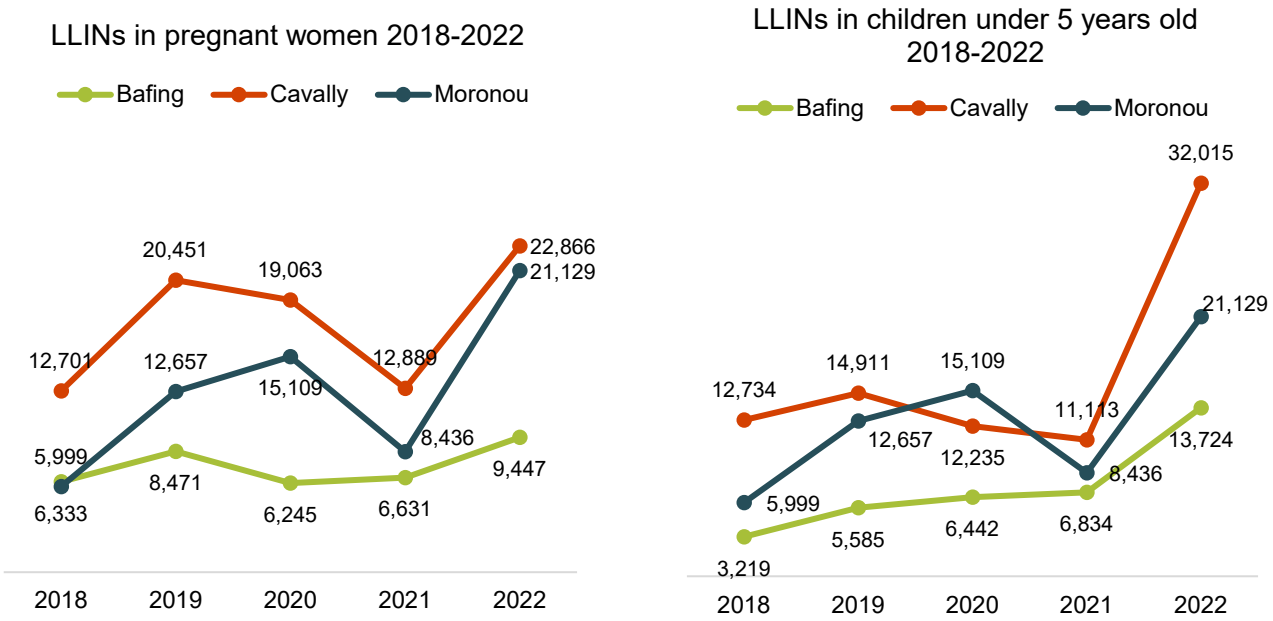
DHIS2 routine data analysis results

Routine data from 2018–2022 are extracted from the DHIS2 database. These data are from the entire PMI-supported Moronou region (all health centers in all districts, including the 50 facilities where primary data were collected). To compare trends, these data were analysed with those of two other regions: the Bafing region in the north of the country, supported by UNICEF, and the Cavally region in the center-west supported by the Global Fund.

Malaria prevention

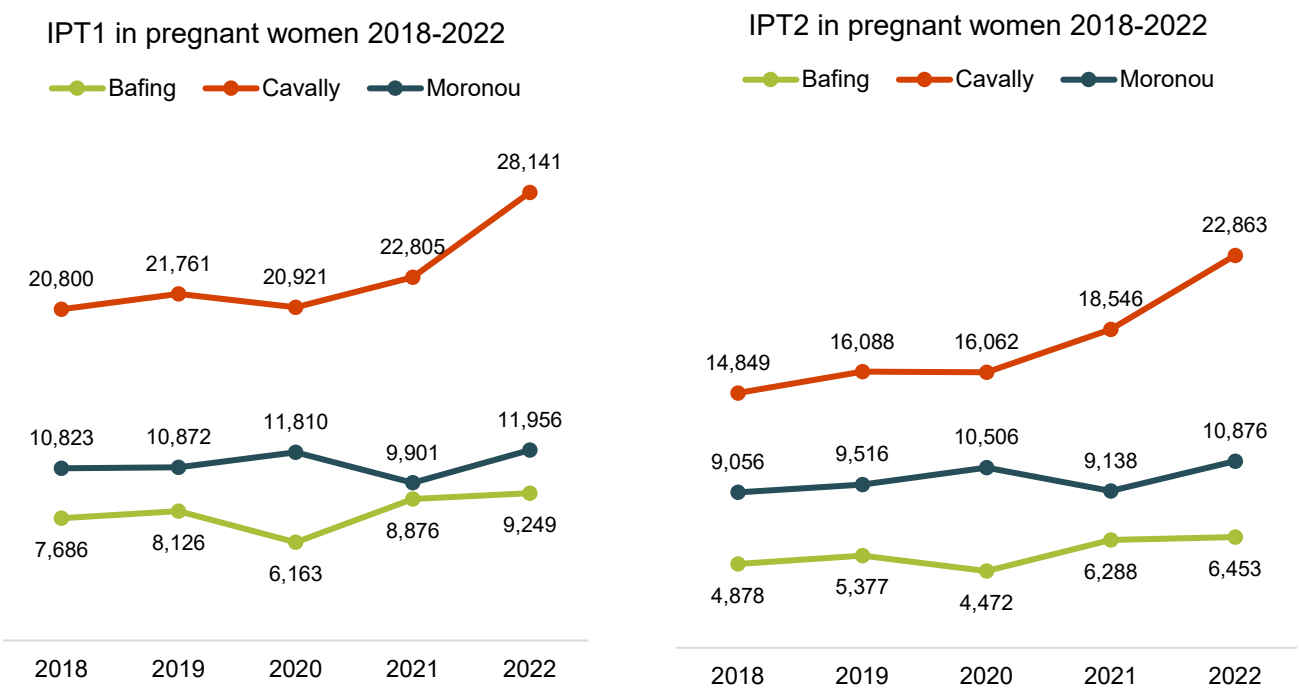
LLINs: From 2018–2022, there are similar trends in the quantities of LLINs distributed to pregnant women and children under 5 years of age in the three regions regardless of the absolute numbers that reflect the difference in target populations between regions. This trend is punctuated by the significant increases in LLINs distributed during mass distribution campaigns. (Figure 9)

Figure 9: Routine distribution of LLINs among vulnerable populations from 2018–2022 in the regions of Moronou, Bafing and Cavally



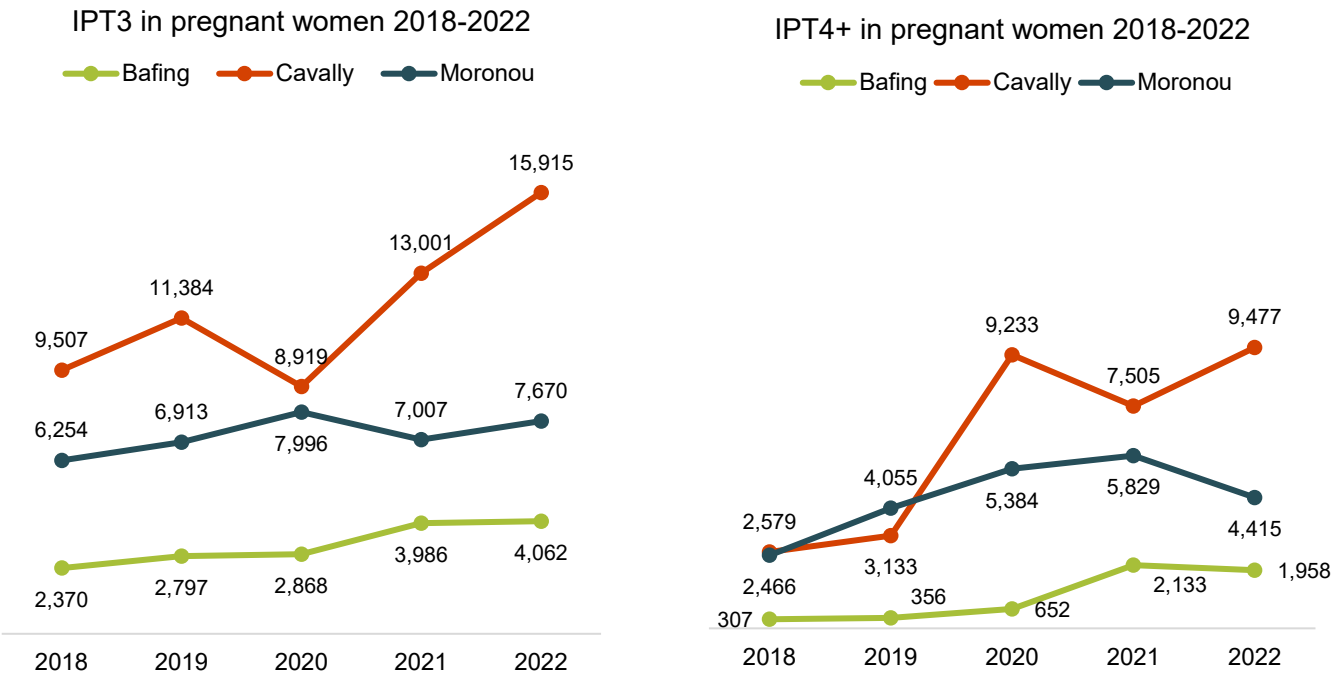
Intermittent Preventive Treatment: Overall, there was an increase in the administration of IPT1 and IPT2 in the three regions, and especially in the Cavally region, between 2018–2022. In the Moronou and Bafing regions, TP1 and TP2 administration increased between 2018–2022, while experiencing a succession of slight increases and decreases between 2019–2022. (Figure 10)

Figure 10: Number of pregnant women who received T1 and IPT2 from 2018–2022 in the regions of Moronou, Bafing and Cavally



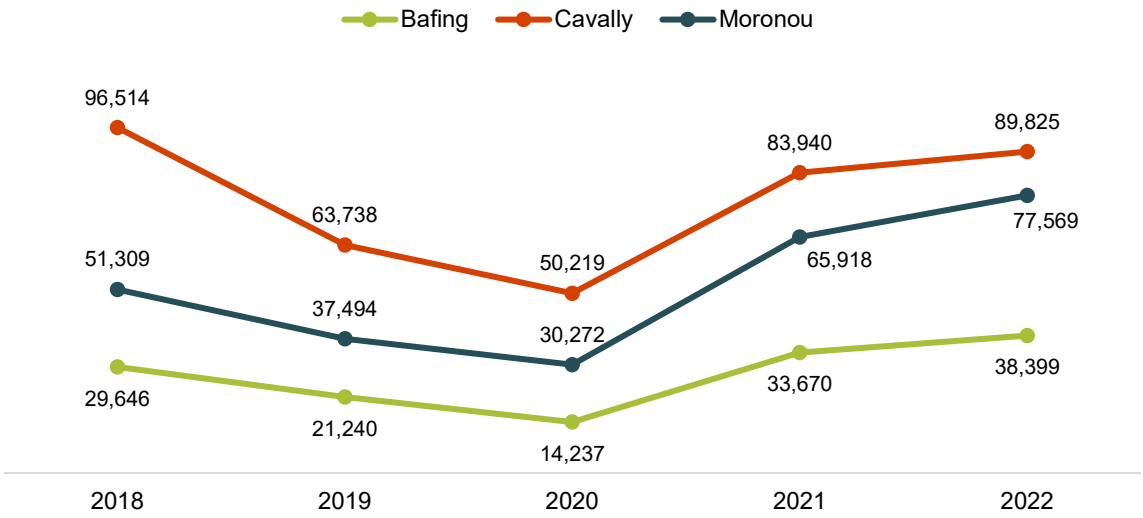
IPT-3 and IPT4 and above*:* Overall, there has been an increase in the administration of IPT3 and IPT4+ in all three regions between 2018–2022, and this increase is much more marked in the Cavally region, although the trends are not consistent over the years. It is noted that the regions of Bafing and Moronou saw decreases in IPT4+ in 2022 compared to 2021. In the Cavally, there has been an increase in IPT4+ in the same period. (Figure 11)

Figure 11: Number of pregnant women who received TP3 and IPT4 and more from 2018–2022 in the regions of Moronou, Bafing and Cavally



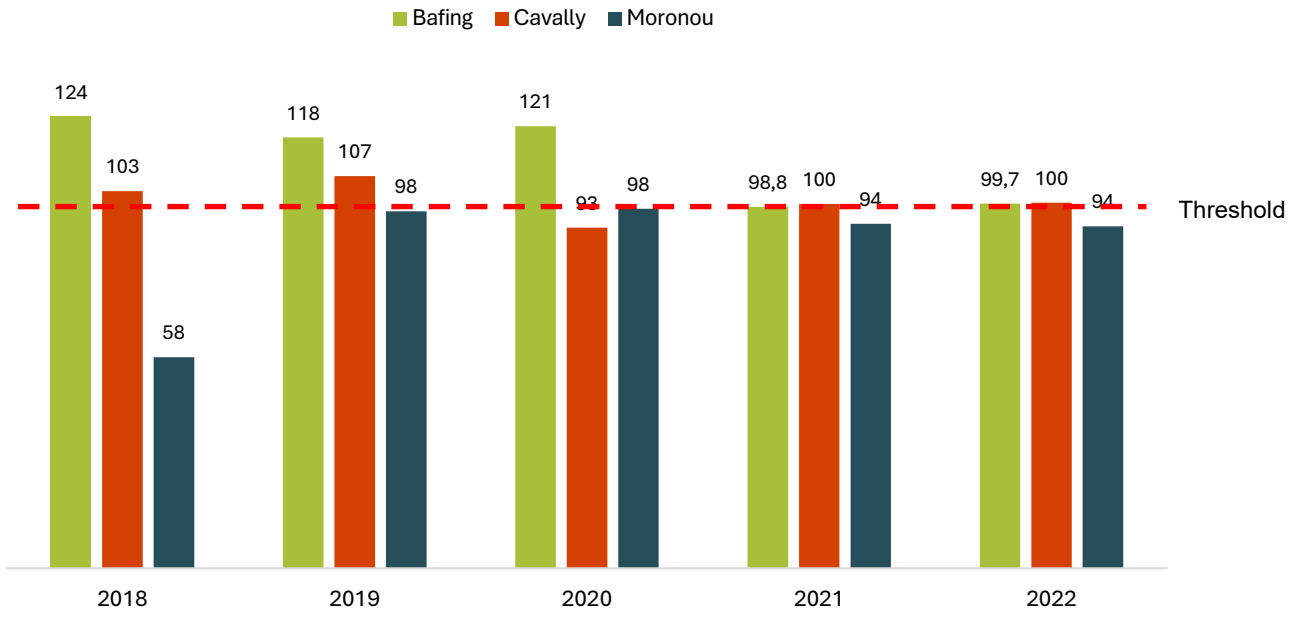
Diagnosis*:* Figure 12 shows similar trends in the number of suspected malaria cases in children under 5 years of age in the three regions. This trend reveals a decrease in suspected cases from 2018–2020 followed by a continuous increase from 2020–2022.

Figure 12: Number of suspected cases of malaria in children under 5 years of age from 2018–2022 in the regions of Moronou, Bafing and Cavally



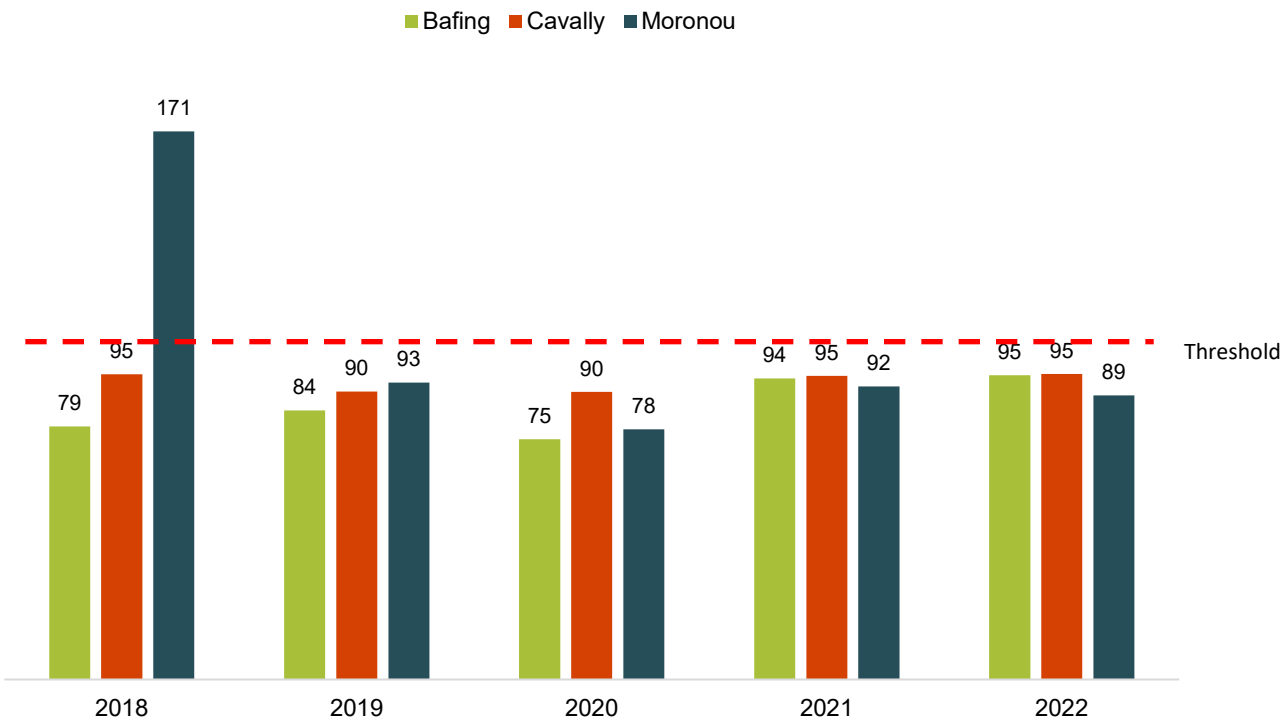
Diagnosis: The percentage of suspected malaria cases tested in children under 5 years of age, which was low (58%) in 2018 in the Moronou region, has increased significantly to 98% in 2019. This level was maintained in 2020. The percentage fell slightly to 94% in 2021 and stabilized at the same level in 2022. The Cavally region had percentages well above 100% in 2018, 2019, and 2020 which then decreased to stabilize at the recommended threshold of 100% in 2021 and 100% in 2022. The situation in the Bafing region is comparable to that of Cavally with percentages above 100% in 2018 and 2019 in smaller proportions. The percentage remained stable at almost 100% in 2021 and 2022. (Figure 13)

Figure 13: Percentages of suspected malaria cases tested in children under 5 years of age (RDTs/microscopy) from 2018–2020 in the regions of Moronou, Bafing, and Cavally



