

114

6

**DISSERTATION MASTER OF PUBLIC HEALTH**

**ON**

**QUALITY ASSESSMENT OF MALARIA CASE MANAGEMENT IN PUBLIC  
PRIMARY HEALTH CARE CLINICS IN NAMIBIA: Development of an  
instrument to be used by the district primary health care supervisors in clinics.**

**SUPERVISOR: DR. N. COETZEE**

**DEPARTMENT OF PUBLIC HEALTH**

**UNIVERSITY OF CAPE TOWN**

**STUDENT NAME: LEENA HAIDULA**

**STUDENT NUMBER: HNGLEEOO1**

**MASTER OF PUBLIC HEALTH**

**UNIVERSITY OF CAPE TOWN**

**YEAR: 2002**

6

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

## CONTENTS

## PAGE NUMBERS

1. Declaration-----	3
2. Malaria risk country map -----	4
3. Acknowledgement and funding -----	5
4. Abstract -----	6
5. Introduction -----	7
5.1. Problem statement	
5.2. Motivation of the study	
5.3. Objectives	
6. Literature review -----	8
7. Methodology -----	12
7.1. Research design	
7.2. Selection of indicators using DELPHI methods	
7.3. Research methodology	
8. Results of the study-----	18
8.1. Data analysis	
8.2. Discussion on study results	
8.3. Comments	
8.4. Recommendations and dissemination of study results	
9. References-----	37
10. Appendices-----	39
(a) Consent form	
(b) Quality assessment instrument	
(c) Summary of study findings	
(d) Definition of key words	

## Abstract

Malaria is a major public health problem in Namibia and this problem warrants special attention in terms of monitoring the trends and formulating control and prevention strategies at all levels of the health care system and the community. Malaria accounts for more than 40 % of the diagnosed outpatient's cases in the health facilities. Malaria is the leading cause of ill health and deaths among both children and adults, particularly in the northern regions of Namibia where about 60% of the population lives. This disease is seasonal with the potential for epidemic proportions, which are related to exceptionally heavy rainfall. There is increasing evidence that malaria cases are poorly managed and the staffs is poorly supervised, especially at clinic levels where all malaria cases are clinically diagnosed

A number of health workers have been trained in various aspects of malaria control including case management; there is a need to evaluate their performance in order to sustain high quality care. Their performance must be evaluated regularly and feedback given so that practices could be adjusted and improved. What is required is a validated, acceptable, applicable and useful instrument that can be used routinely for assessment clinic based quality care performance.

The Ministry of Health and Social Services developed a national guideline for malaria case management used at different facilities and levels in the country. There is no affordable and applicable continuous assessment instrument of the quality of health care that can be used by primary health care supervisors to assess the quality of malaria case management at health care clinics. The aim of this study is to develop and pilot a performance based quality assessment instrument for routine quality assessment of malaria case management to be used by district supervisors in public health care clinics in Namibia.

The instrument developed was found to be useful by the district supervisors and the clinic staff interviewed during the assessment period. Poor referral systems, lack of training on malaria case management and poor supervision were the major problems identified in this pilot study. These problems have been discussed with the clinic staffs and the district supervisors concerned for appropriate action.

The developed instrument has enabled me to obtain a rapid and general overview of the clinic performances related to quality services provided to malaria patients. The information obtained evidenced the usefulness of this instrument. This pilot study has established the baseline information for quality assessment of malaria case management for the primary health care clinics assessed. However, it has been noted that continuous assessment of health services performances is very important if the quality of malaria case management is to be achieved.

## **Introduction**

Malaria is a major public health problem in Namibia and this problem warrants special attention in terms of monitoring the trends and formulating control and prevention strategies at all levels of the health care system and the community. Malaria accounts for more than 40 % of the diagnosed outpatient's cases in the health facilities. Malaria is the leading cause of ill health and deaths among both children and adults, particularly in the northern regions of Namibia where about 60% of the population lives. This disease is seasonal with the potential for epidemic proportions, which are related to exceptionally heavy rainfall (Ministry of Health, 2000/2001).

