Evaluation of the malaria case management in Gokwe South, a pre-elimination district in Midlands Province, Zimbabwe, 2023: A descriptive cross-sectional study

KEYWORDS: Malaria control program, case management, pre-elimination

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ABSTRACT

Introduction: In Zimbabwe, malaria continues to be a major public health problem. Gokwe South, a malaria pre-elimination district, failed to meet targets in malaria case management indicators, case investigation (44%), cases with microscopy (34%), and cases given primaquine (51%). We evaluated the performance of malaria case management in Gokwe South district in 2023. **Method**: A process outcome evaluation using the logical framework approach was used. Data were collected among healthcare workers using an interviewer-administered questionnaire, key informant guide, and checklists. The data were analyzed using Epi info 7.2.5 to generate medians, frequencies, and proportions. **Results**: A total of 96 healthcare workers were interviewed. Among healthcare workers trained in malaria case management 69 (71.9%), 50 (72.4%) were trained more than 12 months ago. A total of 15/20 and 8/20 health facilities had more than 6 months of stock for ACTs and IV artesunate respectively. A total of 5/20 health facilities had adequate nurses as per facility establishment. Staff from 13/20 health facilities, received one out of four malaria support and supervision visits. Inadequate healthcare worker training and unavailability of drugs and commodities were the major reasons for the failure to meet targets in malaria case management. **Conclusion**: The malaria control program focusing on case management in the Gokwe south district is affected by inadequate nurses, healthcare worker knowledge, unavailability of drugs and commodities, and few support and supervision visits. As a result of this study, malaria case management training was done in 2023. Funds for malaria support and supervision for all districts were availed for the first quarter of 2024.

Introduction

Globally, malaria remains a public health burden. In 2021, there were 247 million cases of malaria and 619,000 malaria deaths, a decline from the 625,000 malaria deaths in 2020. Four African countries account for over half of the malaria deaths worldwide, including Nigeria, the Democratic Republic of Congo, the United Republic of Tanzania, and Niger [1]. In Zimbabwe, malaria continues to be a major public health problem with an estimated five million people being at risk of getting infected and developing the disease annually. Malaria accounts for 20%–30% of outpatients' attendances and 12% inpatients annually in Zimbabwe. Plasmodium falciparum, the most lethal malaria parasite globally, accounts for approximately 99.7% of malaria cases in Zimbabwe. [2,3].

Midlands Province, where Gokwe South District is located, has seven out of the eight districts in the pre-elimination phase, with a malaria inpatient malaria mortality rate of 0.28 per 100,000 in 2021 [4]. Malaria case management in the pre-elimination district includes treatment of all cases confirmed using malaria rapid diagnostic test (RDT) and microscopy with artemisinin-based combination therapies (ACTs), which affect plasmodium falciparum immature gametocytes, and primaquine, which affects plasmodium falciparum mature gametocytes to reduce new malaria infections. Malaria case management is guided by a set of treatment guidelines [3,4]. Malaria, caused by Plasmodium parasites transmitted through the bites of infected female*Anopheles* mosquitoes, exhibits transmission patterns that align with the country's rainfall [5,6].

Zimbabwe, as a member state of the WHO (World Health Organization), implements several WHO-recommended malaria prevention and control interventions that agree with the global technical strategy (2021-2025). These interventions include vector control, intermittent prevention treatment in pregnant women (IPTp), case management, epidemic preparedness and response, operational research, surveillance monitoring and evaluation, and social behavior change. Malaria case management is among the intervention districts implemented in the malaria pre-elimination phase; it is a vital component of programmatic strategies for malaria control and elimination. It encompasses prompt and effective treatment to minimize morbidity and mortality, reduce transmission, and prevent the emergence of antimalarial drug resistance. Malaria case management complements epidemic preparedness and vector control [2,3,7]. The major goal of the malaria control program is to reduce the number of malaria-related deaths to at least 90% of the 2020 figure (400), reduce malaria incidence to 17/1000, and accelerate towards elimination [3,4].

Gokwe South District is one of the twenty-nine districts engaged in malaria elimination activities in Zimbabwe. In 2023, the district faced a malaria outbreak that resulted in seven deaths which were all audited, prompting an urgent review of the malaria case management performance. Despite existing interventions, Gokwe South has struggled to meet key malaria case management targets. The case investigation rate was only 44% against a target of 100%, and while all confirmed cases were tested with rapid diagnostic tests (RDT), microscopy was performed on only 34% of cases, falling short of the 100% target. Additionally, only 51% of cases received primaquine treatment, compared to the target of 80%.