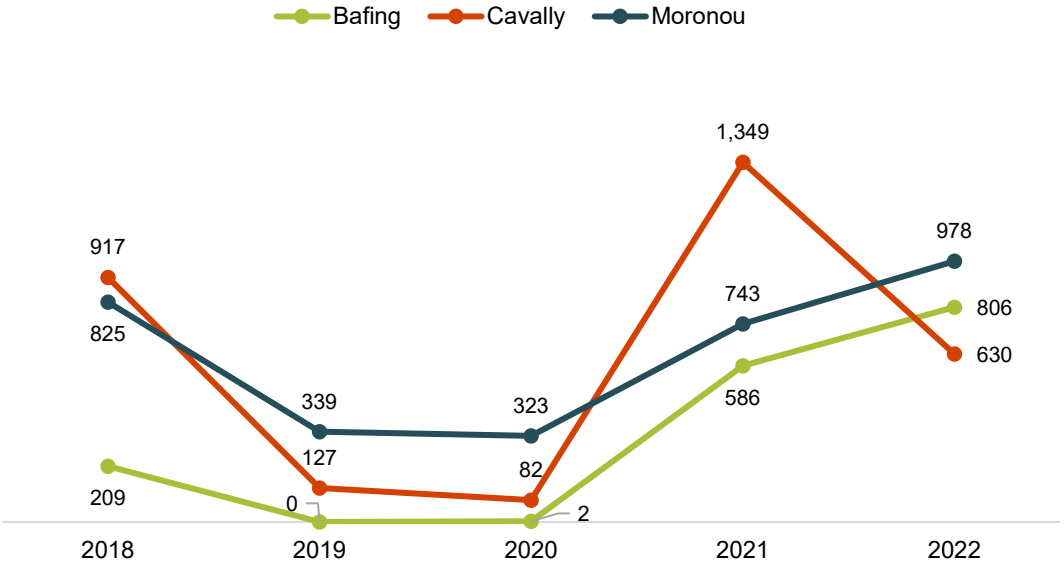
Treatment: The percentages of confirmed malaria cases in children under 5 years of age who were treated with ACTs from 2018–2022 remained overall below the recommended threshold (100%) in the three regions. Moronou region: Overall, the percentage fluctuated (decreased and increased successively) between 2018 and 2022. Apart from the value of 171.2%, observed in 2018 which probably seems an outlier (notification or transcription error), the percentage reached 93% in 2019 and 92% in 2021 but dropped below 90% in 2020 and 2022. The Cavally region also experienced a fluctuation between 2018–2022, however with values above 90% reaching 95% in 2018, 2020, and 2022. In the Bafing region, the percentages remained below 85% in 2018, 2019, and 2020 and then increased to 94% in 2021 and 95% in 2022. (Figure 14)

Figure 14: Percentages of confirmed cases treated with ACT in children <5 years of age from 2018–2022 in the regions of Moronou, Bafing and Cavally



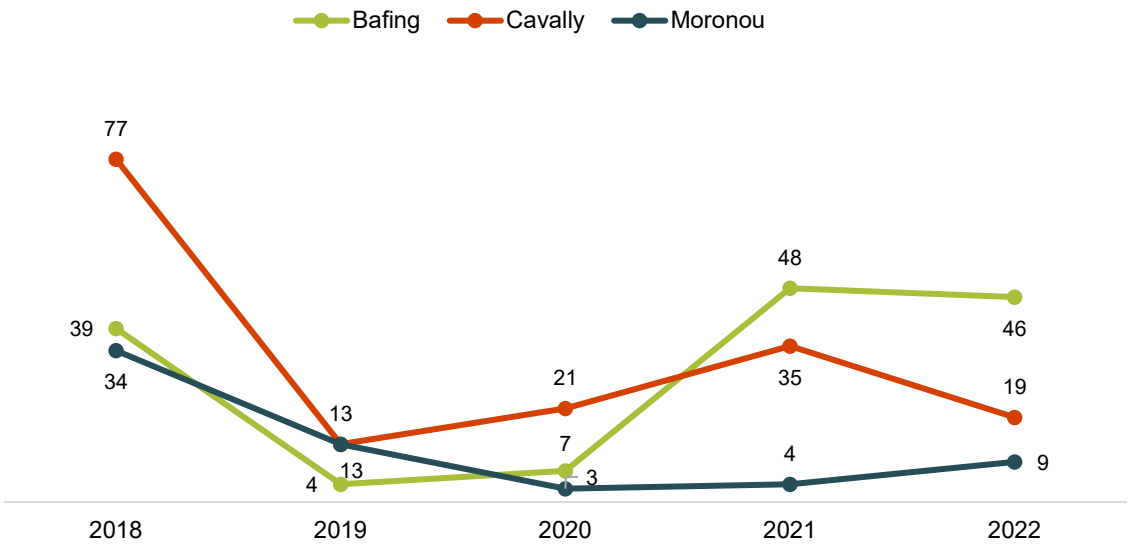
Severe malaria cases: Overall, there was a decrease in the number of severe malaria cases reported in children under 5 years of age between 2018 and 2020 in the three regions. This general downward trend, which reached zero serious cases reported in the Bafing region in 2019, contrasts with a significant increase in 2021 and 2022, especially in the Cavally region, which peaked in 2021. (Figure 15)

Figure 15: Number of cases of severe malaria in children <5 years of age from 2018–2022 in the regions of Moronou, Bafing and Cavally



Malaria deaths: Overall, the relatively high number of malaria-related deaths in the three regions in 2018 has dropped significantly in 2019 in each of the regions. The downward trend continued in 2020 in the Moronou region, followed by a very slight increase in 2021 and 2022. The regions of Cavally and Bafing saw an increase in 2020 and 2021 and then a decrease in 2022. (Figure 16)

Figure 16: Number of deaths from severe malaria in children under 5 years of age from 2018–2022



Results of the secondary analysis of DHS survey data

The analysis covered two DHS surveys conducted in 2011/2012 and 2021. The 2011–2012 DHS was conducted during the period when the government of Côte d'Ivoire reintroduced the policy of free health services.

Malaria prevention:

In 2021, 72.1% of households had at least one LLIN, an increase from 67.3% in 2011 with a statistically significant difference. The increase is observed in both urban and rural areas. Households in rural areas show a statistically significant increase of 73.2% to 83.4%, compared to urban areas where the observed increase (from 60.1% to 63.9%) is not significant.

Analysis of LLIN ownership data by wealth quintiles reveals that in 2021, the lowest wealth quintile had the highest LLIN ownership rate (84.6%), with a significant increase from 71.4% in 2011. Similar trends are observed in the second and middle quintiles, with significant improvements. However, the fourth and highest quintiles show no significant change, with the highest wealth quintile even recording a slight decline from 60.2% to 57.3%. (Table 13)

Table 13:Households with at least one LLIN

	DHS 2011/2012		DHS 2021		
Characteristic	**%**	**95% CI**	**%**	**95% CI**	**Sig.[a]**
Total	67.3	64.5, 69.9	72.1	70.4, 73.8	0.0025
Residence					
Urban	60.1	56.7, 63.5	63.9	61.5, 66.3	0.0738
Rural	73.2	69.1, 76.9	83.4	81.6, 85.0	0.0000
Wealth quintile well-being					
Lowest	71.4	65.9, 76.4	84.6	82.0, 86.8	0.0000
Second	74.9	70.0, 79.3	82.8	80.6, 84.9	0.0012
Middle	65.1	61.2, 68.9	73.4	70.8, 75.7	0.0003
Fourth	64.7	60.8, 68.4	64.6	61.1, 67.9	0.9558
Highest	60.2	54.8, 65.3	57.3	53.7, 60.9	0.3811

Table 14 shows the percentage of households with at least one LLIN for every two persons who stayed in the household the night before the survey. In 2021, 51.2% of households met this criterion, a significant increase from 31.7% in 2011. This increase is observed in both urban and rural areas, with rural areas showing a more substantial increase of 25.4%, compared to an increase of 16.6% in urban areas. Looking at data by quintile of economic well-being shows an increase in all quintiles. The lowest quintile has the highest percentage of households meeting the criterion in 2021 (59.7%) with a significant difference from 34.5% in 2011. Similar improvements are observed in the second and middle quintiles. The increase is less pronounced in the fourth and highest wealth quintiles, with the highest quintile still having the lowest percentage, at 39.6% in 2021, compared to 28% in 2011. (Table 14)

Table 14: Households with at least one LLIN for every two persons who stayed in the household the night before the survey

Characteristic	2011/2012 DHS %	2011/2012 DHS 95% CI	2021 DHS %	2021 DHS 95% CI	Sig.[a]
Total	31.7	29.9, 33.6	51.2	49.4, 53.0	0.0000
Residence					
Urban	28	25.7, 30.5	44.6	42.0, 47.2	0.0000
Rural	34.8	32.1, 37.5	60.2	58.2, 62.1	0.0000
Wealth quintile					
Lowest	34.5	30.5, 38.6	59.7	57.1, 62.3	0.0000
Second	32.8	29.5, 36.2	59.2	56.7, 61.7	0.0000
Middle	32.3	29.4, 35.4	51.7	49.1, 54.2	0.0000
Fourth	30.5	27.8, 33.4	46.9	43.3, 50.5	0.0000
Highest	28	24.3, 32.1	39.6	36.2, 43.0	0.0000

Table 15 shows a significant increase in the proportion of children under five who slept under LLINs the night before the survey in households with at least one LLIN, across various sociodemographic groups. In 2021, 72.0% of these children were covered, a notable increase from 49.8% in the 2011 survey. The increase can be observed in both urban and urban areas, with coverage in rural areas reaching 78.6% (2021) compared to 51.9% (2011) and in urban areas 63.5% (2021) compared to 45.6% (2011). Analyzing data by quintiles of economic well-being, the highest coverage was observed in the lowest quintile, with 83.0% of children using ITNs in 2021, a significant improvement from 56.8% in 2011. The second and middle quintiles also saw sharp increases, while the fourth and highest quintiles had lower coverage rates, with the highest quintile only 51.0% in 2021, compared to 38.2% in 2011. (Table 15)

Table 15: Children under 5 years of age who slept under LLINs the night before the survey in households with at least one LLIN

Characteristic	DHS 2011/2012 %	DHS 2011/2012 95% CI	DHS 2021 %	DHS 2021 95% CI	Sig.[a]
Total	49.8	47.3, 52.3	72.0	70.1, 73.8	0.0000
Residence					
Urban	45.6	41.5, 49.9	63.5	60.1, 66.8	0.0000
Rural	51.9	48.9, 54.9	78.6	76.8, 80.3	0.0000
Wealth quintile					
Lowest	56.8	52.1, 61.5	83.0	80.9, 84.9	0.0000
Second	47.9	44.0, 51.9	78.2	75.8, 80.4	0.0000
Middle	54.8	49.3, 60.2	72.2	69.3, 74.9	0.0000
Fourth	46.0	41.8, 50.2	60.3	55.3, 65.2	0.0000
Highest	38.2	32.5, 44.3	51.0	45.2, 56.8	0.0027

Table 16 shows the percentage of pregnant women who slept under an insecticide-treated net the night before the survey, among those living in a household with at least one LLIN. In the 2021 DHS survey, 78.5% of pregnant women reported using an LLIN, a significant increase from 57.3% in the 2011 survey. The improvement is seen in both urban and rural areas, with rural areas showing higher usage with an increase of 23.1%, compared to urban areas which are witnessing an increase of 21.7% in 2021. Results by well-being quintiles show that the highest utilization was observed in the lowest quintile, with 94.1% of pregnant women using LLINs in 2021, up from 75.7% in 2011. The second and middle quintiles also show significant increases, while the fourth and highest quintiles, although showing improvement, remain at a more moderate level with 64.4% and 54.3%, respectively, in 2021. (Table 16)

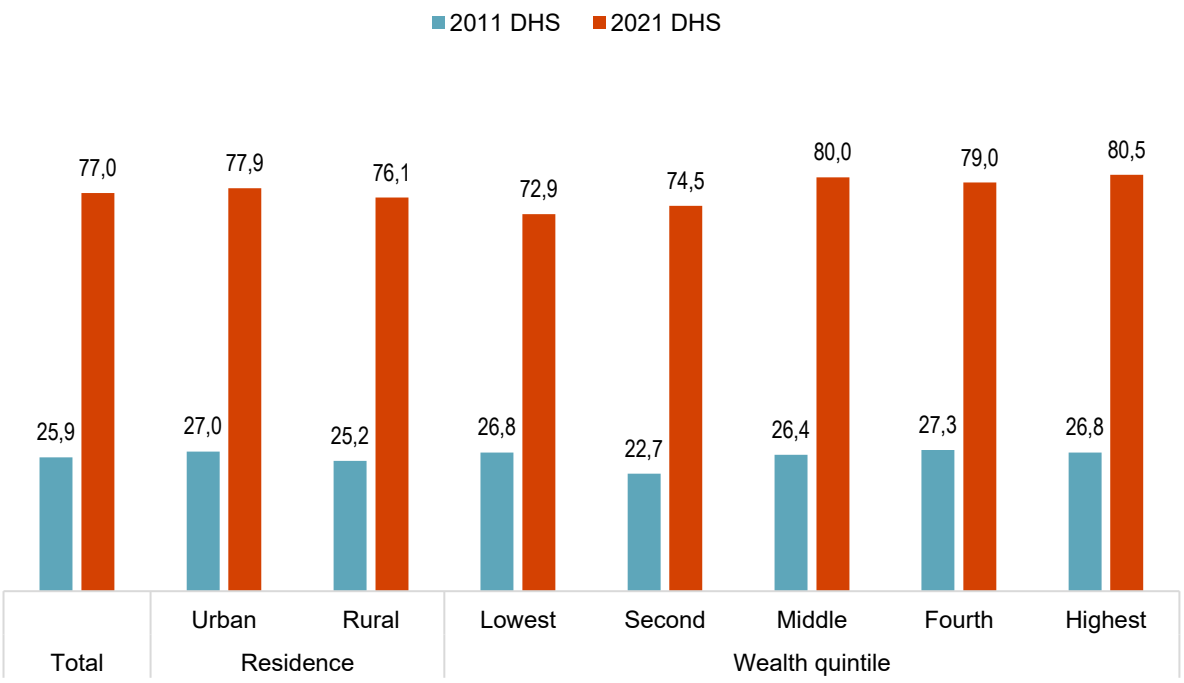
Table 16: Pregnant women who slept under an insecticide-treated net last night among those living in a household with at least one LLIN

	2011/2012 DHS		2021 DHS		
Characteristic	**%**	**95% CI**	**%**	**95% CI**	**Sig.[a]**
Total	57	52 – 62	79	75 – 82	0.0000
Residence					
Urban	51	42 – 59	73	66 – 78	0.0000
Rural	61	55 – 67	84	80 – 88	0.0000
Wealth quintile					
Lowest	76	67 – 83	94	91 – 96	0.0000
Second	53	44 – 62	84	77 – 89	0.0000
Middle	55	46 – 65	80	74 – 85	0.0000
Fourth	53	41 – 65	64	53 – 74	0.1642
Highest	44	33 – 56	54	39 – 69	0.2978

Use of intermittent preventive treatment (IPT) by women during pregnancy

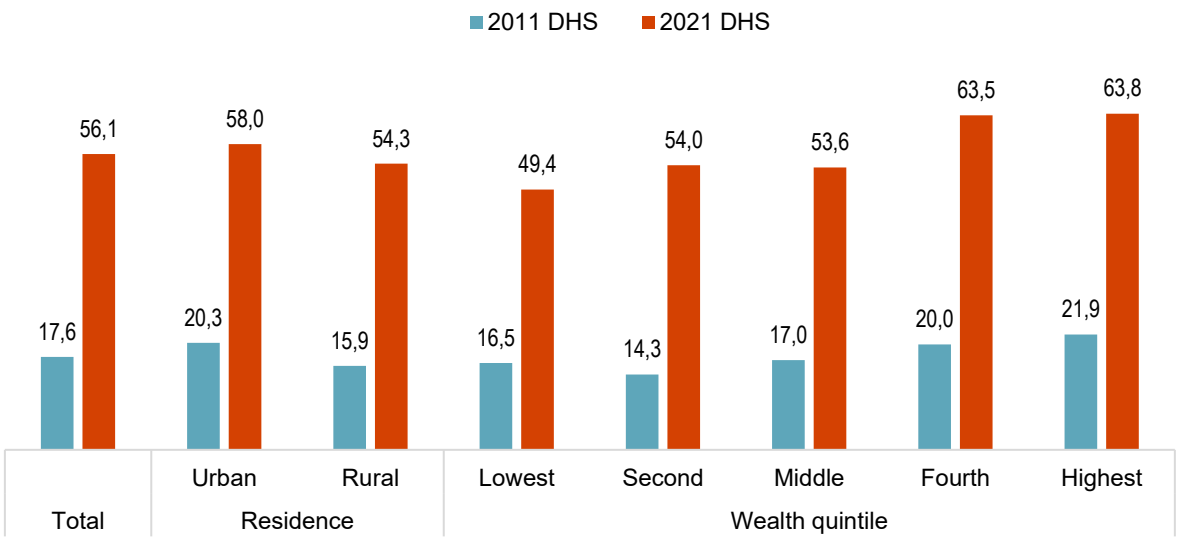
SP/Fansidar one or more doses (IPT1): The data show a significant increase in the use of SP/Fansidar during antenatal visits. Overall, the percentage of pregnant women receiving at least one dose of MS/Fansidar increased from 25.9% in 2011 to 77% in 2021, representing a substantial difference of 51.1 percentage points. The increase is observed in both urban and rural areas, with urban use increasing from 27% to 77.9% and rural use from 25.2% to 76.1%. The distribution by well-being quintile also shows notable improvements across all socioeconomic groups. The lowest quintile saw an increase from 26.8% to 72.9%, a difference of 46.1 percentage points. The middle and top quintiles recorded the largest increases, with use increasing by 53.6 and 53.7 percentage points, respectively. (Figure 17)

Figure 17: Percentage of women who received one or more doses of SP/Fansidar (IPT1)