. (See figure 1, the map of malaria risk areas in Namibia on page 5).

## **Problem statement**

There is increasing evidence that malaria cases are poorly managed (over-diagnosed / misdiagnosed) and the health care staff are not properly supervised, especially at clinic levels where all malaria cases are usually clinically diagnosed (Ministry of Health and Social Services annual reports, 2000/2001)

A number of health workers have been trained in various aspects of malaria control including case management. There is a need to evaluate their performance in order to sustain the high quality of care. Their performance must be evaluated regularly and feedback given so that practices can be adjusted and improved from time to time. What is required is a validated, acceptable, applicable and useful instrument that can be used routinely for assessment clinic based quality care performance.

Despite significant improvement in disease management through a new national management policy, special health care training on diagnosis and treatment, and the development of the Primary Health Care approach, the number of malaria cases in Namibia has risen steadily from year to year (Ministry of Health and Social Services annual reports 1995 to 2001).

This increase maybe, at least in part, be due to improved reporting following the introduction of a new more efficient Health Information System and the vast expansion of Primary Health Care services. The increasing resistance of the falciparum malaria parasite to chloroquine (current chloroquine resistance level is 40 %) further complicates the situation. Malaria remains the number one public health problem in Namibia (Ministry of Health, 1999).

## **Justification of the research**

The Ministry of Health and Social Services developed, as pointed out before, a National guideline for malaria case management used at different facilities and levels in the country. There is no affordable and applicable instrument for continuous assessment of

quality of health care that can be used by primary health care supervisors to assess the quality of malaria case management at health care clinics.

When a quality assessment instrument is developed it will enable us to ensure that malaria management and care will be continuously evaluated and adjusted when the need arise. The system will also serve as the basis on how the quality of malaria case management should be assessed. It is important to note that strong management commitment; training, retraining, monitoring and supervision are essential ingredients in sustaining the quality assessment system. It is also vital to ensure that the programme is integrated in to the facility's routine activities.

### **Broad objective of the study**

The broad objective of this study is to develop and pilot a performance based quality assessment instrument for routine quality assessment of malaria case management to be used by district supervisors in public primary health care clinics in Namibia.

### **Specific objectives:**

1. To identify a range of potential variables for assessing quality and to select those, which are most appropriate to the Namibian setting.
2. To establish a quality assessment instrument to measure performances and functional capacity in the primary care clinics for the management of malaria patients by consulting key stakeholders, experts and health service provides.
3. To assess the performance and acceptability of the instrument developed in objective two above, by measuring current quality of care provided at 9 primary health care clinics in three districts in Namibia.
4. To make recommendations based on the findings to the relevant authorities for action.

### **Literature review**

Quality assessment of health care is very important to the health care system in developing countries. Quality assessment of health care can provide a way in which health care can be improved without using additional resources. However, in order to achieve long term health care improvement, fundamental changes to the health care delivery system is vital. The design and implementation of quality assurance must reflect each country's particular way of organising health care as well as the beliefs and values of both users and providers of health care services as it started with the RCN standard (1999).

Concerns about the quality of health care have been around for a long time. Nightingale (1859) says that quality assessment is one of the best-known methods to evaluate the quality in the health care facilities. More recently the World Health Organisation (European region) has published targets for health for all in 1984, which states that all members states should have effective mechanisms for ensuring the quality of patient care that is built into the health care systems (WHO, 1984).

The quality of health care can be defined as the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge (Health action, 1996). The concern of the health care providers and health care authorities should be to deliver quality health care that the community deserves.

Quality of health care can be defined in relation to its effectiveness with regard to improving the patient's health status, and how well it meets professionals' and policy standards about how the care should be provided (Bowling, 1997). Higginsson (1994) states that quality of health care need to include elements such as effectiveness, acceptability, humanity, equity, accessibility and efficiency.

The World Health Organisation also defined quality of health care as the comparison on how the level of health care actually should be provided compared to what is defined as the wanted level of health care (Griffith, 1983). It is difficult to achieve a consensus about exactly how the quality of health care should be defined and measured. Different people attach different levels of importance to different dimension, depending on their own interests and goals. However, an increasing number of people agreed now that quality of health care can be measured (Code of Federal Regulations, 1991). On the other hand, quality of health care is not an absolute concept; different people may have different perspective and expectations of quality. It is important to understand the dimension of quality and the values attached to it.