Despite various interventions, the district has not met its malaria case management targets, highlighting a pressing need for evaluation. Gokwe South district is working towards malaria elimination; however, the district is regressing towards the path of malaria elimination as shown by the increase in malaria deaths and occurrence of outbreaks. This study aims to assess malaria case management in Gokwe South District, focusing on adherence to treatment guidelines on all audited malaria deaths, resource availability (drugs, commodities and staff), and identifying barriers that contribute to the failure to meet key malaria case management targets. Understanding the performance of the malaria case management in Gokwe South is crucial for enhancing malaria control and elimination efforts in this pre-elimination district. Thereby providing insights that will support improved strategies for malaria control and elimination.

Methods

Study design

A descriptive cross-sectional study using the logical framework approach as shown in **Table 1** [8,9]. A logical framework approach is a structured

methodology for designing, monitoring and evaluation of projects and programs. This framework facilitates a structured and systematic evaluation of the performance of the malaria case management in a logical sequence by aligning inputs, processes, outputs, and outcomes allowing a comprehensive assessment of the case management. Logical framework approach helps in connecting all components in one framework, presenting the tight relationship between inputs, processes, outputs and outcomes compared to other evaluation methods.

Study setting

The study was conducted at health facilities in Gokwe South District, Midlands. Gokwe South has thirty- seven facilities including a district hospital and a population of approximately 364 565 people. The district hospital and two additional sites provide malaria parasite microscopy testing services, however, only the district hospital offers inpatient care services. Standard procedures for malaria case management in the district include the use of rapid diagnostic tests (RDTs) for diagnosis, artemisinin-based combination therapies (ACTs) for treatment, and follow-up assessments as per national guidelines. The district aims to achieve specific targets for malaria case management: a case investigation rate of 100%, a rate for malaria cases with microscopy done of 100%, and a treatment adherence rate of 80% for primaquine.

Study population

The district has a total of 218 healthcare workers. The study population comprised healthcare workers involved in malaria case management, including nurses, doctors, laboratory staff, pharmacy staff, environmental health practitioners, and nurse aides. All healthcare workers who consented to participate in the study were included. All District Health Executive (DHE) members, which include the District Medical Officer (DMO), District Nursing Officer (DNO), District Pharmacist, District Environmental Health Officer (DEHO), and Laboratory Scientist, served as key informants since they are all malaria control program supervisors for the district.

Sample size calculation

The sample size was calculated using Dobson's formula; at 95% confidence interval and 5% margin of error. According to a study by Suarez-sachez et al. in Bata Equatorial Guinea (2019) p=0.06 where p was the proportion of health care workers who did not comply with the malaria case management of uncomplicated malaria. We calculated the sample size for healthcare workers (n) = 87. With a 10% attrition adjustment, the final sample size is 96. [10]

$$n = \frac{z^2 \cdot p \cdot (1-p)}{d^2}$$

n= $[(1.96)^2$ x 0.06 (1-0.06)] / $(0.05)^2$
n=87
n = sample size
d = margin of error 5% (0.05)
z = confidence level at 95% (standard value 1.96)
p = proportion of health care workers who did not comply with the malaria case management of uncomplicated malaria. (According to a study by Suarez-sachez et al. in Bata Equatorial Guinea (2019)
p=0.06).

Sampling procedure

Gokwe South District has one district hospital and thirty-six health facilities. The district hospital was purposively selected because it is the only referral hospital in the district and offers admissions and case management services for both complicated and uncomplicated malaria. Other health facilities offer case management services for uncomplicated malaria and pre-referral treatment for patients with complicated malaria.

Nineteen health facilities were randomly selected to achieve a representative sample of the health facilities. Given that at each health facility on any given day, there are a minimum of four health workers (2 nurses, an environmental health practitioner, and a nurse aide), four healthcare workers were selected at each of the 19 health facilities to reach the required sample size.

At the district hospital, at any given time, all departments involved in malaria case management (maternity ward, female ward, male ward, Family child health (FCH), outpatients, laboratory, and pharmacy) have at least three healthcare workers. Systematic random sampling was conducted to select three healthcare workers from each department to achieve the required sample size from the hospital.

Purposive sampling was used to select key informants because they are the overall supervisors of the program.