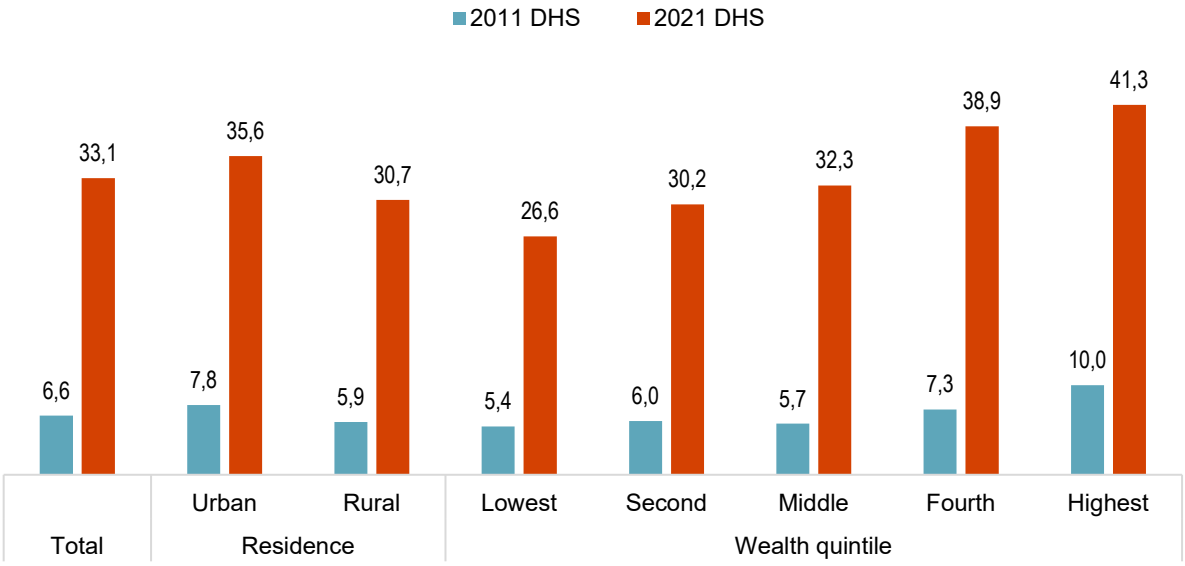
SP/Fansidar two or more doses (IPT2): Overall, the percentage increased from 17.6% in 2011 to 56.1% in 2021, an increase of 38.5 percentage points. Both urban and rural areas saw substantial improvements, with urban areas increasing from 20.3% to 58% and rural areas from 15.9% to 54.3%. Analysis by well-being quintiles shows that the largest gains were observed in the fourth and highest quintiles, with increases of 43.5 and 41.9 percentage points, respectively. The lowest quintile also saw a notable increase from 16.5% to 49.4%. (Figure 18)

Figure 18: Percentage of women who received two or more doses of SP/Fansidar (IPT2)



SP/Fansidar three or more doses (IPT3 plus): Figure 18 shows a significant increase in the percentage of women receiving three or more doses of MS/Fansidar (IPT3+) during antenatal visits between the two cycles of EDS. Overall, the percentage increased from 6.6% in 2011 to 33.1% in 2021, a difference of 26.5 percentage points. This improvement is observed in both urban and rural areas, with urban areas increasing from 7.8% to 35.6% and rural areas from 5.9% to 30.7%. The data also reveals that taking three or more doses is higher in the highest wellness quintiles, with the highest quintile reaching 41.3%, compared to 10%, and the fourth quintile at 38.9%, compared to 7.3%. The lowest quintile also recorded a notable increase, from 5.4% to 26.6%. The result by well-being quintiles shows in both survey cycles that taking 3 or more doses of MS during pregnancy increases as the level of well-being increases. (Figure 19)

Figure 19: Percentage of women who received three or more doses of MS/Fansidar (IPT3 plus)



Fever in children under 5 years of age: There was a significant decrease in the percentage of children under 5 years of age who had a fever in the two weeks preceding the survey, from 23.5% in 2011 to 17.3% in 2021. The decrease was in both urban and rural areas, with urban areas recording a reduction from 24.5% to 17.5% and rural areas from 22.8% to 17.1%. Analysis by well-being quintile shows notable decreases in all quintiles except the middle quintile where the decline is less pronounced. The lowest quintile decreased from 24.3% to 17.4%. Decrease from 25.2% to 18.4% in the highest quintile. (Table 17)

Table 17: Children under 5 years of age with fever in the 2 weeks prior to the survey

	2011/2012 DHS		2021 DHS		
Characteristic	**%**	**95% CI**	**%**	**95% CI**	**Sig.[a]**
Total	23.5	21.8 – 25.2	17.3	16.3 – 18.5	0.0000
Residence					
Urban	24.5	21.9 – 27.4	17.5	15.9 – 19.3	0.0000
Rural	22.8	20.8 – 25.0	17.1	15.8 – 18.6	0.0000
Wealth quintile					
Lowest	24.3	21.2 – 27.5	17.4	15.6 – 19.5	0.0002
Second	22.9	20.3 – 25.8	17.1	15.0 – 19.5	0.0014
Middle	20.4	17.3 – 24.0	17.6	15.5 – 20.0	0.1693
Fourth	24.8	21.4 – 28.6	16.2	13.9 – 18.9	0.0001
Highest	25.2	21.5 – 29.3	18.4	15.2 – 22.1	0.0102

Treatment of fever in children under 5 years of age: There was a slight increase in the percentage of children under 5 years of age who had a fever for whom advice or treatment was sought: 62.4% of children in 2021, compared to 60.2% in 2011. However, the increase is not statistically significant. Based on place of residence, urban areas saw a slight decrease from 68.6% in 2011 to 66.2% in 2021, while rural areas saw a slight increase from 54.7% to 58.6%. Analyzing by wellness quintile, the highest quintile has the highest

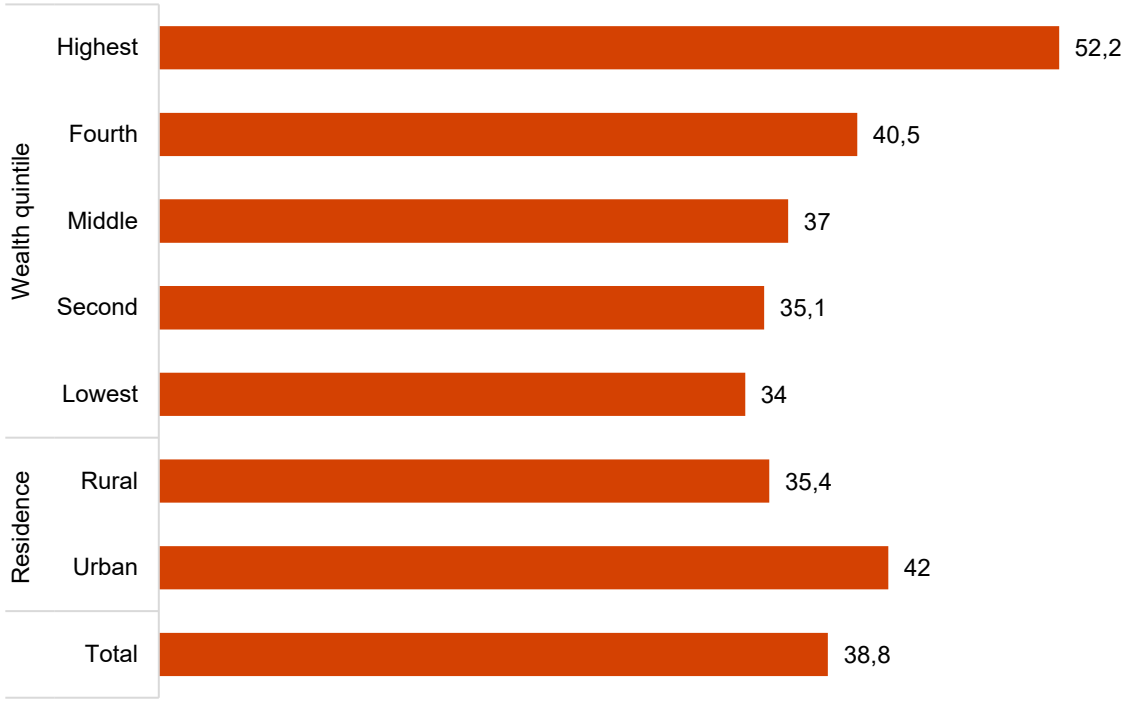
percentage of requests for advice or treatment, at 77% in 2021, up from 73.4% in 2011. The lowest quintile shows a lower trend, 53% in 2021 compared to 50.5% in 2011. (Table 18)

Table 18: Children under 5 years of age with a recent fever for whom advice or treatment has been sought

	2011/2012 DHS		2021 DHS		
Characteristic	**%**	**95% CI**	**%**	**95% CI**	**Sig.[a]**
Total	60.2	56.7 – 63.6	62.4	58.9 – 65.8	0.372
Residence					
Urban	68.6	62.5 – 74.2	66.2	60.7 – 71.4	0.558
Rural	54.7	50.9 – 58.5	58.6	54.4 – 62.7	0.1748
Wealth quintile					
Lowest	50.5	44.5 – 56.3	53	47.6 – 58.4	0.529
Second	56.1	50.0 – 62.0	57.6	50.9 – 64.1	0.735
Middle	63.3	54.6 – 71.3	61.2	54.4 – 67.8	0.7153
Fourth	64	55.5 – 71.8	69.4	59.4 – 77.9	0.4016
Highest	73.4	65.1 – 80.3	77	69.1 – 83.4	0.5002

Timely access to care: Same-day or next-day advice for treatment for fever. The percentage of children under 5 years of age who had recently had a fever and for whom advice or treatment was sought on the same day or the next day was reported only in the 2021 DHS (not in 2011). Thirty-nine percent (38.8%) of the children in the survey responded to this indicator. The percentage is higher in urban areas, 42.3% compared to 35.4% in rural areas. By well-being quintiles, the highest quintile had the highest percentage of timely access to care (52.2%). The lowest quintile had the lowest percentage (34%). (Figure 20)

Figure 20: Children under 5 years of age who have recently had a fever and for whom advice or treatment has been sought on the same day or the next day



Diagnosis*:* There was a significant increase in the percentage of children under five who had recently had a fever and had blood drawn from the finger or heel for diagnostic tests, from 38.4% in 2021 to 11% in 2011. The increase was observed in both urban and rural areas, with urban areas showing a slightly higher increase of 15.1% to 40.6%, compared to rural areas, which increased from 8.4% to 36.2%. Analysis by well-being quintile reveals a substantial increase across all strata, with the highest quintile showing the largest increase, from 18.5% to 49%. The lowest quintile saw an increase from 6.4% in 2011 to 29.6% in 2021. (Table 19)

Table 19: Children under 5 years of age who have recently had a fever and have had blood drawn from their finger or heel for testing

	EDS 2011/2012		EDS 2021		
Characteristic	**%**	**95% CI**	**%**	**95% CI**	**Sig.[a]**
Total	11	9,0 – 13,4	38,4	35,0 – 42,0	0.0000
Residential setting					
Urban	15.1	11.6 – 19.5	40.6	35.2 – 46.3	0.0000
Rural	8.4	6.3 – 11.0	36.2	32.1 – 40.5	0.0000
Quintile of economic well-being					
Lowest	6.4	4.0 – 10.1	29.6	25.1 – 34.5	0.0000
Second	11.5	8.1 – 16.0	39.1	33.4 – 45.1	0.0000
Medium	9.9	6.0 – 15.9	39.2	33.0 – 45.7	0.0000
Fourth	11.5	7.9 – 16.3	39.3	30.4 – 49.0	0.0000
Highest	18.5	13.3 – 25.0	49	39.6 – 58.4	0.0000

Treatment with ACT in children under 5 years of age: Overall, there was a significant increase in the percentage of children who took ACT among children under 5 years of age who had fever and took an antimalarial drug, from 18.8% in 2011 to 38.9% in 2021. The increase is more notable in urban areas, where the percentage rose from 17.2% in 2011 to 42.1% in 2021 compared to rural areas (20.5% in 2011 and 35.8% in 2021). Analysis by well-being quintiles shows that the highest quintile recorded the largest increase, with the use of ACTs increasing from 20.5% to 46.3%. The lowest and middle quintiles recorded smaller increases, with the lowest quintile increasing from 17.7% to 32.2%. (Table 20)

Table 20: Children under 5 years of age with a recent fever who have taken an ACT

	EDS 2011/2012		EDS 2021		
Characteristic	**%**	**95% CI**	**%**	**95% CI**	**Sig.a**
Total	18.8	12.7 – 27.1	38.9	32.6 – 45.5	0.0002
Residential setting					
Urban	17.2	10.9 – 27.8	42.1	32.3 – 52.5	0.0008
Rural	20.5	11.4 – 34.2	35.8	28.1 – 44.3	0.0500
Quintile of economic well-being					
Lowest	17.7	5.1 – 46.4	32.2	22.7 – 43.4	0.2834
Second	21	7.8 – 45.6	43.2	30.1 – 57.2	0.1003
Medium	16.4	6.7 – 34.8	31.2	21.9 – 43.9	0.1242
Fourth	17.1	8.2 – 32.3	40.6	24.9 – 58.5	0.0299
Highest	20.5	9.9 – 37.7	46.3	30.7 – 62.7	0.0257

Prevalence of malaria in children under 5 years of age as measured by RDTs: Results on malaria prevalence among children under 5 years of age, as measured by RDTs, show a decrease of 4.2 percentage points, from 41.5% in the 2011 DHS to 37.3% in the 2021 DHS. Urban areas have seen a very moderate

decrease in prevalence (21.8% in 2011 and 21.7% in 2021), compared to rural areas (52.9% in 2011 compared to 51% in 2021). According to the analysis by well-being quintiles, prevalence decreased in all groups, with the most significant reductions observed in the fourth quintile, where prevalence fell from 25.5% to 14.4%, and in the highest quintile, where it fell from 12.2% to 7.2%. The bottom and second quintiles also declined, albeit to a lesser extent, from 57.3% to 55.6% and from 54.9% to 52.2%, respectively. (Table 21)

Table 21: Prevalence of malaria in children under 5 years of age as measured by RDTs

	2011/2012 HDS		2021 DHS		
Characteristic	**%**	**95% CI**	**%**	**95% CI**	**Sig.[a]**
Total	41.5	37.9 – 45.2	37.3	34.3 – 40.3	0.0002
Residence					
Urban	21.8	17.6 – 26.0	21.7	18.0 – 25.3	0.0008
Rural	52.9	48.8 – 57.0	51	47.6 – 54.4	0.0500
Wealth quintile well-being					
Lowest	57.3	52.0 – 62.7	55.6	51.4 – 59.8	0.2834
Second	54.9	49.0– 60.9	52.2	47.7 – 56.6	0.1003
Middle	41.8	36.2 – 47.3	38.5	34.1 – 42.8	0.1242
Fourth	25.5	19.8 – 31.1	14.4	11.2 – 17.7	0.0299
Highest	12.2	8.5 – 15.9	7.2	4.1 – 10.2	0.0257

The prevalence of malaria among children ages 6 months to 14 years measured by microscopy shows an increase in prevalence from 17.9% in the 2011 DHS to 26% in the 2021 DHS, an increase of 8.1 percentage points. Prevalence increased in both urban and rural areas, with urban areas recording a relatively moderate increase from 7.3% to 12.9%, compared to rural areas from 23.9% to 37.4%. By well-being quintiles, malaria prevalence increased in most economic groups, with the largest increase observed in the lowest quintile, where prevalence increased from 28.2% to 43.8%. The second and middle quintiles also saw notable increases, from 23.9% to 34.7% and from 16.8% to 26.1%, respectively. The fourth quintile saw a slight decline from 7.8% to 7.5%, while the highest quintile saw a reduction from 4.2% to 2%. (Table 22)

Table 22: Prevalence of malaria by microscopy in children ages 6 months to 14 years

	2011/2012 DHS		2021 DHS		
Characteristic	**%**	**95% CI**	**%**	**95% CI**	**Sig.a**
Total	17.9	14.9 – 20.8	26	23.4 – 28.5	8.1
Residence					
Urban	7.3	4.9 – 9.8	12.9	9.7 – 16.1	5.6
Rural	23.9	20.1 – 27.7	37.4	34.5 – 40.3	13.5
Wealth quintile					
Lowest	28.2	22.6 – 33.7	43.8	39.8 – 47.7	15.6
Second	23.9	18.2 – 29.6	34.7	30.9 – 38.5	10.8
Middle	16.8	12.7 – 20.9	26.1	21.8 – 30.4	9.3
Fourth	7.8	5.1 – 10.4	7.5	4.9 – 10.1	-0.3
Highest	4.2	1.7 – 6.7	2	0.7 – 3.3	-2.2

Key informant interview summaries

Central level key informants

A total of 16 interviews were conducted at the central level, with informants from the Ministry of Health and Public Hygiene, the Prime Minister's Office, and technical and financial partners. (Table 23)

Table 23: Number and affiliation of key informants interviewed at the central level

Structures	Informants	Number of people
Ministry of Health and Public Hygiene	Director General of Health or representative National Malaria Control Program - Deputy Coordinating Director of NMCP - Head of the Communication and Partnership Department - Prevention/malariology/Pharmacovigilance Department and Clinical Research Associate - Head of the Monitoring and Evaluation Department at the NMCP.	1 4
	Department of Health Economics	1
	Directorate of Community Health and Health Promotion	1
	General Directorate of Universal Health Coverage	1
Other Government Structure	Office of the Prime Minister	1
Technical and financial partners	- WHO - Global Fund - Save the Children - Stop Djekoidjo - LHPSA Project Project - John Hopkins - Abt Associates	7
Total		**16**

Interviews with the Directorate-General for Health, the Directorate-General for Universal Health Coverage and the Directorate for Community Health

Fight against malaria in Côte d'Ivoire

Malaria is a major public health problem for Côte d'Ivoire. The government's vision is the elimination of malaria in Côte d'Ivoire. This is why the fight against malaria is a priority for the Ministry of Health.

In this context, the most effective strategies concern prevention at several levels: LLINs, indoor spraying, larval control, the use of SPs for the prevention of malaria in pregnant women during their ANC. In addition, it is worth noting the contribution of community health workers (CHWs) who have helped reduce the spread of malaria in the country.

Involvement and support of malaria control partners

Partners support the system in relation to the national vision, and the main strategic directions are given. Resource mobilization is an important area, and the support of partners is valuable to the system. Partners help with coordination and at the operational level.

Budget allocation

The State allocates an operating budget to the NMCP and the other technical departments of the Ministry of Health. In addition to government funding, key technical and financial partners (TFPs) such as the Global Fund, PMI, UNICEF and Save the Children are involved in financing the fight against malaria for the most vulnerable targets such as pregnant women and children under 5 years of age.

Gender considerations

The Ministry of Health officials interviewed did not find any gender inequality in access to and use of malaria control services.

> "There are no gender differences in access to and use of malaria services." (DGS – Directorate-General for Health)

> "There is no distinction in access to these services, even for our communities, children from 0 to 5 years old, women and boys are treated in the same way." (DGCMU – General Directorate for Universal Health Coverage)

Key informants from the Directorates of the Ministry of Health did not find any particular obstacles that women would face, especially since it is men who bear the cost.

> "No, no obstacle, when a woman is pregnant the CHWs make sure that she has an impregnated mosquito net. If this is not the case, the woman is referred to the health center." (DSC – Direction de la Santé Communautaire)

Challenges for vulnerable populations

The main challenges identified by the Ministry of Health Directorates in the fight against the burden of malaria among vulnerable populations were the effective availability of medicines and inputs, the effective application of free health care by health workers, the effective use of the mosquito nets distributed, and community mobilization with the involvement of village chiefs in raising awareness.

> "I myself had an experience when I accompanied a niece to the hospital for treatment of malaria.