According to Bowling (1996) the definition of quality of health care becomes narrower or broader depending on the way we define the concept of health care. When assessing the quality of health care there can be a difference in the assessment depending on whether it is viewed as responsible for bringing about improvement only in the specific aspects of physical and physiological functions or whether they should include psychological and social aspects as well.

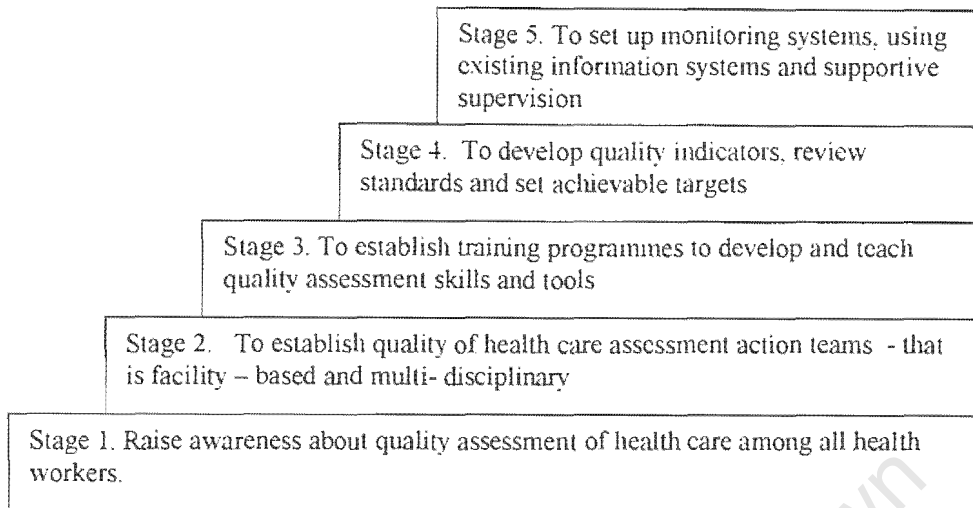
According to the National Academic press (1999), the quality assessment process was renamed "continuous quality improvement", reflecting that the process should be done repeatedly to improve what is found not to be improved in the previous assessment process. Quality assessment enables health workers to assess and evaluate their work performance and at the same time it serves as a yardstick to show where they should improve and where they have done well. Although quality assessment is often expressed in different words, all quality assessment approaches of systems of health care are aimed at monitoring, assessing, and improving performance of health care providers and facilities in a planned and systematic manner.

**There are eight important dimensions of quality assessment and these are:**

- a. Technical competence which refers to the knowledge and skills of the health workers to provide health care to the patients.
- b. Effectiveness refers to what extent the population achieve the health benefits under usual conditions of care.
- c. Equity refers to the provision and availability of services to every one who is likely to benefit or those in need.
- d. Efficiency refers to the greatest benefits for the least cost.
- e. Accessibility, which entails the way the community, may benefit from services located within a reasonable distance.
- f. Acceptability which refers to the satisfaction and compliance of the communities towards the care they receive.
- g. Affordability, which refers to whether, the community is able to afford to pay for the services.

The aims and objective of quality assessment vary widely according to the different categories of persons such as patients, health care providers and health managers. The quality of health care should reflect the satisfaction of patients to whom health care is to be provided by knowledgeable and competent health workers. The health workers should deal with patient conditions and handle them with dignity, respect, fairness and confidentiality. The quality of health care to the health care providers require skills, resources and optimal conditions necessary to improve the health status of the patient and the community at large. The quality of health care to the management cadres entails responding to the health care provider's needs and requirements, effectively, efficiently, technically, administratively and supportively. Obviously, the individual health workers and the health care institutions have a major role to play in improving the quality of health care. Bowling (1996) says that the quality of health care in a community is also influenced by many factors over which providers have no control, although these are factors they should try to understand and be concerned about

**Figure 2: Diagram illustrates five stages of quality assessment. (Source, Making quality count, Health action / issue 15/ January – March 1996)**



According to Donabedian (1980) the evaluation of health services is usually based on the collection of data about the structure, inputs, process, outputs and outcomes of the service. According to Bowling (1997) there is a three part approach to quality assessment of health care. Such a structure, process and outcome is possible only if good structure increases the likelihood of good process and good process increases the likelihood of good outcome.