Data Collection

Data were collected using a pre-tested interviewer-administered questionnaire for healthcare workers. The healthcare workers interviewed at the health facilities included four members from the following designations: 2 nurses, environmental health practitioner, and nurse aide, however in the absence of the environmental health practitioner an additional nurse was interviewed. At the district hospital interviewed healthcare workers included pharmacy staff, laboratory staff, and three members in each ward from the following designations: nurses, doctors, and nurse aides. The interviewer-administered questionnaire collected information on the reasons for failing to meet set targets in malaria case management indicators and healthcare workers' knowledge of malaria case management. Failing to meet set targets in malaria case management was defined as the inability to achieve pre-defined indicators related to malaria case management such as: 100% case investigation rate, 100% cases with microscopy test done and 80% cases given primaquine. Healthcare workers' knowledge of malaria case management was defined as the understanding of healthcare workers regarding malaria diagnosis, symptoms, treatment, guidelines and current best practices in managing malaria cases.

A key informant's guide was used to collect qualitative data on the performance of the malaria case management. Performance of malaria case management assessed the overall effectiveness and efficiency of malaria case management practices focusing on the quantitative insights on the processes, challenges being faced and outcomes experienced in managing malaria cases. A checklist was used to assess malaria case management human resource availability, support and supervision done, and resource availability at the health facility. Records such as malaria death audits, notification forms, and case investigation forms were reviewed to assess the timeliness, completeness, and correctness of malaria notification and case investigations; and adherence to diagnosis and treatment guidelines for all malaria deaths audited.

Definition of terms used during data collection using the procurement and supply chain management definitions.

Laboratory commodities

- Adequate stock- defined as the amount of stock more than 4 months of stock.
- Minimum stock- defined as 2 months of stock.
- Out of stock- defined as unavailability of a commodity for 1 month or more.

Pharmacy commodities

- Adequate stock- defined as the amount of stock more than 6 months of stock.
- Minimum stock- defined as 3 months of stock.
- Out of stock- defined as unavailability of a commodity for 1 month or more

Timeliness – the number of cases notified within 24 hours

Correctness – the number of case notifications and investigations with all sections of the form correctly filled.

Completeness – The number of case notifications and investigation forms with all sections filled.

Data analysis

Quantitative data were analyzed using Epi Info version 7.2.5. to generate frequencies, means, and proportions. Data cleaning was performed before the analysis to correct errors. A three-point Likert scale was used to classify the knowledge of healthcare workers. Healthcare workers were asked 10 questions, and each correct answer was awarded a single point. A score of 0-3 was classified as poor, 4-6 fair, and 7–10 good knowledge [11]. Qualitative data was analyzed manually by identification, examination, and interpretation of patterns and themes to help answer the research question.

Permission

Permission to conduct the study was obtained from the Health Studies Office, the Provincial Medical Director for the Midlands Province, and the District Medical Officer of Gokwe South District.

Ethical Considerations

Permission and ethical approval were obtained from the Provincial Institutional Ethics Review Board for the Midlands Province (IRB Number MDP/10/23). The researcher conducted the study ethically where the principles of confidentiality, informed consent, anonymity, and harm to participants were

addressed. Participant names were not captured during data collection. Informants were fully informed about the evaluation and signed a consent form before responding to interview questions.

Results

In this study, twenty health facilities, ninety-six healthcare workers, and five key informants were reached. Most of the respondents were females 61 (63.5%) with a mean age of 36.6±5.6 years. The study participants had a mean age in service of 11.4±5.5 years and 10.9±5.7 mean years of working in Gokwe South (**Table 2).** Most of the key informants (3/5) were males with a median age in service of 21 years (IQR:12.5 – 34). Among the interviewed healthcare workers, 81 (84.4%) had good knowledge while 15 (15.6%) had a fair knowledge of malaria case management.

Human resources for malaria case management in Gokwe South, 2023

In Gokwe South, the staffing requirements for malaria case management have been satisfactorily met with the presence of medical doctors, laboratory staff, and environmental health practitioners. The district is short-staffed in pharmacy staff and nurses. The district pharmacy is expected to have 4 members (1 pharmacist, 2 pharmacy technicians and 1 dispensary assistant), however, in the health facilities nurses do the drug ordering and dispensing. Among the 20 facilities visited 5 had a full complement of nurses as per facility requirements (3/3) nurses per health facility. However, on average other health facilities had 2 nurses.