When we went to the pharmacy to buy the prescribed drug, we were told that the drug was not available and we were forced to go to a private pharmacy to buy the drug that was supposed to be free and I imagine that many people have this experience and the data that we are analyzing clearly shows it." (DGS)

Bodies and mechanisms for the management of free health services policies and their effectiveness

Article 8 of Decree 2019 of June 12, 2019 instituting selective exception measures for the payment of fees that are targeted free of charge, stipulates that:

"Under the authority of the Ministry of Health, a commission responsible for ensuring the implementation of the exemption measures provided for in this decree and this commission is called the National Coordination Committee for the Implementation of Targeted Free Health Care."

Powers of the Commission

- Proposing strategic orientations
- Ensure interministerial collaboration
- Participate in the mobilization of the budget essential to the implementation of free health care

Composition of the Commission

- Chair: Minister of Health
- Vice-President: The representative of the Minister for the Economy and Finance
- Secretary: The Director-General of Health Secretary
- Members: The Directorate of Financial Affairs of the Ministry of Health, the Directorate for the Establishment of Profession, the directors of hospitals, representatives of the Ministry of the Budget, the representative of the Ministry of the Interior, the representative of the National Health Insurance Fund (CNAM)

The institutions involved in coordinating the implementation of free services are the NMCP, the New PSP, the PNLS and the Directorate of Financial Affairs.

Perceptions of the policy of free health services

"Despite declining direct payments at the household level, the burden of malaria for vulnerable populations is still high. As malaria is the leading cause of morbidity, much remains to be done." (DGCMU)

"In the community, there is care for pregnant women and children from 0–5 years old. Other patients pay their own costs. So we need coverage for everyone. There are still difficulties with the availability of medicines and inputs." (DSC)

"The main challenges to my knowledge are the effectiveness of free health care, the availability of inputs, the evaluation of these free policies." (DSC)

Interviews with the National Malaria Control Program (NMCP)

Fight against malaria in Côte d'Ivoire

Despite a still high incidence, the fight against malaria has made progress in terms of mortality, which has decreased thanks to the improvement of the provision of care that extends to the community. The fight against malaria is coordinated through policy documents defining the general framework for the fight against malaria in Côte d'Ivoire. These main orientations are translated into strategic documents such as the National Strategic Plan for Malaria Control 2021–2025 and its annexes (National Strategic Plan for Surveillance, Monitoring and Evaluation 2021–2025), the National Strategic Plan for Communication for Social and Behavior Change 2021–2025. The main strategies and interventions implemented are: universal access to diagnosis and care, strengthening the permanent availability of inputs and medicines, universal access to LLINs and *sulfadoxine-pyrimethamine prevention,* implementation of seasonal chemoprevention and long-term chemoprevention in children under 5 years of age, the introduction of malaria vaccine, the implementation of larval control and communication for social and behavioral change.

> "For example, the WHO has comparative advantages if I want to evaluate, for example, the effectiveness of ACTs today in Côte d'Ivoire. Everything is based on the recommendations of the WHO." (NMCP)

Involvement and support of malaria control key actors

Most key actors are involved in the various processes such as the development and validation of documents, the implementation of activities, the financing of activities and raising awareness among the population. The role of the malaria control partners is to support the Ministry of Health through the NMCP, thus providing support in the development of normative documents, the negotiation of funding, the coordination, monitoring and evaluation of interventions.

Budget allocation

The State of Côte d'Ivoire allocates the budget during the budget conference, so resource mobilizations are carried out with partners such as the Global Fund to Fight AIDS, Tuberculosis and Malaria (with a counterpart to be covered by the State) and PMI. The TFPs involved in the financing are: FM, PMI, WHO, UNICEF, RBM. The acquisition of drugs and inputs is one of the areas and interventions that receive more funding.

Gender considerations

NMCP officials consider that there is no gender inequality in access to and use of malaria services. Regarding the particular barriers or challenges women face in accessing health services, the NMCP notes the lack of autonomy.

> "It's the lack of autonomy of women, because they need the permission and financial support of their husbands to go to the health center."

> "The barriers women face in accessing malaria services are financial and respect for traditions."

Challenges for vulnerable populations

The main challenges identified by NMCP service managers in the fight against the burden of malaria among vulnerable populations are: (i) respect for the hygiene in the living environment and the broader environment; (ii) the use of mosquito nets; (iii) early recourse to care, prenatal consultations for taking sulfadoxine pyrimethamine; (iv) difficulties in accessing health centers, (v) permanent availability of medicines and inputs to fight malaria, and (vi) the involvement of women's groups, community leaders

(religious guides, kings and customary chiefs) and community action groups in mobilization strategies that consider the customs and traditions of the population.

Perception of the policy of free health services

NMCP officials consider that the policy of free health services has contributed to improving the attendance rate of health centers and reducing cases of severe malaria and deaths but does not have factual data to justify this evidence. For NMCP service managers, the free policy has helped reduce the economic burden of malaria on vulnerable households by reducing out-of-pocket payments, which are an obstacle to attendance at health centers but are easier when insurance is available.

> "Direct payment is generally an obstacle to visiting health centers, but is easier when insurance is available."

> "Thanks to the free health care policy, diagnostic test fees and the purchase of antimalarial drugs have been eliminated, which constitutes a financial gain for households."

For NMCP officials, awareness raising, and community mobilization are weak points in the implementation of the policy of free health services.

Also, the constant availability of inputs and medicines in sufficient quantities for the population is a main challenge to be met.

> "The optimal management of medicines and inputs must support targeted free health care which must be reinforced by the system of functional universal health coverage."

Interviews with technical and financial partners: WHO, CCM Global Fund, Save the Children, PSI Djekoidjo Project, JHU CCP (Breakthrough ACTION), and the NPSP/LHPLA Project

Involvement and support of malaria control key actors

For the managers interviewed, each key actor plays a specific role as follows:

- The Ministry of Health coordinates the implementation of interventions through the NMCP in accordance with the National Strategic Plan
- The regional level with the regional teams and the new district with the district management teams.
- WHO contributes to the alignment of program with international frameworks, provides technical assistance to the program, and proposes protocols and guidelines for control.
- Civil society organizations play the role of watchdog
- The JCC mobilizes funding from the Global Fund, selects PRs, strategically monitors the implementation of allocated funds, and ensures alignment of funding with other donors
- The Global Fund and PMI provide financial and technical support to the fight, while the RSs ensure the implementation of activities at the community level.
- NGOs provide support to community health workers

In addition, some partners have target areas: the East for PMI, the Central West for the Global Fund, the

North for UNICEF

> “At the community level, CHWs, women’s associations and groups should be encouraged in their efforts to participate in the fight against malaria.” (Global Fund)

> “On behalf of the Global Fund, the CCM is a multisectoral body that brings together all key actors in the fight against HIV/AIDS, Tuberculosis and Malaria. Decision-making is inclusive and participatory. An example of this is the country dialogues and the writing of funding requests where all key actors take part.” (Global Fund)

> “At Save the Children, we are helping to raise awareness at the community level and train and supervise CHWs on malaria prevention in households.”

Budget allocation

The State finances the fight against malaria with the contribution of financial partners, the main ones being the PMI, the Global Fund, the WHO, and UNICEF. The State prepares a budget that takes into account all normative aspects, planning, monitoring, and evaluation aspects.

> “The FM provides cyclical financing according to the epidemiological profile and economic level of the country. The procurement of health care products absorbs more funding from the Global Fund.” (Global Fund)

Gender consideration

Most technical and financial partners agree that there are no real differences between men and women or between male and female children. For some, however, there is a lack of equity for women or an imbalance in favor of men.

> “There are no real differences between men and women in terms of financial burdens, however, the challenge for women is their financial autonomy which limits access to health services.”

> “There is no gender difference in health services, whether you are a man or a woman. In hospitals, providers don’t make a difference.”

> “In our cultures, it is man who has the financial means. The woman needs the man to give her the means to go for treatment because of the cost of medication, consultation, and medical examinations.”

> “There is no equity for women. Because of sociological factors that hinder decision-making, women cannot make decisions about their own health. A woman’s economic power depends on her husband or family, and her husband may prevent her from going to a health center.”

> “The reception by some health workers (for example, the reception of pregnant girls by some midwives) can be an obstacle to attendance at health centers.”

> “We observe that today, young girls are the most frequently pregnant, and the reception they receive from midwives - for example, with derogatory comments such as "Ah, you, such a young girl getting pregnant...- " does not encourage these girls to visit health centers.”

> “Regarding vulnerability, there are services for pregnant women at the level of health facilities and

also at the level of pediatric services for children ages 0 to 5 years."

"Men have more means than women, and therefore genders, are confronted with different burdens."

There have been gender-specific interventions or policies to address the issue of the economic impact of malaria because the State has implemented the policy of targeted free health care for pregnant women and children under 5 years of age, but there is a gap for men.

"Regarding more serious cases, for a man there is no access to free and while it is free for pregnant women and children under 5 years old." (NPSP)

Challenges for vulnerable populations

The challenges in addressing the burden of malaria on vulnerable populations can be summarized in three key areas: geographic and financial accessibility to quality services, including at the community level, rational use of these services, including free services, and effective communication to these populations to ensure their buy-in.

"Expenses depend on the structures frequented by the patient. In public facilities, care is completely free of charge for vulnerable populations (pregnant women and children under 5 years old). In other centers [private, traditional healers, prayer camps, etc.], care has a cost."

"In addition to direct costs, hard-to-reach populations are exposed to more or less high indirect costs related to transport to the health center."

Bodies and mechanisms for the management of free health services policies and their effectiveness

The regulations provide for the establishment of a national commission for the coordination of implementation. This commission is placed under the authority of the Minister of Health. The national coordination commission should also estimate and validate the needs for medicines and health products, under the targeted free health services policy.

Perception of the policy of free health services

The policy of free health services has influenced access to and use of health services. This policy has enabled the most vulnerable sections of the population to cope with the other burdens of their households. Free care for vulnerable populations has been an economic gain at the household level. However, its implementation faced challenges related to the availability of inputs and adherence to deadlines for the provision of financing.

"This free policy has made it possible, through the free provision of mosquito nets, to reduce cases among pregnant women and children under 5 years old. The policy of free medicines has helped households."

"In fact, supply disruptions and the implementation of resources to fully ensure free services were not done on time, were carried out with difficulty, were set up more slowly."

"In reality, targeted free health care is not always effective on the ground for multiple reasons: (i) difficulties or inadequacies in the criteria for allocating financial resources and health care services; (ii) budget allocations to health facilities that are late and do not cover all needs; (iii) the costs of providing care."

"The budget lines for targeted free health care are implemented in the last quarter of the year, with health facilities expected to cover free healthcare during the previous quarters from their regular resources."

"As part of the free health services policy, antimalarial drugs are made available to patients free of charge. In terms of economic accessibility to treatment, this is a big step. However, there are challenges to be met in this area: one of these challenges is the funding of this policy."

For some partners, the free health services policy has not contributed to a significant reduction in the economic burden of malaria on vulnerable households because the application of this policy is not effectively respected.

"In some centers, drugs that are supposed to be free are prescribed despite the incessant appeal of the Director of the NMCP and this is a real shame."

Key Informant Interviews in the Moronou Region

A total of 14 interviews were conducted in the Moronou region. (Table 24)

Table 24: Number of key informant interviews conducted in the Moronou area

	Health authorities Regional Director District Director Malaria Focal Point CSE Manager		**Administrative entities** *Town hall* *Conseil General*		**Total**	
	Planned	Achieved	Planned	Achieved	Planned	Achieved
Moronou Regional Directorate	3	2	1	1	4	3
District of Bongouanou	3	2	1	1	4	3
District of Arrah	3	3	1	1	4	4
District of M'Batto	3	3	1	1	4	4
Total	**12**	**10**	**4**	**4**	**16**	**14**

Malaria control in Côte d'Ivoire

Officials in the Moronou Region consider that the fight against malaria is progressing positively. This is made possible by the commitment of the State of Côte d'Ivoire to create the malaria control program, the implementation of which covers all the effective control strategies recommended at the international level. In addition, the initiative to implement the free health services policy for children under 5 years of age and pregnant women is likely to increase the use of services and reduce the burden of malaria.

"The current state of the fight against malaria is evolving well because we see that the incidence has decreased." (Bongouanou)

"The fight against malaria in Côte d'Ivoire in general and in the Moronou region in particular is experiencing a decline in serious cases of malaria."

"We also see that there is more and more use of IPT, the intermittent preventive treatment to prevent malaria in pregnant women in order to guarantee the health of mother and baby."

However, health officials in the region believe that strengthening awareness at the population level, involving community workers, and improving the availability of inputs is necessary to increase the effectiveness of all interventions.

> "Promote communication directed at the population with the aim of dispelling prejudices about the causes of malaria by showing that it is the bite of mosquitoes that causes malaria." (Bongouanou)
>
> "Talk about prevention measures: sleep under LLIN to protect yourself from these mosquito bites." (Bongouanou)

Involvement and support of key actors in malaria control

The health authorities of the Moronou region have indicated that several partners are involved in the fight against malaria with specific roles. These officials report the good collaboration between all partners, particularly between the community and health workers and also between partners (WHO, UNICEF), CHWs and the Health District. The main actors in the fight at the regional level are:

- Central level: The Ministry of Health through the DGS, and the NMCP
- Regional level: the Regional Directorate of Health
- District level: the directors of the health districts of Arrah, Bongouanou and M'Batto and their teams
- Level of health facilities: health workers
- Community level: community leaders such as religious leaders, youth presidents, women's groups, traditional healers who participate to relay information.
- Decentralized entities and communities: the Regional Council, the General Councils, the Town Halls, etc.
- The population as a whole
- Technical and financial partners, particularly those operating in the region such as Break Through Action, Pigago, and the Stop Djekoidjo project for their technical and financial support

> "The Ministry of Health, that is to say the DGS, the technical unit that develops, that makes the decisions to send us in the right direction." (Bongouanou)
>
> "The partners support us with formative supervision strategies to assess the knowledge of the providers and strengthen their capacities." (Bongouanou)
>
> "Community health workers are involved in prevention, promotion in the fight against malaria, promotion of the curative component to prevent the various barrier measures that have not worked." (Bongouanou)

Budget allocation

The health authorities consider that technical partners are helping alongside the State to finance the fight against malaria. Interventions are mainly focused on children (0–5 years) and pregnant women.

Gender considerations

Authorities in the health region generally find that there is no gender inequality in access to and use of malaria services. They note, however, that the responsibility for expenses is most often borne by the man who is the head of the household because of the lack of financial autonomy of women.

> "No sex difference, no discrimination, between men and women, between female and male children, everyone is taken care of at the health center." (Bongouanou)

> "No difference observed, all patients are treated regardless of gender." (M'Batto)

> "There is a difference because in a household with low income, where the woman does not work, all the expenses are the responsibility of the head of the family, the man." (Bongouanou)

> "There is a difference in financial burdens between men and women, because here women are dependent on men." (M'batto)

> "The household expenses are the responsibility of the man."

> "Most mothers are young girls, so they don't have income to treat themselves and their children in case of severe malaria." (Arrah)

> "There is a difference in financial burden because here women are dependent on men." (Arrah)

Some respondents expressed the wish that the competent authorities (decision makers) also take into consideration the issue of men, since they pay for their care in the event of malaria, while the state subsidizes consultations for pregnant women and children under 5 years of age.

> "The State subsidizes consultations for pregnant women, and then children from 0 to 05 years old, men on the other hand pay." (Arrah)

In terms of the obstacle or challenge that women may face in accessing services, there is a lack of autonomy and leadership in decision-making to go to the health service because she has to ask permission from her husband who will cover the expenses, including transport costs.

> "The obstacles are financial. The woman depends on her husband, because she is ill and needs his permission to go to the hospital. It is for this reason that women's empowerment must be promoted nowadays." (Bongouanou)

The other challenge is related to the management of medicines, diseases such as anaemia, which is often associated with malaria but is not free.

> "Lack of financial means to buy drugs against anaemia as a pathology associated with malaria." (Bongouanou)

Women's empowerment projects allow them to have income to contribute to economic empowerment. Indeed, women who have income-generating activities through the VSLAs (Village Savings and Loan Association) contribute to the expenses:

> "The creation of women's groups like the AVEC, they carry out field activities to meet expenses and support a member in difficulty and ensure the transport of the sick." (M'Batto)

In terms of particular barriers or challenges that women face in accessing services are: (i) drug stockouts,

(ii) the lack of financial means to go to the health center, (iii) the difficulties of access for populations in isolated areas.

> “Medication shortages remain the challenge, not to mention the lack of financial means that the husband faces when the wife has to go to the hospital.” Bongouanou

> “The major challenge remains mobilization and accessibility to isolated areas. Community health workers need to be more involved in the fight.” (Bongouanou)

Women’s lack of financial autonomy and their dependence on men were also highlighted.

> “There is a difference in financial burdens between men and women, because here women are dependent on men.” (M’Batto)

Challenges for vulnerable populations

The main challenges identified by the officials of the Bongouanou health district in the fight against the burden of malaria among vulnerable populations are: maintaining hygiene in the living environment and surroundings, strengthening awareness and communication with the support of community actors, and ensuring the population seeks health services promptly at the first signs of malaria.

> “Fighting against non-compliance with hygiene rules.”

> “The first challenge remains awareness and communication through community actors" (Bongouanou Town Hall)

> "The second challenge, the invitation to the population to go to the hospital earlier at the first signs of the disease.” (Bongouanou Town Hall)

Challenges for possible hard-to-reach populations

The populations considered difficult to reach in the Moronou region consist of people living in remote and isolated settlements established on cocoa plantations. These remote and poorly served settlements, are mainly found in the Bongouanou district.

These populations face challenges in accessing health centers, due to poor quality of access roads and the long of distances they need to travel. Transportation costs are a challenge for visiting health centers, even during times of the year when roads are passable.

Perception of the free health services policy

> “The free health care policy has led to enormous progress, we can provide malaria prevention drugs, which helps prevent seeing sick children, cases of hemorrhage during childbirth, mothers who die in childbirth.” (Regional Directorate of Health of Morounou)

> “We are seeing enormous progress in the fight against malaria through the policy of free health care policy.”

> “Major challenges in terms of RDT stockouts, malaria tests and drugs.” (M’Batto)

> “Drug stockouts, especially malaria tests (RDTs).” (M’Batto)

Summary of the focus groups

A total of 31 Focus Group Discussion (FGD) sessions were conducted: 8 in Arrah district, 14 in Bongouanou district, and 9 in M'bto district. Eighteen (18) FGDs were carried out with parents of children under 5 years of age who consulted in health centers in the last 30 days and 13 FDGs with pregnant women who received services from health centers in the last 30 days. The focus groups mobilized 120 parents of children and 85 pregnant women, for a total of 205 participants. (Tables 25 and 26)

Table 25: Number of focus groups by target (pregnant women, parents of children <5 years old) and by health district

District	Number of FDGs with parents of children	Number of FGDs with pregnant women	Total Number of FGDs
Arrah	4	4	8
Bongouanou	8	6	14
M'batto	6	3	9
Total	**18**	**13**	**31**

Table 26: Number of participants in focus group discussions by target and district

District	Number of FDG participants that were parents of children	Number of FGD\ participants that were pregnant women	Total number of FGD participants
Arrah	26	26	52
Bongouu	55	39	94
M'Batto	39	20	59
Grand Ttal	**120**	**85**	**205**

Knowledge, perception and attitudes in malaria

In most of the villages attached to the health districts of Bongouanou, M'Batto and Arrah, pregnant women and parents of children under 5 years of age are familiar with malaria and its severity. They identify it in local languages in terms such as *"DjèKouadio" and "Djégouman,"* even if they are not unaware of the name "malaria" in French.