The structure of an organisation refers to a setting in which health care occurs. This includes human resources (personnel), financial resources (money) and material resources (equipment and furniture). The assessment of quality will be in relation to their number type and suitability. Data on structure can be obtained by questionnaire and document analysis. The structure and the process can influence the effectiveness of the service delivered.

Through assessing the process of health care delivery system it can be known how the system is organised and utilised. On the assessment of the process one has to examine the medical records in order to establish any deviation from predefined and agreed standards. The process of health care includes the accessibility, the way in which personnel and activities interact, and interaction between the personnel and patients. Data on process are essential for the evaluation of whether scarce health resources are being utilised efficiently. The data to be collected include outputs such as activities that occur through the use of the resources in the system (Dobenadien, 1998 and Medicare, 1990)

The health services outcome is the effect of health care services on the health status of the patient and populations. The improvements in patient knowledge and changes in patient behaviour are included under a broader definition of health-status, and so is the degree of the patient's satisfaction with health care services (Bowling, 1998). According to Donabedian (1980) reliable and valid information on outcomes of health services is

essential for the assessment of health care as well as for informing the policy makers. Donadbedian (1980) also defines health outcome as “a changes and result of antecedent health care”. This narrow definition, although widely used, excludes the maintenance of a patient in a stable condition, which can also be the valid aim for giving treatment. It also excludes many health promotion and prevention activities. Health outcome measures also focus on the survival period of the clients afterwards.

### **Ethical issues**

According to Offei (1996) and Idenstone et.al (1984), the historical research and access of medical records demand protection for patients and accountability for clinical researchers, whether within or outside the continuous quality improvement process. With this background, this study granted ethical clearance from the University of Cape Town (UCT) Ethics Committee to promote the values of transparency and accountability.

### **Methodology**

#### **Research design**

There are various methods of measurement and data collection for quality assessment of health services that can be used in such as direct methods, indirect methods, formal and informal listening, users exit interviews and complaints, staff meetings and corridor conversations. This study has collected data using the direct and indirect methods of quality assessment of health care. The indirect method has been used to review medical and pharmacy records. The direct method has been used for interviewing key staff at the health care clinics.

According to Donabedian, (1998) the direct methods is regarded as the most useful method because it provides the researcher with first hand information. But on the negative side, the direct method is costly and time consuming to health providers, patients and the researcher. It is well documented that the indirect method, using medical record data is often incomplete data and frequently has limited significance in elements of health care. It includes little on the interpersonal processing (Journal of nursing management, 1994) On the other hand, their current weakness of records being incomplete can be rectified to some extent by independent verification of accuracy of some of the data. Interviews with the health workers can also supplement the information in the record.

This study has reviewed the literature, consulted the stakeholders and experts as well as developed instruments for routine use by the district supervisors in assessing the quality of malaria case management at public primary health care clinics. The researcher communicated with various stakeholders and found out that the instrument is useful and relevant to the local situation. The study was not aimed at creating a reporting system to

the existing one, but to improve the existing routine supervisory visits conducted by the district supervisors and to promote continuous quality assessment and feedback. The indirect methods of quality assessment through the audit of medical records and interviewing of key health workers was used to collect data at clinics. The indirect methods were used for assessing the health care infrastructure and patient's clinical management through medical records was used during the assessment process.