Health facility related factors

Availability of medicines at health facilities in Gokwe South, 2023

Most of the facilities (15/20) had more than 6 months of stock for artemisinin-based combination therapy (ACTs). However, most of the health facilities had stockouts on most of the drugs used for treating severe malaria and those given as pre-referral medicine; these include IV Quinine (14/20), rectal artesunate (19/20), clindamycin (20/20), and Quinine tablets (15/20). Intravenous (IV) artesunate and emergency drugs and fluids of more than 6 months of stock were available in 8/20 and 14/20 of the health facilities respectively.

Availability of equipment and consumables at health facilities in Gokwe South, 2023

All health facilities offering malaria microscopy tests (3/3) have functional microscopes, however, 2/3 have more than 4 months of stock of Giemsa stain - a microscopy consumable. Most health facilities had more than 6 months of stock of malaria test kits (16/20), glucometers (19/20), and glucose strips (16/20). All health facilities (20/20) had adequate supplies of thermometers.

Availability of tools for malaria case management in Gokwe South, 2023

Most health facilities (18/20) had displayed malaria case management guidelines. All health facilities had malaria case investigation forms and malaria death notification forms.

Outputs and outcomes for malaria case management in Gokwe South, 2023

Five out of twenty health facilities enrolled in the study had their staff trained in malaria case management in the past 12 months. Seventy-two percent (69/96) of healthcare workers were trained in malaria case management however, most of them 50 (72.4%) were trained more than 12 months ago. Staff in most of the health facilities, 13/20, reported to have received one out of four malaria support and supervision visits in 2023. Nineteen of twenty and 16/20 of the health facilities reached in this study neither of the staff members attended a malaria audit meeting nor mentorship training throughout the year 2023 respectively.

Management of malaria cases who died in Gokwe South, 2023

Malaria deaths that occurred in the Gokwe south district were all due to severe malaria. Most of them, 6/7, were diagnosed using both malaria rapid diagnostic tests and malaria microscopy. All were given IV artesunate first-line drug for severe malaria according to guidelines although there was a 6-12-hour delay in administration of medicines. One of seven malaria death cases was given primaquine although, not given according to malaria treatment guidelines. Two cases out of seven were monitored for temperature, fluid intake, blood pressure, and respiratory rate and were not monitored for random blood sugar.

Completeness, timeliness, and correctness of malaria case investigations and malaria deaths audits carried out in Gokwe South, 2023

Malaria death notification forms were at 7/7 timeliness and 6/7 completeness with missing information on the patient history. Malaria death investigation forms were at 4/7 timeliness and 5/7 completeness with missing information on the patient details and details of the first facility visited. The correctness of the malaria investigation forms was 7/7.

Achievement and implementation of recommendations made during malaria audit meeting in Gokwe South, 2023

All the recommendations made during the malaria death audit meetings were implemented but most had not achieved their objectives as shown in **Table 3.** An increase in malaria suspicion rate was shown by having all patients presenting at the health facility with fever tested for malaria using the malaria rapid diagnostic tests. Social Behavior Change Communication had achieved its objective and this has been indicated by an increase in the number of people presenting with uncomplicated malaria at the health facility.

Reasons for failing to meet set targets in malaria case management indicators in Gokwe South, 2023

Reasons mostly stated as the contributory factors for failing to meet targets in Gokwe South were unavailability of drugs and commodities 29 (30.2%), inadequate healthcare worker training, 44 (45.8%), unavailability of fuel 9 (9.3%) and unavailability of transport 6 (6.3%).

What should be done to improve malaria case management in Gokwe South?

Most of the healthcare workers reported the need to ensure a steady supply of essential drugs and commodities 37 (38.5%) and mentorship and refresher training on malaria 19 (19.8%) as ways to improve malaria case management in Gokwe South **(Table 4).**

Discussion

Findings from this study indicate that malaria case management services are being offered in all the twenty health facilities visited including the district hospital. Medical doctors, laboratory staff, and environmental health practitioners were fully established while nurses and pharmacy staff were short-staffed. Among the health facilities reached 5/20 had 3/3 nurses whereas 15/20 were short-staffed. Several studies have shown that inadequate human resources for malaria case management affect the effectiveness and efficiency of service delivery, these findings are similar to those by Makumbe et al in Mazowe district where a shortfall in human resources affected malaria case management [12].