For these participants, malaria is a disease caused mainly by mosquito bites to which some women add factors such as sun, hygiene, and mango. The symptoms commonly mentioned are fever, fatigue, vomiting.

Causes

"Djangouman is a disease that causes fatigue, and is contagious. (It is) the mosquitoes cause it." (M'Batto)

"The sun, when you are exposed to too much sun, it also gives malaria." (Arrah)

"What causes malaria is dirt. It is the dirt in the courtyard and in the rooms that is the cause of malaria." (M'Batto)

"The places where we live must be clean, they need to be kept clean."

"Mosquitoes are what cause malaria." (M'Batto)

"When the mango season comes, that's when malaria comes" (Arrah).

Symptoms

"You often have a fever, you have a bitter mouth, you are lazy, you can't eat, and you get hot. The vomiting doesn't stop, I take the medication but nothing goes well and here I am still sick." (Bongouanou)

"You feel tired, your body heats up, you don't sleep at night." (Bongouanou)

"When malaria is on me, my body heats up. When I pee, my pee is yellow, and my vomit is green."

"If you contract malaria and you are pregnant, you can even go so far as to fall" (M'Batto).

"Well, malaria is a disease transmitted by mosquitoes, based on mosquito bites. And we recognize it by the fever, when the person heats up, the fever is on the person." (M'Batto)

Prevention and treatment

To avoid or prevent this disease, the populations mention the use of mosquito nets, the sanitation of their living environment and the medicines they are given at the health center during consultations. When it comes to treatment and knowledge of malaria symptoms, pregnant women and parents of children under 5 years of age do not hesitate to go to a health center to be diagnosed and provide care when symptoms start.

"Mosquitoes give malaria. That's why the State gave us mosquito nets so that we could sleep under these mosquito nets and prevent mosquitoes from reaching us when we sleep to bite us." (M'Batto)

"You have to protect yourself against mosquitoes, and also take the free malaria treatments that you give at the hospital." (Arrah)

"You have to sleep under the impregnated mosquito nets." (Arrah)

"I am going to the hospital quickly, currently malaria is dangerous, it should not create a problem for my pregnancy." (M'Batto)

"Well, when we come to the hospital, they give us tablets and they give us injections and we go back." (DGF Arrah)

"I come to the hospital first for diagnosis and they give me a prescription that my husband buys in a pharmacy." (Bonguanou)

"When you have palu, you take your health card and then you come to the hospital." (Arrah)

"When you have malaria, you come to the hospital, you explain it to the doctor, and he takes your blood pressure. He looks to see if you have malaria and he explains how you should take it. He prescribes you medicine, you pay, and he gives you a prescription and then you pay he explains to you how to take the tablets and then you do it right." (Arrah)

Recourse to traditional medicine is frequent, especially for women and parents of sick children who say

they do not have the financial resources, but when cases worsen, modern medicine seems to be the most coveted path by all. In general, populations combine the two therapies: modern and traditional.

> "There is the medicine of the doctors and there is the medicine of the Africans, that is to say that when the doctor does the care, it is after that that we do the traditional treatment. There is medicine from doctors and there is medicine from Africans." (Arrah)

> "The tree is called amian, you put it in a drink, its water comes out well and then you drink. You can also combine it with the pills of the whites. When you drink medicine from whites, you also have to drink the traditional, you can combine the two medicines and you heal quickly. We don't buy medicines from white people; the doctors give them to us for free." (Bongouanou).

> "We treat malaria on a traditional level with djeka, trin, we treat ourselves with it and malaria passes." (DGF Bongouanou)

> "Well, when we come to the hospital, they give us tablets and they give us injections and we go back. When we return home, we complement the modern treatment with the traditional treatment for quick effects. We take the plant called "Adjé loukou," put the leaves in a pot and boil and drink. Often we mix 'adjé loukou' with plants called 'alouaba gna, n'da gnaman, flomian' and we knead the water and we put in the sun and wash the malaria patient with it. If it's a woman, we wash her 4 times a day, if it's a man we wash him 3 times a day. To drink, you take the root of 'Koya' mixed with the dry leaves of 'teak' and the dry leaves of 'Djéka' and you drink the juice that comes out once it has been boiled. As you drink, you pee regularly, and the disease disappears." (Arrah)

> "When you have a fever and you feel it's malaria, but you don't have money to go to the hospital, you can only stay at home. The best thing to do is to stay at home, to get some prepared leaves to drink. If God says that you will not die, you will heal and continue to live." (M'Batto)

> "If you go to the hospital without money, you will not be seen by the health workers. Often the expenses amount to 5,000 fracs, 10,000 francs or more, you don't have this amount."

> "Well, when you work and health problems come up, it changes your whole program. You can say today I'm going to work in such and such a place or I'm going to buy something and you see that the child who is near you is sick, if you say that you don't take care of him and he dies you will lose more so we are forced to take him to go to the hospital." (Arrah)

Economic impact of malaria on households of vulnerable populations

Pregnant women

Malaria is an economic burden on pregnant women. In the event of malaria, they are called upon to spend sums of up to 10,000 CFA francs per treatment. From our respondents, it appears that the minimum amount that a pregnant woman with malaria spends is 3,000 CFA francs. Women live in localities where there is no health center, are forced to pay for transportation to get to the health center. In addition to direct and indirect expenses, there is the loss of income due to the cessation of economic activities due to malaria.

> "For malaria, there are free medicines, but for syrup, we pay, if you have spent maybe 4,000 francs or 4,500 CFA francs, yes but transport, I didn't put it in. Everything can be 6,000 francs with transport, the

fuel I put in my motorcycle." (M'Batto)

"Malaria can make us spend 45,000 francs when it's grown-ups and children it's often 7000 and 5000 francs." (Bongouanou)

"I'm at home, when I'm sick I can't cook so we pay for food for children, which increases expenses even more." (M'batto)

"So as soon as it comes to that, you make a lot of unexpected expenses. You can have your projects in which you want to finance but as soon as the disease arrives, you waste all your money. You can see that it can weigh a little on us." (Bongouanou)

"A woman speaks: I am telling the truth, when I had malaria until now, the expenses I incurred for my treatment exceed hundreds of thousands. The malaria I had was serious. I was anemic. The hospital here says they can't treat me. They sent me to Arrah and I was given a blood transfusion of 5 bags of blood. Currently, I am continuing the blood treatment. I continue to buy blood medicines. If I say, the exact amount I spent on the treatment, it might scare the state." (Arrah)

The following word clouds show that the expenses can amount to up to 45,000 CFA francs.

Figure 21: Word cloud on expenses by pregnant women

Children under five

Field data shows that children's malaria-related expenses remain an economic burden for parents living in poverty. Parents say that they spend sums of up to 10,000 CFA francs for each episode of malaria in children. In addition to the direct costs of treating children's malaria, there may be indirect costs related to transport from home to the place of care (health centers). In addition, the occurrence of malaria in children leads to a loss of income for families who have to take time off work in order to take the child to the health center.

"I'm a farmer, really the loss of a day is very heavy. It can be estimated at more than 20,000 francs, 30,000 francs like that, because the work of a day can give me in the month more than 50,000 francs so the only day I have lost I can say is like I lose 50,000 francs like that, given the activities I do, it's a very

heavy loss, since I have no one because of the health of my child, or for my wife, frankly, it's a lot." (Arrah)

"I'm a mason and during this time I manage to find people sometimes to replace me, but it's not every day that I find people to work. What I'm losing in all this time is enormous. Let's imagine that you are paid 7,000 francsper day and you do 15 days without working. I lose almost more than 100,000 francs when I'm sick or if I have a sick child." (M'Batto)

"You can lose 60,000 francs, it depends because if a customer comes that you're not there, he goes elsewhere, that's clear, he's not going to wait for you or he's going to call you, where are you, you say, wait for me, I'm coming. If he waits 40 minutes and he doesn't see you and he's in a hurry, he leaves." (Arrah)

"Well, I'm in the village, so when I leave the village here, it's about 9 kilometers. So back and forth it's already 18 kilometers. So when I come and leave, it's already two thousand francs. But when I sleep in the field and I go it doesn't cost us much compared to other health centers. If you have ten thousand francs you can come here, otherwise if it's elsewhere you need at least fifteen thousand."

"He said just now when he left there to come back 2,000 francs."

"Yes, but I didn't put the transport in. Everything can be 6,000 frances with transport with fuel that I put in the motorcycle there."

"Maybe if these are the people from the settlements, they pay 2,000 one-way transport and 4,000round trip." (Bongouanou)

The following word cloud gives an idea of the expenses incurred by parents in the event of the children's illness.

Figure 22: Word cloud on the expenses incurred and the loss of income caused by parents during episodes of malaria in children

Impact of the free health services policy on vulnerable populations

Pregnant women

Most pregnant women are aware of the policy of free malaria care for pregnant women. But in practice,

pregnant women find coverage insufficient and very unsuitable for their needs in the event of malaria

> “The state says that malaria treatment is free, if it says it’s free, everything must be free. There are certain medicines to treat malaria that we pay for. We buy the injections, that’s not normal. Everything that is malaria must be free.” (M’Batto).

> "What I don’t understand is that we say everything is malaria medicine, but there are some that we pay for and there are some that we don’t pay for too, why? Everything that is malaria must be free.” (Bongouanou)

> “When you go to the hospital, you are told that some medicines are free and others are paid for, and when doctors are told that they are stealing from us and that the state says everything is free and then they sell us, it means that they are bad. They are insulted gratuitously when it is the State itself that is playing this game with us. The injections and tablets all have to be free.” (Bongouanou)

> “Often when I come, if it’s malaria treatment. When it’s tablets, it’s free, but when it’s a shot it’s 3,000 francs. Often too, if there are other medicines, it’s 5,000 francs.” (M’batto)

Several pregnant women conclude that this policy of free care is illusory because in the places of care, especially in health centers, this free care is not remarkable since they have to pay money for care in the event of declared malaria.

> “We hear but we haven’t seen yet. It hasn’t been done here yet. I hear that talk on the radio, they say on the radio less than 5 years old, pregnant woman treated for free. It’s all false, it is a lie. When you go to the hospital, you spend.” (Bongouanou)

> “Malaria there, if you don’t have the money, you’re going to die in the hospital, the nurses won’t even look at you. Because even we say it’s malaria, you have to go and get the money to come if you don’t send it. Theyare not going to treat you if you don’t have the money, you’re really going to die, they’re not going to look at you.” (Bongouanou)

> “Tell the state that we are in the bush and we don’t see free healthcare, pregnant women, children and even grown-ups have trouble treating themselves, let them find a solution to help us by sending malaria drugs to hospitals, we will go and take it. ” (M’Batto)

> “They say it’s free, but it’s not free. Free and then they will give a prescription for you to go and buy there, you will go and take credit.” (Arrah)

Regarding the issue of free healthcare, one of the respondents revealed that to benefit from a reduction in the cost of malaria treatment, it is first necessary to obtain the CMU card, which is not easy to access.

> “I heard that when you have a CMU card, you come if you have to pay 5, 000 francs, at least they tell you to pay 2,000 francs. But since then we have made a CMU card so we don’t see the cards.” (M’Batto)

Children under 5 years old

The data collected indicate that, for some parents (minority opinion), the policy of free health services for children ages 0 to 5 years is beneficial. However, it must be recognized that its impact remains limited because colossal expenses are still incurred by parents for the treatment of children. For them, there are only a few products that are given free of charge to sick children while these products are not enough for

the healing of children.

> "There is free healthcare in hospitals, the proof of this is that for children under 5, or even older, thick blood smears are free in the general hospitals. However, for children under 5, very often, just now even, for the prescription of my child, I was with the head doctor, who he even called the hospital pharmacy to see if there were, what do you call it, the RAs for treatment, unfortunately, they were out of stock, the free care is for children under 5 for malaria." (Arrah)

> "The state says that malaria treatment is free, if it says it's free, everything must be free. There are certain medicines to treat malaria that we pay for. We buy the injections, that's not normal. Everything that is malaria must be free." (Bongouanou)

> "I sent the child to the hospital; they say free medicine but when you come to the hospital there, what we spend there is too much. It's only tablets we are given" (M'Batto)

> "It's a single tablet, a packet, it can't cure malaria there. What are we being helped with then?" (M'Batto)

> "First of all, when you arrive here, since there are no machines here to do the exams. So when we arrive we do the RDT, when we do it and it's positive, since the child is also heating up, they give him an injection to lower the fever. Now when we do the injection they take at least 2,000 CFA like that. Now they prescribe a prescription to go and buy in Bongouanou." (Bongouanou)

> "Well, I don't have many things to add but when we talk about free care, we the population don't know what's free, really where I'm sitting, I don't know what's free in the hospital" (Arrah)

Thus, a participant in the discussion suggests that the State follow up on the application of the free health services policy:

> "I can also add very often when the State gives, that it also has a follow-up … Often when a team travels to the field to see if indeed if the government is doing what has been said, on the ground, they should also conduct investigations as you are doing today so that everything is credible." (Arrah)

Gender dimension of the economic impact in the fight against malaria

Pregnant women

For access to treatment in health centers, there is no distinction about gender. Women and men are treated in the same way and no priority is given to anyone.

> "It's the same thing when we go to the hospital, everyone comes to seek care, so we are received in the same way."

> "When we arrive at the hospital he has no distinction, if a boy goes there, he will be received and will pay for the medication in the same way as a woman."

> "No, for the treatments, it's the same whether it's a boy or a woman, the price is the same, everyone pays."

> "We are all humans, so we pay."

> "It's in order of arrival, the person who arrives first is the person they take first before taking you but if

it's in case of an emergency there, yhry take you to the emergency there and then they inform people now." (M'Batto)

With regard to the coverage of malaria-related expenses for pregnant women, it appears that the costs are mainly borne by men in their capacity as heads of households who meet the needs of all.

"I come to the hospital first for diagnosis and they give me a prescription that my husband buys in the pharmacy. Afterwards, I can supplement with traditional medicines." (Bongouanou)

"My husband is the one who does the expenses."

"Malaria makes us spend too much. I spent nearly 40,000 francs when I had malaria. My husband paid for the expenses." (Bongouanou)

"I arrived here at the hospital; I was told that there was no malaria drug. I was given a prescription and went to the pharmacy to buy it. When there are expenses to be incurred for the treatment of malaria, it is my husband who makes the expenses."

"When I was pregnant and had malaria, my husband paid for it. The two of us work in our field. If I am sick, he uses the money from the field to treat me. So I can say that he is the one who spends when I have malaria." (Bongouanou)

"He's the one who does everything, for the moment, I don't have the money." (Bongouanou)

"I don't spend money myself, he's the one who does it and if I see that he doesn't have the means, that I have the means, I can help him."

"Me, it is the mister who pays for everything. I'm not yet settled so he's the one who pays."

"Same for me, he's the one who pays for everything."

"If it's the woman who goes to the hospital, they will consult and give a prescription, I'll pay." (M'Batto)

Children under 5 years of age

Evidence shows that parents of children do not have a preference when it comes to caring for children. For parents, whether the child is female or male, parents feel the same responsibility and it goes without saying that they care for them regardless of sex.

"My husband, he loves his children. When it's boy oh, woman oh, he takes care of them."

"No, I personally, there is no difference between the children. I treat them in the same way because a child is a child. No matter the gender, it's your child."

"With me there is no difference, whether it is a boy oh woman oh it's the same thing."

"In any case, there is no difference, eh, it's the same treatment." (M'Batto)

"All children are the same. It's not because you've just had girl children that you're going to find that those who were there before aren't children and you're going to treat some and leave others. In the eyes of God, this is not good."

"If my mother didn't differentiate between us children, I'm not the one who will teach my children

divisiveness by loving some more than others."

"You can't bring a child into the world and refuse to treat him if he's sick because he's a boy or a girl, I can't curse my children."

"No, I don't sort, the one who starts for him, we start with him."

"All of them are my children, there are two girls, and this one is a boy, I don't make any difference. In case of fever, malaria if I have the money we go to the hospital if I don't have any we stay at home."

"I have six children, three girls and three boys, as soon as one of these children has a fever we send them to the hospital without distinction."

"When you have a child, you have to love him, there should not be distinction. I don't have a preference, as soon as one of them doesn't feel well, we go to the hospital." (Bongouanou)

Participants felt that even on the side of health workers, when the parents of children refer patients to them, it is up to them to treat the children in the same way without distinction in terms of gender. This is probably what these interviewees wanted us to know:

"When we come to the hospital, the way they treat girls, that's the same way they treat boys. There is no difference."

"Woman like boy, when they arrive, it's the same way, they take them. In any case, they tease, they bring them to accept the injections, because the children, as soon as they see the clean syringes, they start screaming." (Bongouanou)

"Child, it's child if you're the one who conceived it, you have to take care of it even if it's a boy or woman, you have to take care of that."

"I treat all girl children or boys, if they are sick, I treat them."

"No, there is no difference, theytreat everyone in the same way."

"They treat everyone, they don't make a difference."

"In any case, at home, it's not like that. If a child is sick, his father rushes to treat them, whether it is a boy or a girl." (Arrah)

This fair attitude towards children's illness (the case of malaria) is not experienced in all families. Sometimes (as explained by one participant) there is preferential treatment for one gender.

"My husband and I, we have a boy and a girl. When she's sick, we go to the hospital, they say it's a blood problem, he says he doesn't have the money. When the boy is sick, he runsr to the hospital, me, too, when the girl is sick, that's it, I run to send her to the hospital." (Arrah)

Discussions

The survey in health centers

The evaluation highlighted certain strengths, notablytraining. Almost all health center managers are trained in the management of malaria cases and receive supervisory visits from district teams. Areas for improvement (weaknesses) relate to the availability of management tools, including national malaria management guidelines and other guidance documents on the implementation of the FHSP, communication of the FHSP to the population, and the problem of frequent stockouts of inputs. In short, few of the managers of the centers evaluated are completely satisfied with the implementation of the FHSP, mainly citing recurrent stock shortages, the limitation of free treatment to ACTs only, as well as the low awareness of the population. An assessment of the operational characteristics of the FHSP based on the results of the survey in the health centers shows that the process is gradually consolidating, despite the difficulties in the field. According to the analysis, the non-structural weaknesses, such as insufficient communication with the target populations and the stockouts of supplies, should be addressed to increase the response capacities of the health centers. These weaknesses reveal the tangible reality of the FHSP, as do the roles of community health workers.