### Selection of indicators

The identification and selection of quality indicators for assessing the malaria case management was done by conducting a literature search and the reviewing of official medical documents for example the National Guideline for Malaria Control Programme, World Health Organisation Guideline on Malaria Case Management, Integrated Management of Childhood Disease Guidelines. The health personnel responsible for malaria case management at directorate, regional, district and clinic levels were consulted. Other relevant training institutions and local Non-Governmental Organisations engaged in providing health care to the community such as mission hospitals were involved in the selection and identification possible indicators. Health workers and the representatives of non-governmental organisations mentioned above were also consulted to identify and select relevant indicators to be used in the form of a questionnaire for interviewing health workers and reviewing medical records during the study period.

**Table 1. Variables identified for each element measured agreed on**

Data	Variable	Source of information
Infrastructure/ system		
(a) Accessibility		
	Proportion of facilities which provide health service after hours	Review of facility records and interview key staff
	Proportion of facilities which provide services on holidays and weekends	Review of facility records And interview key staff
(b) Functional capacity		
	Proportion of health workers in the facilities	Review of facility records and interview key staff
	Proportion of health workers trained on malaria	Review of facility records And interview key staff
	Proportion of frequency the facility runs out of anti - malaria stock per year	Review of facility records and interview key staff
	Proportion of consulting rooms available which have functional diagnostic equipment (scale, diagnostic set and thermometer	Facility observation

	Proportion of facilities which have work schedules	Review of facility records and interview key staff
	Proportion of facilities which have malaria treatment guidelines	Interview key staff and observation
	Proportion of facilities which have with IEC material for malaria	Review of facility records and observation
(c) Disease prevention		
	Proportion of health talks conducted per facility in a month	Review of facility records And interview key staff
	Proportion of pregnant women who attended ante- natal services.	Review of facility records
	Proportion of pregnant women provided with malaria prophylactics	Review of facility records
(d) Disease surveillance		
	Proportion of facilities which have functional means of communications mechanisms	Interview key staff and observation
2. Patient clinical status		
	Proportion of malaria patient diagnosed and treated according to the National malaria standard guideline	Review of facility records
	Proportion of malaria treatment failures observed and recorded per facilities per month	Review of facility records
	Proportion of patients referred to the next level for further consultation and treatment per month.	Review of facility records
	Proportion of malaria smears taken and sent to the next level for confirmation per month.	Review of facility records
	Proportion of febrile illness seen, diagnosed and treated seen per facilities per month	Review of facility records
	Proportion of malaria cases seen per facilities in a month	Record review

The indicators agreed final by the stakeholders and experts were constructed in a form of a questionnaire, which I have used to collect the information for this study. They measured variables including the infrastructure, process or care that the patient received as well as the outcome. The instrument developed was used to collect information on the observation and interview with key staff at clinics as well as record reviews.

### **Consultation with key stakeholders and experts using the 'DELPHI' method to select appropriate indicators**

Quality assessment indicators identified above are classified into indicators based on the areas being researched. There are three main methods that can be used to establish consensus views in developing instruments i.e. the 'DELPHI', consensus development panels and nominal group processes. These methods are often used in combination and can produce quantifiable estimates of consensus though they use both quantitative and qualitative techniques (Blackwell, 1994). There is documented reliable evidence about the validity and reliability of these consensus methods and no agreement was reached on which methods are the most appropriate. Jones and Hunter (1996) concludes that the results of these exercises should be interpreted with caution, and validity against the observer should be tested. This study has used the 'DELPHI' and reached an agreement in establishing consensus among stakeholders.