Most of the healthcare workers, 81 (84.4%) had good knowledge of malaria case management. Healthcare worker knowledge is enhanced through training, mentorship and support and supervision visits. These findings contradicted with the findings from the review of the malaria audit reports in Gokwe South where poor healthcare worker knowledge was noted and led to the administration of primaquine to a severe malaria case which happens to be a contraindication in the administration of primaquine and delays in requesting a malaria microscopy test for a malaria RDT negative patient. Poor healthcare worker knowledge threatens the performance of malaria case management. Hence there is a need to train and continuously mentor healthcare workers on malaria case management. This was also raised by one of the key informants as a way to improve the performance of malaria case management in Gokwe South. These findings are similar to those by Pulford et al in Papua New Guinea and Hussein et al in Tanzania where the knowledge of healthcare workers was affected by lack of training despite the endemicity of malaria [13–15].

This study also found that the unavailability of drugs leads to poor performance in malaria case management. Most health facilities had adequate stock of ACTs, drugs used for the treatment of uncomplicated malaria. However, they had stockouts on most drugs used for the treatment of severe malaria such as IV Quinine, Quinine tablets, rectal artesunate, and clindamycin. The availability of Quinine and clindamycin is most probably because these drugs are being phased out in the malaria control program. A few facilities 8(40%) had adequate stocks of IV artesunate. These findings were complemented by findings from the review of the malaria death audit reports from the Gokwe south district where there was a delayed administration of IV artesunate to severe malaria-diagnosed cases due to stockouts. These findings are consistent with Plucinski et al in Angola where drug stockouts were the leading cause of failure in malaria case management. Interviewing the Nat-pharm

office, they confirmed the availability of all malaria drugs but Gokwe South had stockouts showing challenges in stock management [16].

Access to malaria case management equipment and commodities has been shown to improve the performance of malaria case management. Equipment such as a microscope, thermometers glucometers, and consumables which include Giemsa stain, malaria RDT kits, and glucose strips are important in the efficiency of malaria case management. Although the facilities in Gokwe South had adequate supplies of equipment and consumables. Other factors may have contributed to their failure to meet set targets in malaria case management indicators. Findings from this study contradict those by Davlantes et al where the unavailability of malaria RDT kits affected the performance of malaria cases [17–19].

This study showed that most of the healthcare workers in the health facilities of Gokwe South received one out of four support and supervision visits. Support and supervision visits serve as opportunities for supervisors to mentor program implementers in the district. Support interventions in low resource settings are necessary to improve healthcare worker performance [16]. Few of these interfaces are being done in Gokwe South and this has a negative effect on the performance of the malaria case management. Malaria death audit meetings are great platforms for other healthcare workers to deliberate and learn about the best practices in malaria case management however, only the district hospital is participating in these meetings since most of the deaths despite being transferred in from other health facilities they demised at the district hospital.

The district brought forward several recommendations following malaria death audit meetings and most of them were implemented though they failed to achieve the set targets. Failure to achieve targets for the recommendations can be attributed to not involving all health facilities when outlining the recommendations hence information may not be timely shared with other health facilities making it difficult for other recommendations to be implemented. Few support and supervision visits may also lead to failure in meeting targets for the set recommendations since there were no follow-ups on the changes made. However, in other studies set recommendations were not achieved due to unavailability of drugs [12].

Among the reasons stated by the healthcare workers for the failure to meet set targets in malaria case management include inadequate healthcare worker training and unavailability of drugs and commodities. These reasons have been supported by evidence from this study and other studies. These same reasons were raised by the key informants. Unavailability of transport and fuel for patient follow-up during case investigation were other reasons stated for failure to meet targets [16].

Limitations

Introduction of possible recall bias as study participants were expected to recall when they last received training on malaria case management, malaria case investigation, or malaria microscopy. To reduce the effects of the recall bias, the participants were therefore not expected to give the exact date when they last received the training but the period in which they last received the training.

Conclusion

The case management component of the malaria control program in the Gokwe south district is affected by inadequate healthcare worker training, poor healthcare worker knowledge, limited human resources particularly the nurses, shortage of drugs for the treatment of severe malaria, and unavailability of transport and fuel for malaria case investigations. However, there are adequate supplies of equipment, consumables, and tools such as treatment guidelines, management guidelines, notification forms and investigation forms, glucometers and glucose strips, malaria RDT kits, giemsa stain, and microscopes required for optimal malaria case management as well as other human resources (medical doctors, laboratory staff and environmental health practitioners). We, therefore, recommend healthcare worker training and mentorship programs despite the district participating in malaria elimination activities. Continuous and consistent malaria support and supervision. All health facilities are to participate in malaria death audit meetings. The district is to be trained on proper stock management and ordering protocols per their district needs to ensure a steady supply of drugs and commodities. Vouching for more nurses to fill in the vacant posts in the district as well as fuel and motorbikes for all unmotorized

health facilities. We recommend the timely availability of fuel and the structuring of contingency plans for all unmotorized health facilities for case investigations.