Exit interviews with service users

The study highlighted strengths in relation to the geographical accessibility of clients with the vast majority of service users residing within one km of the health center. The majority of pregnant women and parents/carers of children report being aware of the FHSP and the services it offers. The health center and the community are the main sources of information. The majority of pregnant women and parents/carers of children are unaware of the average cost of malaria management costs avoided by free malaria control services. Pregnant women and parents (accompanying persons) of children report an average of three to four days of interruption of professional activities for an episode of malaria in the pregnant woman and the person in charge of the sick child. Few participants expressed total satisfaction with the implementation of the FHSP, with the main reasons being limited coverage (not many free medicines), and stockouts.

Data from demographic and population surveys (DHS)

The analysis explored data on access to insecticide-treated nets in malaria prevention and case management. Indeed, the analysis of these data has highlighted a substantial increase in the possession and use of LLINs in the population between 2011 and 2021. This increase is most notable among those in the lowest quintile of economic well-being, which conveniently corresponds to socioeconomically vulnerable populations. The data show that the improvement observed in this segment of the population concerns both the populations in rural and urban areas. This may indicate that LLIN campaigns and distribution efforts nationwide have been successful in reaching the poorest populations. However, it also highlights the need for sustained efforts to ensure continued access to and consistent use of LLINs among vulnerable populations.

Data from both cycles of the DHS show that the use of SP in the prevention of malaria in pregnancy increased significantly between 2011 and 2021. The increase concerns the IPT1, the IPT2 and the IPT 3; in urban and rural areas and all quintiles of economic well-being. However, the improvement in coverage is more pronounced in the most socioeconomically well-off populations, indicating a possible disparity in access to health services to the disadvantage of the poorest populations. More equitable access to malaria

prevention services, especially for the poorest populations, is needed and should be a priority for the national malaria control program and all key actors.

The prevalence of malaria as measured by RDTs decreased in 2011 and 2021. This decrease affects rural than urban areas, although more moderate in rural areas. Similarly, the decrease is smaller in the lowest well-being quintile. This calls for strengthening control interventions in the poorest populations and in rural areas.

Treatment with ACT in children under 5 years of age. The percentage of children who took an ACT among children under 5 years of age with fever and treated for malaria increased significantly between 2011 and 2021. However, the increase is more noticeable in urban than rural areas. Similarly, the increase is more pronounced in the highest quintiles of well-being, hence the need to strengthen diagnostic and treatment capacities in the poorest settings to respond to this disparity.

Analysis of **routine data from the DHIS2** database of the Bafing regions, Cavally Moronou showed similar trends in the quantities of LLINs distributed, punctuated by the significant increases in LLINs distributed during the 2017-2018 mass distribution campaigns. These data show a homogeneity in the distribution of LLINs from one region to another with a general trend towards an increase in the quantities distributed over the years.

Similarly in the three regions, the administration of IPTs (IPT1, IPT2, IPT3, IPT4 and above) has fluctuated over the years which may reflect a discontinuity in the availability of SP. In all three regions, the percentage of suspected malaria cases tested by RDT/microscopy has gradually increased over the years, approaching and often reaching the recommended threshold of 100% (systematic testing of any suspected case). The constant exceeding of the threshold of 100% of cases tested, particularly in the Bafing region in 2018, 2019 and 2020, raises questions either about the quality of the data or about potential dysfunctions in the application of national directives. In any case, such discrepancies should be explored and documented using the available routine data quality review tools and methodology.

The change in the percentage of confirmed cases in children under 5 years of age treated with ACT, which is close to the recommended threshold of 100%, reflects the improvement in the performance of the program. In general, efforts should be maintained and consolidated in order to achieve and maintain the level of 100% of suspected cases tested and confirmed cases treated with ACT. Consolidating this performance requires the uninterrupted availability of diagnostic and management inputs. Finally, the trend of a steady increase in the number of serious cases reported in the three regions from 2020 to 2022, an increase correlated with the increase in malaria deaths, calls for the quality of case management, which should be strengthened, including at the community level.

Focus Groups

Knowledge, perception and attitudes about malaria.

The knowledge of malaria by the participants in the focus groups (pregnant women and parents of children), whose simple forms “DjèKouadio” and the severe “Djégouman” are distinctly referred to in the local language (e.g. Agni), is a positive factor in facilitating malaria communication and control efforts with communities. As far as treatment is concerned, the modern means of treatment recommended by the

health system is the reference for the population, even if traditional medicine still has a special place for some people.

Economic impact of malaria

Malaria is an economic burden on people. Pregnant women report paying between 3,000 and 10,000 CFA francs in the event of malaria and parents of children report expenses of the same order per episode of malaria in children. In addition to these direct costs, there are transport costs if necessary. In addition to direct and indirect expenses, there is the loss of income due to the cessation of economic activities due to malaria.

Impact of the free health services policy.

In general, participants are informed of the existence of the policy of free malaria care for pregnant women and children under 5 years of age. However, they feel that the coverage is insufficient and not well suited to their needs in the event of malaria. For several participants, the free health services policy remains illusory. The participants deplore having to pay in the centers despite the official communication on the free health services policy. The reality on the ground is that the problems of recurrent stockouts of supplies, the cost recovery applied to drugs other than ACTs, and the lack of explicit communication due to the limited nature of free health services distort the perception of the benefits of the FHSP.

The question of gender.

The almost unanimous view of the participants is that the health problems of family members, especially the health of children, including malaria, are managed without distinction of sex. The main person responsible for the family's health expenses, including the health of the pregnant woman, is the man (father/husband).

Key informant interviews

Interviews with key informants at the national level and in the Moronou region made it possible to collect information that helped to better understand the institutional framework of the FHSP, the involvement of key actorss, particularly technical and financial partners.

FHSP management mechanism: A commission placed under the authority of the Ministry of Health has been established and tasked with ensuring the implementation of the exemption measures provided for targeted free health care. The commission's responsibilities include proposing strategic orientations, ensuring interministerial collaboration, and contributing to the mobilization of the budget necessary for implementing the free health services policy.

Financing of the FHSP.

In addition to government funding through the NMCP and the other technical departments of the Ministry of Health, the main technical and financial partners (Global Fund, PMI, UNICEF, and Save the Children) are involved in the financing of the FHSP as part of their overall support to the fight against malaria for the most vulnerable.

Involvement and support of malaria control key actors

The involvement of multiple partners in support of the Ministry of Health and Public Hygiene is an important asset for the implementation of the major orientations set out in the National Health

Development Plan 2021–2025, including the FHSP. This support concerns both resource mobilization and technical support for the implementation of interventions at the operational level.

Challenges:

The major challenges mentioned are the availability of finance, malaria drugs and supplies, communication, community buy-in, and involvement.

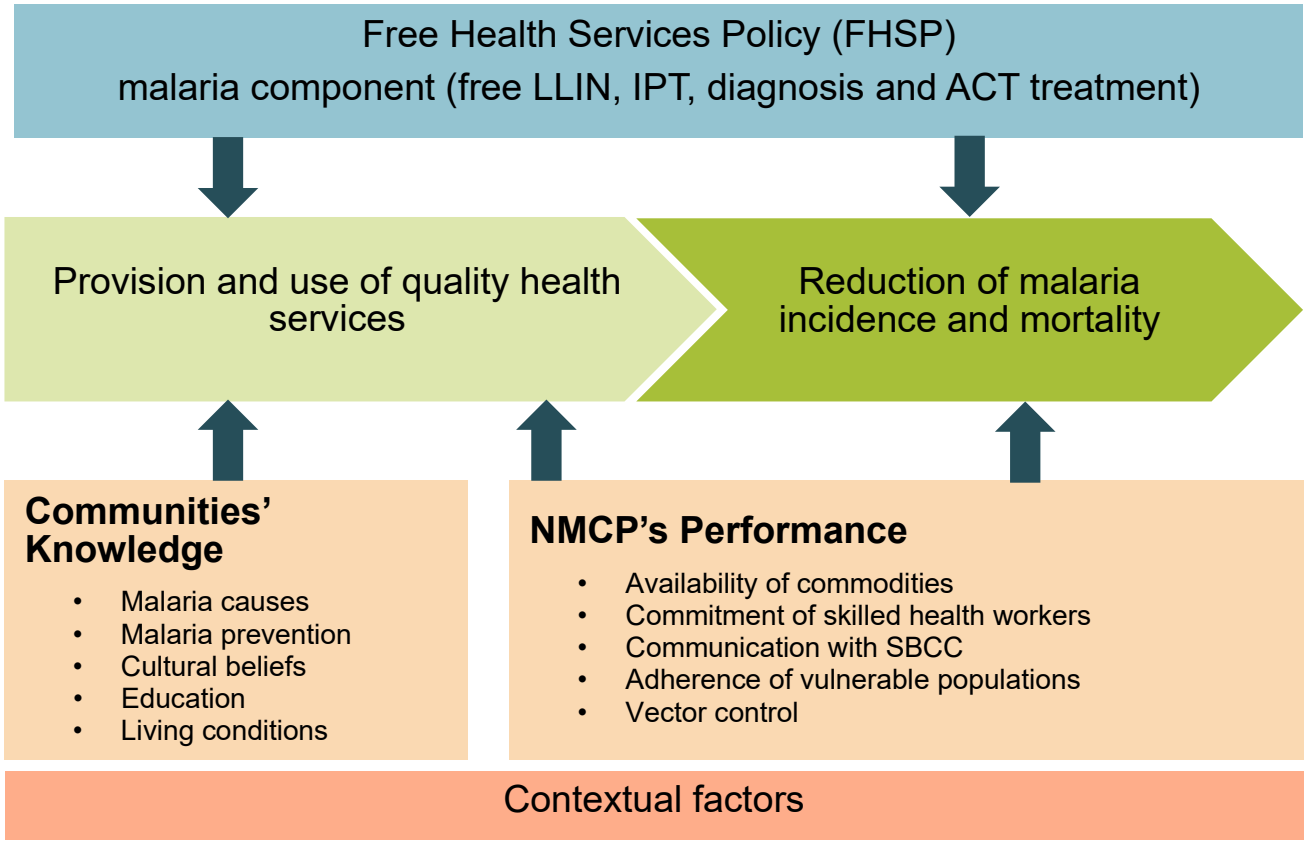
The impact of FHSP on service utilization and the burden of malaria among vulnerable populations: an overview discussion

Overall, the evaluation shows progress in the fight against malaria through the improvement in indicators observed with routine DHIS2 data from 2018–2022 and those from the two cycles of the DHS between 2011 and 2021. This improvement is notable among vulnerable populations, specifically pregnant women and children under 5 years of age (increase in the possession and use of LLINs, significant increase in coverage of IPT 1, IPT2, IPT3 and above, increase in the percentages of suspected cases tested, increase in the percentages of cases treated with ACTs). The desired impact of these improvements in the long term is the reduction of malaria incidence and mortality in these populations.

The improvements observed correspond to the period of gradual implementation of the FHSP (2011–2021). Since its establishment, the FHSP has operated as a national government initiative complementing the implementation of the national malaria control program. In addition, the FHSP spans several malaria control strategies (prevention, case management, communication, and coordination of interventions). Thus, the cross-cutting nature of the FHSP makes it a critical element to consider in the analysis of the achievements of the fight against malaria in the country, particularly regarding the target population of the FHSP, composed of pregnant women and children under 5 years of age.

However, the non-experimental methodology of the evaluation does not allow for establishing a direct causal relationship between the FHSP and the observed effects. Indeed, while the results and effects of malaria in pregnant women and children under 5 years of age may reflect the effectiveness of the implementation of the FHSP in vulnerable populations, they are also influenced by several other contextual factors. These non-exhaustive factors are, in part, linked to the target populations and include knowledge about the causes of malaria and the means of prevention methods, cultural beliefs about the disease, the education level of the target population, housing conditions, and more. Contextual factors, whether individually or in interaction with each other, significantly influence the adherence of populations to the services offered by the FHSP and their utilization. Furthermore, improvements in malaria control are primarily the result of the performance of the national malaria control program, which constitutes another "contextual factor" in our conceptual framework which ensures the availability of inputs, communication for social and behavioral change, vector control, capacity strengthening, and overall coordination of interventions. (Figure 23)

Figure 23: Conceptual Framework of the Plausibility Arguments for the Contribution of the FHSP to Reducing Malaria Incidence

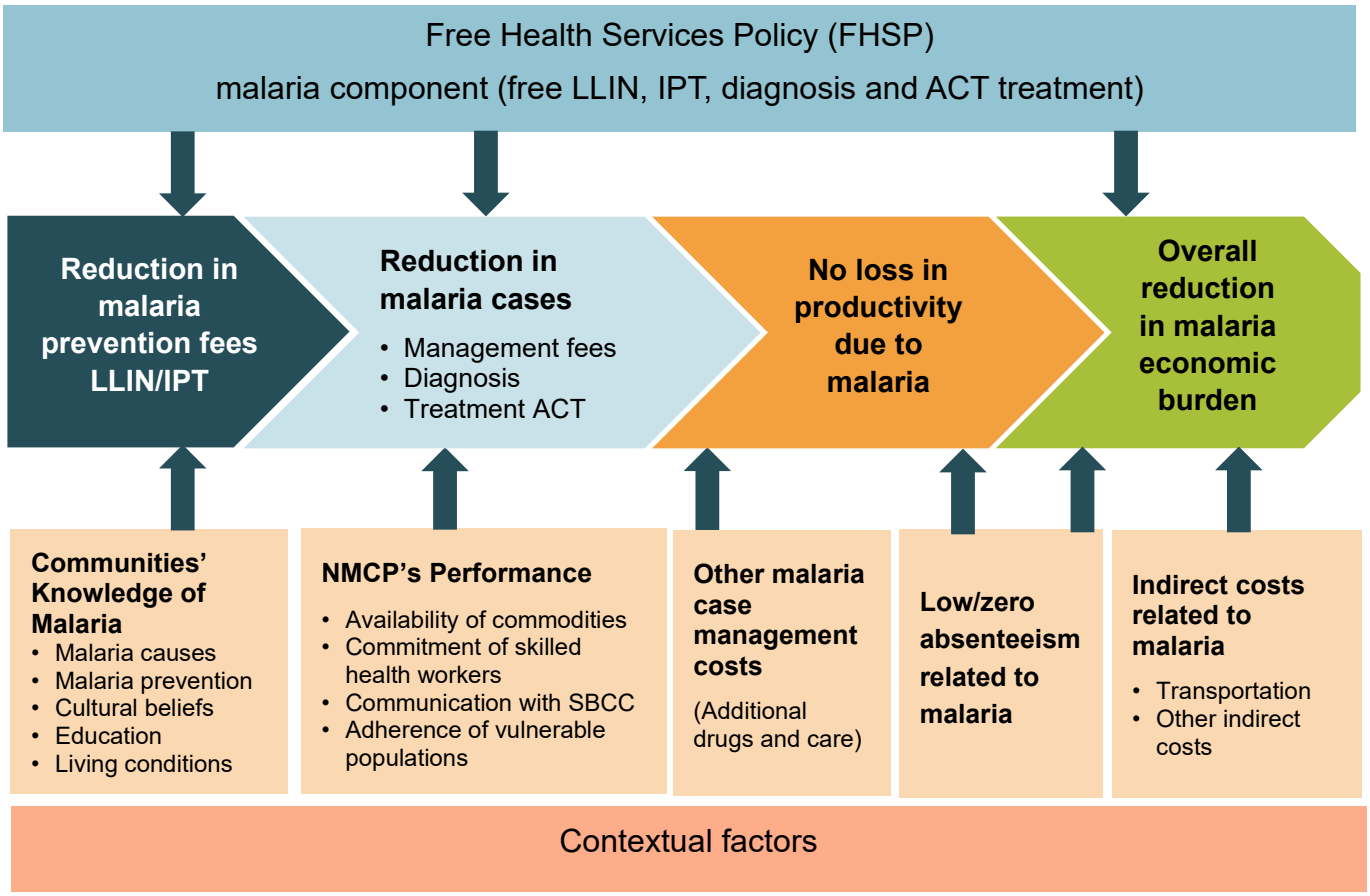


The impact of the FHSP on the economic burden of malaria among vulnerable populations: an overview discussion

As shown by the evaluation data (health facilities' survey and client survey), free malaria services are overall available through the FHSP and help reduce costs for vulnerable populations. In general, this information corroborates transcripts from central and regional key informant interviews. Moreover, there is a consistency with the data from the focus group discussions.

However, certain persistent factors tend to reduce the perception of the potential effect. The contextual factors consist of internal disruptive factor such as stockouts of commodities (RDT, ACT, LLIN), weak enthusiasm and behavioral gaps with some health workers, the lack of communication between practitioner and patient on the benefits (avoided costs) of the FHSP, etc. In addition, the costs of complementary medications and care, which are often higher than the costs avoided through the FHSP, along with indirect costs and the issue of absenteeism related to malaria, continue to exacerbate the economic burden of malaria for vulnerable populations. (Figure 24)

Figure 24: Conceptual framework of the plausibility arguments for the contribution of the FHSP in reducing the economic burden of malaria on vulnerable populations



Socio-demographic differences in access to malaria services: an overview discussion

Although an overall increase in coverage rates is observed, the evaluation data, in particular the data from the two cycles of the DHS, show more or less significant disparities in the coverage of interventions. These include disparities between urban and rural areas, which are unfavorable to rural areas for most indicators. In addition, with the exception of the possession and use of LLINs, which are higher in populations in the lowest quintiles of economic well-being, coverage of IPTs (IPT1, IPR2, IPT3) is significantly lower in the most disadvantaged population segments (lowest well-being quintiles). The same is true for access to diagnosis and treatment with ACTs, for which populations in the lowest quintiles have lower access. Some of the observed differences indicate a dose-response relationship across the five economic well-being quintiles, indicating that the higher the quintiles, the more populations are covered.

While the high possession and use of LLINs in the lowest quintiles may reflect mass distribution campaigns, the low coverage of IPTs, diagnosis and treatment in the most disadvantaged populations reflects a problem of equitable access to certain prevention and treatment services. This calls for the strengthening of strategies to fight in favour of the most disadvantaged populations, through the FHSP.

The issue of gender in the implementation of the FHSP: an overview discussion

The analysis of the data collected in the framework of the study offers us, after triangulation, to address the issue of gender from two angles, which are: (1) equity in the search for care and more generally in the provision of services for the benefit of patients and (2) the management and allocation of household resources, mainly financial resources.

Equity in the demand for and administration of care and provision of services

At the household level

The information from the focus group discussions as well as the data from the exit survey of clients in the districts of Arrah, Bongouanou and M'Batto do not establish the existence of gender-related practices or preferential attitudes in the process of deciding to request and seek care for those who are sick, especially children. This observation applies to the parents of children at the first level, other family members at the second level, and the community to a wider circle. The observation of the absence of systematic differential practices for the management of cases of illness based on sex is valid both when families have the resources necessary to take care of the sick child or do not.

At the level of the health system

Information obtained from national and regional decision-makers during key informant interviews confirms the absence of selective structural practices of care and treatment based on the patient's gender. The same applies to interviews with technical and financial partners (including partners working in the specific field of women's and children's health) whose opinions on the provision of health services affirm equity in the treatment of patients regarding gender. The data from the survey of health center managers and focus group discussions also reinforce the perception that there are no attitudes or mechanisms favoring one gender over the another in the demand for and provision of health services.