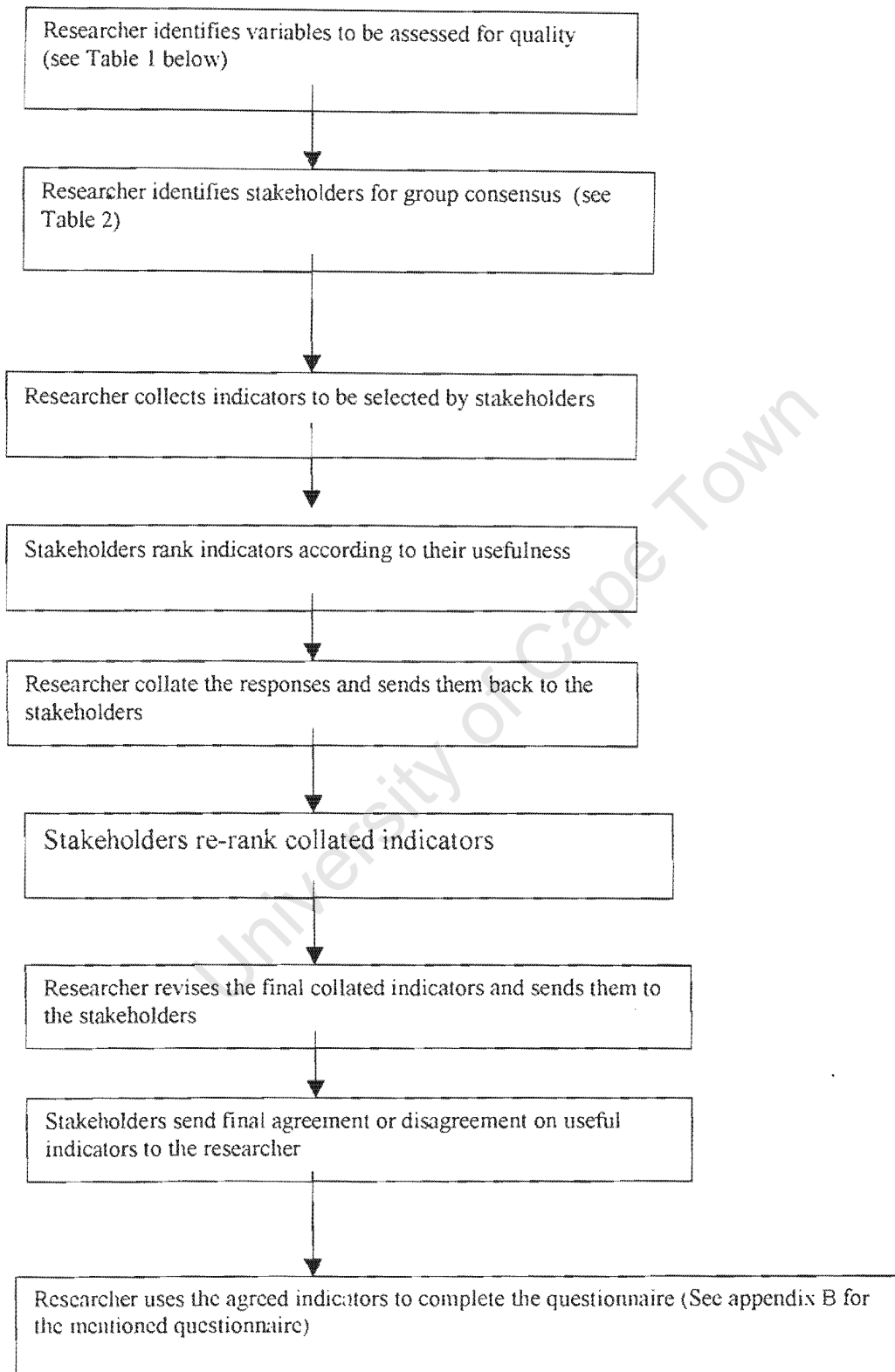
I sent a questionnaire to key stakeholders and experts in order to obtain their ideas and views on a specific topic of interest without the necessity of organising a meeting. I considered this to be a more feasible and economical method of contacting large numbers of people. This process involved sending of questionnaire to the stakeholders for feedback by post, rather than by face-to-face discussion. The questionnaire contained several questions under a limited number of topic headings or statements and the experts ranked the agreed results. The rankings are then summarised in another questionnaires and fed back to the stakeholders and experts. The stakeholders and experts were asked to rank again their level of agreement. These re-rankings of agreements were then analysed to assess the degree of consensus reached.

The indicators that are given the highest overall rating were then selected for field-testing and validation. The use of indirect and direct methods will not allow all aspects of patient care to be assessed, but it is anticipated that the most feasible indicators will be selected for use in the instrument. The following is the list of people consulted and the diagram illustrates the 'DELPHI' methods used during the selection of possible and useful indicators for quality assessment for malaria case management.