What is already known about the topic

- The unavailability of drugs and commodities affects the performance of malaria case management.
- Healthcare worker knowledge affects the performance of malaria control programs focusing on case management.

What this study adds

- Malaria case management training is a necessity despite malaria endemicity.
- Support and supervision are important in improving program performance.
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Competing Interest

The authors of this work declare no competing interest

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Authors´ contributions

Plassey Ropafadzo Chinove and Mary Muchekeza did the conception and design of the study, data collection, analysis and interpretation, and manuscript writing. Notion Gombe, Gerald Shambira, Tsitsi Juru, Addmore Chadambuka, Gibson Mandozana, and Mufuta Tshimanga did the conception, design, data analysis, interpretation, critical revision, and final approval of the study. All authors read and agreed to the final manuscript.

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Table 1: Logical framework for malaria control program focusing on malaria case management evaluation

INPUTS	PROCESSES	OUTPUTS	OUTCOMES	IMPACTS
• Human resources • Malaria case management guidelines • Malaria medicines • Emergency drugs • Malaria microscopy equipment and commodities	• Training on malaria case management • Malaria support and supervision • Malaria mentorship • Patient treatment and monitoring • Malaria death audits • Delivery of malaria diagnosis and treatment services • Supply chain management	• Number of malaria case management trainings done • Number of clinicians trained in malaria case management • Number of support and supervision visits • Number of mentorships • Number of malaria deaths audited	• Treatment based on parasitological confirmation • Proportion of health facilities with malaria microscopy and RDT capability • Proportion of cases treated according to guidelines • Proportion of human resources trained in malaria case management	• Reduced malaria morbidity and mortality • Reduced malaria incidence

Table 2: Demographic characteristics of the study participants in Gokwe South, Zimbabwe, 2023, N = 96		
Variable	**Category**	**Frequency n (%)**
The mean age of the participants	36.6 years (SD = 5.6)	
Sex	Male	35 (36.5%)
	Female	61 (63.5%)
Designation	EHT	10 (10.4%)
	Laboratory staff	4 (4.1%)
	Nurse aide	7 (7.3%)
	RGN	38 (39.6%)
	PCN	35 (36.5%)
	Pharmacy staff	2 (2.1%)
Mean number of years of service	11.4 years (SD = 5.5)	
Mean years in Gokwe South	10.9 years (SD = 5.7)	
The highest level of education attained	Secondary up to form 4	8 (8.3%)
	Diploma	87 (90.6%)
	Degree	1 (1.1%)

Table 3: Achievement and implementation of recommendations made during malaria audit meeting in Gokwe South District, Zimbabwe, 2023

Recommendations made	Implemented / Not implemented	Achieved / Not achieved	Reasons for not achieving the recommendation
Increase social behavior and communication on malaria	Implemented	Achieved and still ongoing	
Facilities without microscopy facilities to send slides to the district laboratory	Implemented	Ongoing though not yet achieving purpose	Due to the unavailability of microscopy slides no malaria parasite slides were being sent for some cases.
To administer primaquine to all eligible malaria patients	Implemented	Achieved although some were not administered according to guidelines	Staff not trained on how to administer primaquine and also, unavailability of displayed primaquine administration guidelines.
Increase malaria suspicion rate	Implemented	Achieved	
To expedite procurement procedures	Implemented	Not yet achieved	Financial constraints
Job training on malaria case management	Implemented	Not yet achieved	Did not reach all cadres in all facilities, limited funding
Improve stock management	Implemented	Not yet achieved	Facilities still have stockouts of other critical drugs.

Table 4: Health workers' recommendations on what should be done to improve malaria case management in Gokwe South District, Zimbabwe, N = 96	
Ways to improve malaria case management	**Frequency n (%)**
Ensure a steady supply of essential drugs and commodities	37 (38.5)
Training healthcare workers to improve the quality of care	26 (27.1)
Mentorship and refresher training on malaria	19 (19.8)
Raising awareness and educating the public	7 (7.3)
Motorize health facilities	6 (6.3)
Increasing access to health facilities and qualified healthcare workers	1 (1.0)