Management/allocation of household financial resources

The evaluation data consistently indicate that within households, mainly low-income households, health expenditures are generally borne by men.

This is because the management of household financial resources, including health resources, is generally the responsibility of the man, who usually acts as the head of the household. Also, as can be seen from the information generated by this evaluation, the operational management of the process of seeking and using health care and services by households (and probably the initial decision to request and seek care for the family) is very often the responsibility of the woman.

These observations are corroborated by the data and information collected from pregnant women and accompanying children under 5 years of age in the client exit surveys, as well as information from the focus group discussions that brought together pregnant women and parents of children under 5 years of age separately.

In practice, the distribution of roles and responsibilities in the overall management of household health issues shows the involvement of women in the process of requesting, seeking and using opportunities for available services, particularly those offered by the health system to pregnant women and children under 5 years of age. This involvement is a factor likely to promote gender balance. However, strengthening gender

balance requires greater involvement of women in the direct management of household financial resources, which cannot be achieved without real financial empowerment of women.

Conclusions

The assessment of the economic impact of malaria on vulnerable populations in Côte d'Ivoire has generated data and information whose cross-checking shows overall progress in the fight against malaria. This progress is expressed through the increase in the possession and use of LLINs, the increase in coverage in IPT1, IPT2, IPT3 and more, the increase in the percentages of suspected cases tested, and the increase in the percentages of cases treated with ACT. The progress observed is all contributing to the reduction of malaria morbidity and mortality in the country, despite some disparities observed between urban and rural areas or between socio-economic groups.

Regarding the FHSP, the policy has undergone successive structural reframing aimed at strengthening management mechanisms and adapting coverage to the needs of the target populations. The adjustments were made through a decree and successive orders, as well as the establishment of a commission whose responsibilities are to propose strategic orientations, ensure interministerial collaboration and participate in the mobilization of resources. At the operational level, the evaluation showed that the FHSP continues its mission of providing free access to diagnosis (RDTs), treatment (ACTs), IPT (SPs) and LLINs for target populations with relative success in spite of various factors that tend to reduce its effectiveness.

The evaluation further explored the potential impact of the FHSP on improvements in malaria control among vulnerable populations since its introduction. On the basis of the information and data collected, it seems reasonable to consider that the FHSP has contributed to the progress made. Similarly, the FHSP can objectively be considered to have a proven role in reducing malaria-related expenditure among vulnerable populations. However, the impact of the FHSP in reducing the overall economic burden of malaria among vulnerable populations remains poorly perceived due to several distorting factors, some of which must necessarily be addressed in the interest of target populations.

Regarding the issue of gender in the implementation of the FHSP, the evaluation data show that there are no systematic preferential attitudes or practices related to sex, in the process of requesting, seeking or dispensing health services to those who are sick, especially children. However, the issue of gender can be addressed from the perspective of women's empowerment in terms of decision-making capacity and/or financial capacity in the process of requesting, seeking and "purchasing" health services. This critically important issue goes beyond the scope of the FHSP, and the health sector alone. It calls for action within a multisectoral framework, particularly in the current context where men play the role of head of household and are often almost exclusive holders of financial resources in the household, particularly among disadvantaged populations.

References

Coulibaly, N.D., & Atchoua, N.J. (2019). Policy of “free” health care and communication issues for health in Côte d’Ivoire. Communication in question, ISSN: 2306–5184.

Kouadio, A.S., Cisse, G., Obrist, B., Wyss, K., & Zingsstag, J. (2006). Economic burden of malaria on poor households in precarious neighborhoods of Abidjan, Ivory Coast. VertigO - the electronic journal in environmental sciences. DOI: 10.4000/vertigo.1776

Ministry of Health and Hygiene Public and Coverage Universal Disease. (2023). National Strategic Plan To Fight Against Malaria 2021–2025 Revised.

Ministry of Health, Public Hygiene and Universal Health Coverage. (2021a). National Health Development Plan March 2021–2025. https://www.gouv.ci/_grandossier.php?recordID=263

Ministry Of Health, Public Hygiene And Universal Disease Coverage (MSHPCMU). (2021b). Annual Report On The Health Situation 2020. Available at: https://www.snisdiis.com/wp-content/uploads/2022/03/Rapport-Annuel-sur-la-Situation-Sanitaire-RASS-2020-VF.pdf

National Institute of Statistics and ICF. (2023). Côte d’Ivoire Demographic and Health Survey 2021 Final Report. Rockville, Maryland, USA and Ivory Coast: INS and ICF. Available at: https://www.dhsprogram.com/pubs/pdf/FR385/FR385.pdf

U.S. PMI. (2023). Côte d’Ivoire Malaria Operational Plan FY 2023. Retrieved from U.S. President’s Malaria Initiative. Available at: https://d1u4sg1s9ptc4z.cloudfront.net/uploads/2023/01/FY-2023-Cote-dIvoire-MOP.pdf

Appendix 1. Assessing the Economic Impact of Malaria on Vulnerable Groups in Côte d'Ivoire: Interview Questionnaire with the Head of the Health Facility

SECTION 0 – Facility identification

N°	Questions	Answers' codes
ID01	Evaluation team	/__/__/
ID02	Interviewer	/__/__/
ID03	District	/__/__/
ID04	Facility name	_____
ID05	Interview date	/__/__/-/__/__/-/__/__/__/__/
ID06	Interview time	Hour /__/__/ Minute /__/__/
ID07	Place (place where the interview takes place)	_____
Consent	Accept to be interviewed?	0. No 1. Yes

SECTION 00- IDENTIFICATION OF THE RESPONDENT (PROVIDER)

N°	Questions	Answers' Codes	Comments
Q0.1	Name of the respondent	_____	
Q0.2	Sex of the respondent	1. Male 2. Female	
Q0.3	Qualification of the respondent	1. Doctor 2. Nurse 3. Midwife 4. Nurse assistant 5. Malaria focal person 6. Other (specify)_____	
Q0.4	Number of years of experience?	/__/__/	
Q0.5	Number of years at your current position?	/__/__/	

SECTION 1. - Availability of the free health services policy (FHSP) guidelines

N°	Question	Answers' Codes	Status
Q1.3	Does your facility have a copy of the free health services policy guideline? *Check (observation) the availability of each element in the facility?*	1. Yes, observed 2. Yes, not observed 3. No	Please Circle only one answer
Q1.4	Does your facility have a copy of the standard operating procedures of the FHSP? *Check (observation) the availability of each element in the facility?*	1. Yes, observed 2. Yes, not observed 3. No	Please Circle only one answer
Q1.5	Does your facility have a copy of any other documents related to the FHSP?	1. Yes, observed 2. No	Please Circle only one answer
Q1.6	For any available (observed) document, are the directives/instructions:	1. Simple and clear to apply 2. Not clear enough 3. Not clear at all 7. Don't know	Please Circle only one answer

N°	Question	Answers' Codes	Status
Q1.7	Does your facility have a copy of the national guidelines for malaria case management (especially cases management in pregnant women and children under 5 years?	1. Yes, observed 2. Yes, but not observed 3. No	Please Circle only one answer

SECTION 2. TRAINING

N°	Questions	Answers' Codes	Comments
Q2.1	Have you received any continuing training (update training or refresher training) on the diagnosis and treatment of malaria?	0. No 1. Yes	
Q2.1a	If "yes": For how long?	/__/__/ years	
Q2.1b	Have staff received ongoing training on the implementation of the free services?	0. No 1. Yes	

SECTION 3. MALARIA FREE HEATH SERVICES

N°	Questions	Answers' Codes	Comments
Q3.1	Does your facility offer free health services for malaria control to pregnant women and children under 5 years?	1. Yes 2. No 7. Don't know 8. N/A	If « 1 » go to Q3.1a
Q3.1a	If "Yes," how long has the center been offering these services?	/__/__/ years	
Q3.2	On average, how many patients (including pregnant women and children under 5 years) do you see in consultation per day?	/__/__/ patients	*Write the number of patients*
Q3.3	How many patients (on average) among those seen every day in consultation benefit from free malaria control services?	/__/__/ patients	*Write the number of patients*
Q3.4	What free anti-malaria services does your facility offer to pregnant women?	A. Diagnosis (RDT/Microscopy) B. Treatment (ACT/others) C. ITN D. IPTP/SP E. Other services	Circle all possible answers
Q3.5	What free malaria control services does your facility offer to children under 5 years old?	A. Diagnosis (RDT/Microscopy) B. Treatment (ACT/others) C. ITN D. IPTP/SP E. Other services	Circle all possible answers
Q3.6	Apart from pregnant women and children under 5 years old, do other patients benefit from free malaria services in your facility?	1. Yes 2. No 7. Don't know	If « 1 » go to Q3.7
Q3.7	If "Yes" what is the profile of these patients?	1. People unable to pay (indigent) 2. Some recommended people 3. Other specify:	Circle only one answer
Q3.8	What is/would be the cost (average/estimated) of a malaria consultation (including diagnosis and ACT	/__/__/__/__/__/__/__/__/cfa	*Write the amount*

N°	Questions	Answers' Codes	Comments
	treatment) for a child under 5 years old in your health center if he/she benefits from free health services?		
Q3.9	What is/would be the cost (average/estimated) of a malaria consultation (including diagnosis and ACT treatment) for a child under 5 years old in your facility if he/she does not benefit from free health services?	/__/__/__/__/__/__/__/__/cfa	*Write the amount*
Q3.10	What is/would be the cost (average/estimated) of a malaria consultation (including diagnosis and ACT treatment) for a pregnant woman in your health center if she benefits from free health services?	/__/__/__/__/__/__/__/__/cfa	*Write the amount*
Q3.11	What is/would be the cost (average/estimated) of a malaria consultation (including diagnosis and ACT treatment) for a pregnant woman in your health center if she does not benefit from free health services?	/__/__/__/__/__/__/__/__/cfa	Write the amount
Q3.12	Does the provision of free malaria services in your establishment respect the principle of ethics and equality between patients, including gender equality?	1. Yes 2. No 7. Don't know 8. N/A	Circle only one answer

SECTION 3.1- Impact of the free health services policy on malaria control

N°	Questions	Answers' Codes	Comments
Q31.1	Have you noticed an increase in attendance at your establishment with the provision of free malaria services?	1. Yes 2. No 7. Don't know	Circle only one answer
Q31.2	Have you noticed a decrease in malaria cases in your establishment with the provision of free malaria services?	1. Yes 2. No 7. Don't know	Circle only one answer

SECTION 3.2- HEALTH WORKER'S SATISFACTION

N°	Questions	Answers' Codes	Comments
Q32.1	How would you rate your satisfaction regarding the implementation of the free malaria services in your facility?	1. Totally satisfied 2. Satisfied 3. Not satisfied 4. Not satisfied at all	If « 3 » go to Q32.1a If « 4 » go to Q32.1b
Q32.1a	If « not satisfied» why?	_____	Write the reason
Q32.1b	If « Not satisfied at all» why ?	_____	Write the reason
Q32.2	What would be your suggestions to help improve the implementation of free malaria services?	A. Strengthen coordination of implementation B. Improve communication on free services. C. Strengthen staff capacity D. Other (specify) _____	Circle all possible answers

SECTION 4- REPORTING AND SUPERVISION

N°	Question	Answers' Codes	Status
Q4.1	Do you use specific reporting tools for the free services provided in your establishment?	1. Yes 2. No 7. Don't know	**If « 1 » go to Q4.1a**
Q4.1a	If « Yes », what are these tools??	_____	**Specify the tools**
Q4.2	Is there any disaggregation of the free malaria services' data from other services (paid services) data?	1. Yes 2. No 7. Don't know	Circle only one answer
Q4.3	How many supportive supervision visits have you received in the last 6 months?	/__/__/	
Q4.4	Do the supportive supervision visits address issues related to the implementation of the free health services policy for pregnant women and children under 5 years?	1. Yes 2. No 7. Don't know	Circle only one answer
Q4.5	Do you receive feedback regarding the implementation of the free health services policy?	1. Yes 2. No 7. Don't know	If « 1 » go to Q4.5a
Q4.5a	If « Yes », how often have you received feedback regarding the implementation of the free health services policy over the past 12 months?	1. Monthly 2. Quarterly 3. Annually	Circle only one answer

SECTION 5- AVAILABILITY OF INPUTS (NB CHECK THE STOCK MANAGEMENT SHEETS)

N°	Questions	Answers	Comments
Q5.1	*Have you experienced a stockout of ACT for 7 consecutive days during the previous month in the establishment?*	1. Yes 2. No 7. Don't know	Circle only one answer
Q5.2	*Have you experienced a stockout of RDT for 7 consecutive days during the previous month in the establishment?*	1. Yes 2. No 7. Don't know	Circle only one answer
Q5.3	*Have you experienced a stockout of SP for 7 consecutive days during the previous month in the establishment?*	1. Yes 2. No 7. Don't know	Circle only one answer
Q5.4	*Have you experienced a stockout of Artesunate* injectable *for 7 consecutive days during the previous month in the establishment?*	1. Yes 2. No 7. Don't know	Circle only one answer
Q5.5	*Have you experienced a stockout of artesunate suppositories for 7 consecutive days during the previous month in the establishment?*	1. Yes 2. No 7. Don't know	Circle only one answer
Q5.6	*Have you experienced a stockout of ITN for 7 consecutive days during the previous month in the establishment?*	1. Yes 2. No 7. Don't know	Circle only one answer

SECTION 6- FINAL INTERVIEWEE'S COMMENTS

N°	Questions	Answers	Comments
Q6.1	Do you have a question/comment/suggestion to make to us before ending the interview?	_____	

Appendix 2. Evaluation of the Economic Impact of Malaria on Vulnerable Groups in Côte d'Ivoire: Beneficiary/Patient Discharge Interview Questionnaire

SECTION 0. Facility identification

N°	Questions	Answers' codes
ID01	Evaluation team	/__/__/
ID02	Interviewer	/__/__/
ID03	District	/__/__/
ID04	Facility name	_____
ID05	Interview date	/__/__/-/__/__/-/__/__/__/__/
ID06	Interview time	Hour /__/__/ Minute /__/__/
ID07	Place (place where the interview takes place)	_____

SECTION 00. Participants Identification

N°	Questions	Answers' codes
PQ1	Type of respondents	1. Another person who accompanied a 5 year old child 2. Pregnant woman
PQ1.1	Confirm if pregnant	0- Not Pregnant 1- Pregnant
PQ2	Parent of Child	0. No 1. Yes

SECTION 1. PATIENTS/CHILD CARE-TAKER INFORMATION

N°	Question	Answers' Codes	Comment
Q1.1	Respondent' sex	1. Male 2. Female	Circle only one answer
Q1.2	How old are you as at your last birthday?	Write age	
Q1.3	What is your level of education?	0. Unschooled 1. Primary 2. Secondary 3. Tertiary	Circle only one answer
Q1.4	If you accompanied a 5 year old or under, what is the sex of the child? **Note:** if respondent is a pregnant woman, move to the next question	1. Male 2. Female	Circle only one answer
Q1.5	Where did you come from for the consultation today?	1. From this village/neighborhood where the health center is located 2. From another locality in the district	Circle only one answer
Q1.6	What is the approximate distance to get to this facility today?	1. Less than 500m 2. Between 500m and 1 km 3. Between 1 km and 3 km 4. Between 3 km and 5 km 5. Between 5 km and 10 km 6. More than 10 km	Circle only one answer

N°	Question	Answers' Codes	Comment
Q1.7	How much did you pay for transportation to get here to the health center	Write amount in cfa	
Q1.8	What was the reason for your (the child) visit/consultation in the health center today?	1. Fever 2. Not fever 3. Other specify	Circle only one answer
Q1.9	Did you (the child) received a malaria diagnostic test during the visit? *(note to investigator: RDT or microscopy)*	0. No 1. Yes 7. Don't know	Circle only one answer
Q1.10	If ''Yes'', what was the result of the test?	1. RDT/microscopy positive 2. RDT/microscopy negative 7. Don't know	Circle only one answer
Q1.11	If you (the child) were (was) tested positive for malaria, has the health worker gave or prescribed a treatment to take at the facility or to take home?	0. No 1. Yes	If « 1 » go to Q1.11a
Q1.11a	If "Yes" was the treatment an ACT?	0. No 1. Yes	If « 0 » go Q1.11b
Q1.11b	If no, was it another prescription?	0. No 1. Yes	If « 1 » go Q1.11ba

SECTION 1.1. IF RESPONDENT IS A PREGNANT WOMAN

N°	Questions	Answers' Codes	Comments
Q1.12	Have you received an ITN?	2. No 3. Yes	Circle only one answer
Q1.13	Have you received a dose of ITP/SP?	0. No 1. Yes	If « 1» go Q1.13a
Q1.13a	If you received a dose of IPT, is it	1. IPT-1 2. IPT-2 3. IPT-3+ 7. Don't know	Circle only one answer

SECTION 2. FREE MALARIA SERVICES PROVISION DURING TODAY VISIT

N°	Questions	Answers' Codes	Comments
Q2.1	During today's visit, have you paid the consultation fees (for you or the child)?	0. No 1. Yes	If « 0 » go to à Q2.1a
Q2.1a	If not, how much you would have paid (how much the consultation would have cost) without the free services?	1. /__/__/__/__/__/__/__/__/cfa 7. Don't know	
Q2.2	Did you (or your child) paid for the malaria diagnosis test? *(note to investigator: RDT or microscopy)*	0. No 1. Yes	If « 0 » go to Q2.3
Q2.2a	If yes, how much did you pay for the malaria diagnostic test	1. /__/__/__/__/__/__/__/__/cfa 7. Don't know	Write the amount given
Q2.2b	If not, how much you would have paid (how much the consultation would have cost) without the free services?	1. /__/__/__/__/__/__/__/__/cfa 7. Don't know	Write the amount given

N°	Questions	Answers' Codes	Comments
Q2.3	Have you (or your child) paid for the malaria treatment - ACT?	0. No 1. Yes	If« 0 » go to Q2.4a
Q2.3a	If yes, how much did you pay for the treatment (medication)	1. /__/__/__/__/__/__/__/__/cfa 7. Don't know	
Q2.3b	If not, how much you would have paid (how much the treatment would have cost) without the free services?	1. /__/__/__/__/__/__/__/__/cfa 7. Don't know	Write the amount given
Q2.4	How much will you pay for transportation in total (average round trip fees) for this consultation visit?	/__/__/__/__/__/__/__/__/cfa	Write the amount given
Q2.5	How many days of interruption (absence) of your regular activities, a malaria episode can cause if you (or the child) do not have access to effective treatment in time?	1. /__/__/- Day 7. Don't know	Write number of days
Q2.6	How would you rate your satisfaction regarding today's visit	1. Totally satisfied 2. Satisfied 3. Fairly satisfied 4. Not satisfied	If « 3 or 4 » go to Q2.6a If « 4 » go to Q2.6b
Q2.6a	Why if « fairly or Not satisfied »?	_____	Write the reason