**Table 2. Names of people consulted during the collecting and the identification of possible by using the 'DELPHI'.**

NUMBER	NAME	PLACE OF WORK	RESPONSIBILITY
1.	Dr. P. N. Uusiku.	Ministry of health, Windhoek, Namibia	Malaria control programme manager, National level
2.	Dr Desta	Ministry of health, Windhoek, Namibia	WHO Adviser, Malaria control programme, National level
3.	Mrs K. Shiyagaya	North West Health Directorate, Oshakati , Namibia	Malaria co-ordinator, north Health directorate
4.	Mrs L. Elago	North West Health Directorate, Oshakati, Namibia	Mother and Child Health co- ordinator (for IMCI)
4.	Mrs L. Shipushu	Oshakati	District primary health care supervisor
5.	Mrs S. Mbandeka	Onandjokwe	District primary health care supervisor
6.	Mrs P. Molatsi	Tsumeb	District primary health care supervisor
7.	Mrs T. Handjaba	Engela	District primary health care supervisor
8.	Mrs F. Shipunda	Eenhana	District primary health care supervisor
9.	Mrs E. Shikoyeni	Kongo	District primary health care supervisor
10.	Mrs L. Shikwambi	Outapi	District primary health care supervisor
11.	Mrs A. David	Okahao	District primary health care supervisor
12.	Mrs H. Shinana	Oshikuku	District primary health care supervisor
13.	Mrs L. Kapolo	Tsandi district hospital	District primary health care supervisor
14.	University of Namibia Northern Campus personnel.	Oshakati, Namibia	Teaching institution
15.	In service training personnel	Oshakati hospital	In service training of health workers
16.	World Health Organisation and UNICEF literature	Internet, books and journals	Support agencies

**Figure 3.** Diagram illustrates (DELPHI METHODS) the process of identification and selection of indicators (adapted from Blackwell, 1994).



## **Pre-pilot of questionnaire**

The purpose of the pre-pilot were to identify the questions on the instrument, which may be, seems to be unclear, irrelevant and unreliable. It was also aimed at the identification of barriers in the availability of the data and information sources. The questionnaire was pre- piloted at Eluwa and Old Nick Clinic, the two primary health care clinics in the North – west Health Directorate.

During the pre-piloting process of the questionnaire, I found out that the questionnaire was applicable, acceptable and relevant for assessing quality of malaria case management. On the other hand, the piloting of the instrument guided me in areas that needed to be modified, for example the weighing scale and thermometer are kept at the areas where the patients first arrive and have their vital signs measured before entering in the consulting room, other areas modified were the health management information system that captured the fibril cases under other diseases. This inhibited on the assessing and the proportion of malaria-diagnosed cases over the total fibril cases as well as the recording system cannot verify collect malaria diagnosed. Because the above-mentioned deficit of in getting that required information. I have considered these as one of the limitations of my study.

## **RESULTS OF THE STUDY**

### **Pilot study**

The pilot study was conducted in nine primary health care facilities (clinics). These clinics where selected from three districts. In these three districts, two of each of them was rural clinics, while one in each district was an urban or peri-urban clinic. The reason for this was to be able to get a rapid overview on the difference as a result of geographical locations. The names of these clinics where the pilot study was conducted were as follow: -

#### **Oshakati district**

1. Ekamba (population 8334). Rural
2. Ongwediva clinic (population 29589), Urban
3. Onamutayi clinic (Population 166334), Rural

#### **Engela district**

1. Endola clinic (population 18155) Rural
2. Ohalushu clinic (population 18526) Rural
3. Ongha clinic (population 15572) Peri- urban

### Onandjokwe district

1. Ondamono clinic (population 14452) Peri- urban
2. Oshigambo (population 12606) Rural
3. Onyuulae clinic (population 5385) Rural

### Data Analysis

I have analysed the study findings using eight tables. The discussion on the results analysed on the tables will be done under the main heading "discussion" on page 28 -35.