SECTION 2.1. IF THE RESPONDENT IS A PREGNANT WOMAN

N°	Questions	Answers' Codes	Comments
Q21.1	You said you received a mosquito net, did you pay for this mosquito net?	0. No 1. Yes	If « 0 » go toQ21.1b
Q21.1a	If you paid for the mosquito net, how much did it cost you?	1. /__/__/__/__/__/__/__/__/cfa 7. Don't know	Write the amount given
Q21.1b	If not, how much you would have paid (how much the ITN would have cost) without the free services?	1. /__/__/__/__/__/__/__/__/cfa 7. Don't know	Write the amount given
Q21.2	You said you received a dose of IPT/SP (Fansidar), Did you pay for the IPT/SP?	0. No 1. Yes	If« 0 » go to Q21.2b
Q21.2a	If you paid for the IPT/SP (Fansidar, how much did it cost you?	1. /__/__/__/__/__/__/__/__/cfa 7. Don't know	
Q21.2b	If not, how much you would have paid (how much the IPTP would have cost) without the free services?	1. /__/__/__/__/__/__/__/__/cfa 7. Don't know	Write the amount given

SECTION 3.- INFORMATION AND KNOWLEDGE REGARDING THE MALARIA FREE SERVICES

N°	Questions	Answers' Codes	Comments
Q3.1	Are you aware (informed) of the free health services enacted by the Ministry of Health of Cote d'Ivoire for malaria control services for children under five and pregnant women?	0. No 1. Yes 7. Don't know	If « 1 » go to Q3.1a
Q3.1a	If ''Yes'', how have you been informed ?	1. By the health facility 2. By other patients 3. Others, specify	Circle only one answer
Q3.2	Have you ever informed other persons about the free malaria services?	0. No 1. Yes 7. Don't know 8. N/A	Circle only one answer
Q3.3	Apart from today's consultation, have you (or the child) ever benefited from the free malaria services?	0. No 1. Yes 7. Don't know	If « 1 » go to Q3.3a
Q3.3a	If ''Yes'', what free type of malaria services have you (or the child) previously benefited from?	A. Diagnosis (RDT/Microscopy) B. Treatment (ACT/others) C. ITN D. IPT/SP E. Others, specify F. Don't know	Circle all possible answers
Q3.4	To what extent are you satisfied with the impact of the free malaria services policy on improving your (or your child's/family's) access to health care?	1. Totally satisfied 2. Satisfied 3. Not satisfied 4. Not at all satisfied	If « 3» go to Q3.4a If « 4 » go to Q3.4b
Q3.4a	If "Unsatisfied" why?	_____	Write the reason
Q3.4b	If "Not satisfied at all" why?	_____	Write the reason
Q3.5	What is your average monthly income (consider total incomes)	1. /__/__/__/__/__/__/__/__/cfa 7. Don't know	Write the amount given
Q3.6	What would you suggest to helping improve the implementation of free malaria services for pregnant women and children under 5 years?	A. Strengthen coordination of implementation B. Improve communication on free services. C. Strengthen staff capacity D. Other (specify)	Circle all possible answers

SECTION 4- INTERVIEWEE'S FINAL COMMENTS

Appendix 3. Assessing the Economic Impact of Malaria on Vulnerable Groups in Côte d'Ivoire

Key Informant Interview Guide

INTRODUCTION (approx. 5 min.)

- Hello Madam/Sir, my name is _____ and I work for the D4I project as part of a health survey. Thank you very much for agreeing to talk to me. We value your time and value your experiences and opinions.

- The purpose of our discussion today is to gather information and opinions related to the economic impact of malaria on *(1)* households of vulnerable populations in Côte d'Ivoire, *(2)* potential gender differences in the economic impact of malaria control services, and *(3)* the effectiveness of the government's policy of free health services to increase access to and use of health services by vulnerable populations, particularly with regard to the fight against malaria in the country.

- As a key stakeholder in the fight against malaria in Côte d'Ivoire, your contribution is crucial to the success of this assessment.

- Please note that your responses will be kept confidential and used for research purposes only. In order to fill in the gaps in our interview notes, we would like to record this session. We will not share the recording with anyone outside of our team. Do you agree that we record the sitting?

- Do you have any questions about this assessment or anything else before starting the interview?

GENERAL INFORMATION (~5 min.)

1. Can you briefly introduce yourself and your role in the healthcare sector or in your organization?

MALARIA CONTROL EFFORTS IN CÔTE D'IVOIRE (~15 min.)

2. How would you describe the current state of the fight against malaria in Côte d'Ivoire?
3. Which strategies and interventions were most effective?
4. How is the malaria budget allocated in the country?
5. Are there specific areas or interventions that receive more funding than others?

INVOLVEMENT OF MALARIA CONTROL ACTORS (~15 min.)

6. What is the role of stakeholders in the fight against malaria?
7. How would you generally assess the current level of collaboration and involvement of stakeholders and your organization in particular?

ECONOMIC IMPACT OF MALARIA ON HOUSEHOLDS OF VULNERABLE POPULATIONS (~15 min.)

8. Based on your experience or observations, what are the challenges in addressing the burden of malaria among vulnerable populations?
    - How are these challenges currently being addressed?
9. Can you describe the typical expenses incurred by households seeking malaria treatment in this region?
    - Expenses may include transportation, medication, consultation fees, or other related expenses.

10. What is the impact of this spending on the economic and financial well-being of vulnerable populations, especially pregnant women and children under five?

11. Have you observed any changes in the direct payment burden for malaria services in recent years? If so, what factors do you think have contributed to these changes?

GENDER IN THE ECONOMIC IMPACT OF MALARIA SERVICES (~10 min.)

12. In your experience, have you observed any gender differences in access to and use of malaria services? If so, could you detail the factors contributing to these differences?

13. Are there any particular barriers or challenges women face in accessing malaria services, and what is the impact of these challenges on economic well-being in households?

14. Do women and men face different financial burdens when seeking malaria treatment or preventive measures for themselves or their families?

14. In your experience, have there been any gender-specific interventions or policies to address the issue of the economic impact of malaria?

- If so, please mention them and describe their effectiveness.

IMPACT OF THE POLICY OF FREE HEALTH SERVICES VULNERABLE POPULATIONS (~15 min.)

15. Can you tell us about the main bodies and mechanisms for managing the policy of free health services enacted by the Government of Côte d'Ivoire?

17. How has the policy of free health services influenced access to and use of primary health services for vulnerable populations, particularly pregnant women and children under five, in the selected areas?

- Can you provide specific examples?

16. How do you think the policy has contributed to reducing the economic burden of malaria on vulnerable households?

- To emphasize the impact of the free policy in the direct payment by the population for malaria control services in Côte d'Ivoire.

19. What have been the main steps and progress in the implementation of the free health services policy?

20. Are there any areas where progress has been slower than expected in implementing the policy of free health services?

20. What challenges, if any, have been encountered in the implementation of the free health services policy, and how have they affected the accessibility and use of health services by vulnerable populations?

22. Based on your experience and ideas, what recommendations would you propose to improve the policy of free health services?

MAINTENANCE FENCE (~5 min.)

23. Is there any additional information or comments you would like to share regarding the economic impact of malaria and access to health services for vulnerable populations?

Thank you for your valuable input and participation in this key informant interview. Your contributions will be crucial in shaping malaria response efforts in Côte d'Ivoire.

Appendix 4. Assessing the Economic Impact of Malaria on Vulnerable Groups in Côte d'Ivoire: Focus Group Guide

ECONOMIC IMPACT OF MALARIA ON HOUSEHOLDS OF VULNERABLE POPULATIONS (~15 mins.)

1. Could you share your knowledge about malaria?
   - Focusing on prevention and treatment

2. To what extent has the occurrence of malaria cases affected your household or members of your nearby community?
   - For example, how often in the last 12 months

3. Can you share personal experiences or observations regarding the economic impact of malaria cases on your households and/or people in your community?
   - Focus on direct healthcare expenses (care costs), travel (transportation) to the care center, loss of income due to stopping your activities, absence from work, etc.

4. 4. Have there been any notable changes in your household spending or financial hardship due to malaria episodes?

5. What is the impact of these out-of-pocket expenditures on malaria services on the financial well-being of your households?

GENDER IN THE ECONOMIC IMPACT OF MALARIA SERVICES (~10 mins.)

6. In your opinion, do men and women in your household receive different attention in terms of health spending and in particular for malaria services?
   - If so, what are these differences and what are the reasons for them?

7. Are there specific challenges for women to access malaria treatment or other related services?

8. Do women and men face different financial burdens when seeking malaria treatment or preventive measures for themselves or their family members?

IMPACT OF THE POLICY OF FREE HEALTH SERVICES ON VULNERABLE POPULATIONS (~20 mins.)

9. Have you heard of the free health services policy adopted by the government of Côte d'Ivoire that allows certain people (pregnant women and children under 5 years old) to access health services free of charge?
   -
   - Please share your knowledge about this.

10. Have you or members of your household received free malaria services in the past 2 years in a health facility or at the community level?
    - If so, can you tell us about the malaria control services that were provided to you free of charge.

11. Are there any barriers that prevent you and your households from fully benefiting from free health services?
    - Please share your experiences with regard to the distance, availability, or quality of malaria service delivery in your community.
12. In your opinion, has the government's policy of free health services helped reduce the economic burden of malaria on households in your community?
    - To emphasize the impact of the policy on out-of-pocket payment for malaria control services in Côte d'Ivoire.
    - Focus on positive/negative impacts.

13. How can the policy of free health services be strengthened to better meet the needs of pregnant women and children under 5 years of age in malaria-prone areas?

CLOSING OF DISCUSSION (~5 mins.)

14. Do you have any additional information or ideas to share regarding the economic impact of malaria and access to health services for vulnerable populations?

Thank you for your valuable input and participation in this focused discussion group. Your contributions will be crucial in shaping malaria response efforts in Côte d'Ivoire.

Appendix 5. Assessing the Economic Impact of Malaria on Vulnerable Groups in Côte d'Ivoire: Informed Consent Form

Head of Healthcare Facilities
Beneficiary/patient

Interviewer	
Name and No.	_____ No: I__I__I__I

Identification of the center	
Region	_____ Code I__I__I
District	_____ Code I__I__I
Name of the center	_____ Code I__I__I__I

Introduction

- The goal of our conversation today is to collect information related to the economic impact of malaria on households of vulnerable populations in Côte d'Ivoire and potential gender differences.
- We would also like to know more about the government's policy of free health services for the most vulnerable segments of the population.
- The policy of free health services aims to increase access to and use of primary health services, especially for vulnerable populations. Overall, we are interested in knowing the effectiveness of the malaria services policy in the country, its impact on household health expenditures, how it is perceived by the population, and whether there are potential gender differences in its implementation.
- As a key player in Côte d'Ivoire, your contribution is crucial and will be highly appreciated for the success of this evaluation.
- Please note that your responses will be kept confidential and used for research purposes only.
- As part of the evaluation, we would like to record this interview session. The recording as well as the written notes will not be shared with anyone outside of our team. Is it agreed that we record the sitting?

  The following provides more details and information on the ethical aspects of your possible participation in the assessment. These elements can be further developed with the questions and concerns that we would like to have.

- **How long will the interview last?**
- The interview session will last about 20 to 30 minutes

- **Are there any disadvantages or advantages to participating?**
- There is no direct personal benefit to participating in the interview but by answering our questions, you will contribute to a better understanding of the challenges related to the economic impact of malaria on households of vulnerable populations in Côte d'Ivoire, the potential gender differences in the economic impact of malaria services, and the effectiveness of the country's malaria control services.

- The information you provide will help make decisions that can facilitate the future work of the government and the Ministry

of Health to improve policy as needed and also improve malaria control in Côte d'Ivoire.

- **Who will have access to the information you provide?**
- We do not share any information about you or other participants outside of our evaluation team. The knowledge gained from this evaluation will be shared in the form of an aggregated summary, without revealing the identity of the participants.

- **What will happen if you refuse to participate?**
- Your participation in this assessment is completely voluntary. You are free to participate or not. If you agree to participate, you can always change your mind at any time during the interview. You can refuse to answer any question you are not comfortable with. If you choose not to answer a question, interrupt the interview, or even withdraw your participation in the assessment, it will have no impact on you or your work now or in the future.

- **And if you have any questions?**
- If you have any questions, you are free to ask them now or later. If you would like to ask questions later, you can contact one of the following:

1. Name and contact information of:

2. Name and contact information of:

Signed consent of the Participant *(if the interested party decides to participate)*		
Code I___I___I __I	_____ *Signature*	*Date:* I__I__I/I__I__I/I__I__I__I__I *Time:* I__I__I:I__I__I

Appendix 6. Assessing the Economic Impact of Malaria on Vulnerable Groups in Côte d'Ivoire: Informed Consent Form

Key informant

Interviewer	
Name and No.	_____ No: I__I__I__I

Identification of the center	
Region	_____ Code I__I__I
District	_____ Code I__I__I
Name of the center	_____ Code I__I__I__I

Introduction

- The goal of our conversation today is to collect information related to the economic impact of malaria on households of vulnerable populations in Côte d'Ivoire and potential gender differences.
- We would also like to know more about the government's policy of free health services for the most vulnerable segments of the population.
- The policy of free health services aims to increase access to and use of primary health services, especially for vulnerable populations. Overall, we are interested in knowing the effectiveness of the malaria services policy in the country, its impact on household health expenditures, how it is perceived by the population, and whether there are potential gender differences in its implementation.
- As a key player in Côte d'Ivoire, your contribution is crucial and will be highly appreciated for the success of this evaluation.
- Please note that your responses will be kept confidential and used for research purposes only.
- As part of the evaluation, we would like to record this interview session. The recording as well as the written notes will not be shared with anyone outside of our team. Is it agreed that we record the sitting?

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- **How long will the interview last?**

  The interview session will last about 20 to 30 minutes

- **Are there any disadvantages or advantages to participating?**

  There is no direct personal benefit to participating in the interview but by answering our questions, you will contribute to a better understanding of the challenges related to the economic impact of malaria on households of vulnerable populations in Côte d'Ivoire, the potential gender differences in the economic impact of malaria services, and the effectiveness of the country's malaria control services.

The information you provide will help make decisions that can facilitate the future work of the government and the Ministry of Health to improve policy as needed and also improve malaria control in Côte d'Ivoire.

- **Who will have access to the information you provide?**

  We do not share any information about you or other participants outside of our evaluation team. The knowledge gained from this evaluation will be shared in the form of an aggregated summary, without revealing the identity of the participants.

- **What will happen if you refuse to participate?**

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- **And if you have any questions?**

  If you have any questions, you are free to ask them now or later. If you would like to ask questions later, you can contact one of the following:

  1. Name and contact information of:

  2. Name and contact information of:

Signed consent of the Participant *(if the interested party decides to participate)*		
Code I___I___I __I	_____ *Signature*	*Date:* I__I__I/I__I__I/I__I__I__I__I *Time:* I__I__I:I__I__I

Appendix 7. Assessing the Economic Impact of Malaria on Vulnerable Groups in Côte d'Ivoire: Informed Consent Form

Focused Focus Group Participant

Interviewer	
Name and No.	_____ No: I__I__I__I

Identification of the center	
Region	_____ Code I__I__I
District	_____ Code I__I__I
Name of the center	_____ Code I__I__I__I

Introduction

- The goal of our conversation today is to collect information related to the economic impact of malaria on households of vulnerable populations in Côte d'Ivoire and potential gender differences.
- We would also like to know more about the government's policy of free health services for the most vulnerable segments of the population.
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- As a key player in Côte d'Ivoire, your contribution is crucial and will be highly appreciated for the success of this evaluation.
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- **How long will the interview last?**

  The interview session will last about 20 to 30 minutes

- **Are there any disadvantages or advantages to participating?**

  There is no direct personal benefit to participating in the interview but by answering our questions, you will contribute to a better understanding of the challenges related to the economic impact of malaria on households of vulnerable populations in Côte d'Ivoire, the potential gender differences in the economic impact of malaria services, and the effectiveness of the country's malaria control services.

  The information you provide will help make decisions that can facilitate the future work of the government and the Ministry of Health to improve policy as needed and also improve malaria control in Côte d'Ivoire.

- **Who will have access to the information you provide?**

  We do not share any information about you or other participants outside of our evaluation team. The knowledge gained from this evaluation will be shared in the form of an aggregated summary, without revealing the identity of the participants.

- **What will happen if you refuse to participate?**

  Your participation in this assessment is completely voluntary. You are free to participate or not. If you agree to participate, you can always change your mind at any time during the interview. You can refuse to answer any question you are not comfortable with. If you choose not to answer a question, interrupt the interview, or even withdraw your participation in the assessment, it will have no impact on you or your work now or in the future.

- **And if you have any questions?**

  If you have any questions, you are free to ask them now or later. If you would like to ask questions later, you can contact one of the following:

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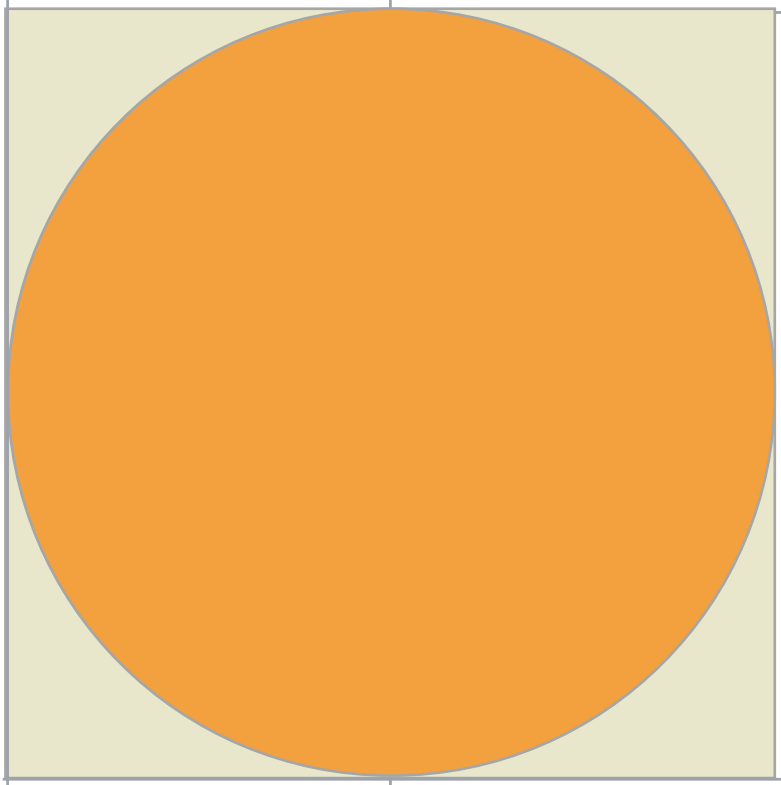
Signed consent of the Participant *(if the interested party decides to participate)*		
Code I___I___I __I	_____ *Signature*	*Date:* I__I__I/I__I__I/I__I__I__I__I *Time:* I__I__I:I__I__I



Data for Impact

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