**Table 3. Accessibility and time spent during researcher period**

Indicators	Proportion and Percentages
Proportion of health care facility where the researcher spent 40 minute on data collection	4 / 9 = 44.4%
Proportion of health care facility where the researcher spent 45 minute on data collection	3 / 9 = 33.3%
Proportion of health care facility where the researcher spent 50 minute on data collection	2 / 9 = 22.2%
Proportion of health care facility have average distances of less 5 kilometre to the health care facility	0 / 9 = (0%)
Proportion of health care facility have average distances of 10 kilometre to the health care facility	7 / 9 = 77.8 %
Proportion of health care facility have average distances of more than 15 kilometre to the health care facility	2 / 9 = 22.2 %
Proportion of health facility provide health care services after hours	0 / 9 = 0 %
Proportion of health care facility provide health care services on holidays	0 / 9 = 0 %
Proportion of health care facility provide health care on Saturdays	4 / 9 = 44.4 %
Proportion of health care facility provide health care services on Sundays	0 / 9 = 0 %

**Table 4. Functional capacity**

<b>Indicators</b>	<b>Proportion and Percentages</b>
<b>Training</b>	
Proportion of health workers trained on malaria case management during the past 5 years	13 / 33 = 39.3 %
Proportion of health workers who are not trained on malaria case management during the past 5 years	20 / 33 = 60 %
<b>Drug shortage</b>	
Proportion of health care facilities which ran out of anti-malarial drugs within the past 12 months	2 / 9 = 22.2 %
Proportion of the health care facilities that did not run out of anti-malarial drugs within the past 12 months	7 / 9 = 77.8 %
Proportion of days the health care facilities stayed without having anti- malaria drugs	Range between 2 to 7 days
<b>Referrals system</b>	
Proportion of hours the health care facilities took to refer a patient to the next health care level	Range between 2 to 5 hours
Proportion of health care facilities that have good referral system to the district level during the past 12 months	0 / 9 = 0 %
Proportion of health care facilities that have a slow referral health care system last year (2001)	9 / 9 = 100 %
<b>Categories of health workers in the health facilities</b>	
Proportion of registered nurses in the health facilities assessed	14 / 72 = 19.4 %
Proportion of midwifery in the health care facilities assessed	4 / 72 = 5.5 %
Proportion of enrolled nurses in the health care facilities assessed	11 / 72 = 15.3 %
Proportion of assistant nurses in the health care facilities assessed	4 / 72 = 5.5 %
Proportion of cleaners in the health care facilities assessed	19 / 72 = 26.4 %
Proportion of clerk per health care facility	2 / 72 = 2.8 %
Proportion of security guards per health care facility	18 / 72 = 25 %
<b>Consulting rooms, equipment and accessories</b>	
Proportion have one consulting room per health care facility	2 / 9 = 55.6 %
Proportion have two consulting rooms per health care facility	4 / 9 = 44.4 %
Proportion of health care facility that have one weighing scale per health care facility during the study period	7 / 9 = 77.7 %
Proportion of health care facilities that have two weighing scales per health care facility during the study period	1 / 9 = 11.1 %
Proportion of health care facilities that have three weighing scales per health care facility during the study period	1 / 9 = 11.1 %
Proportion of the health care facilities that have two diagnostic sets during the study period	4 / 9 = 44.4 %
Proportion of the health care facility have one diagnostic set	5 / 9 = 55.6 %

during the study period	
Proportion of health care facilities that have one thermometer during the study period	1 / 9 = 11.1 %
Proportion of health care facilities that have two thermometers during the study period	4 / 9 = 44.4 %
Proportion of health care facilities that have three thermometers during the study period	4 / 9 = 44.4 %
<b>Drug use and management</b>	
Proportion of health care facilities prescribed anti-malaria drugs according to the guideline	9 / 9 = 100 %
Proportion of health care facilities that have work schedule during the study period	9 / 9 = 100 %
Proportion of health facilities that have National Malaria Treatment Guidelines during the study period	8 / 9 = 89 %
Proportion of health facilities that do not have National Malaria Treatment Guideline during the study period	1 / 9 = 11.1 %
Number of health care facilities prescribe additional drugs to malaria patients during February 2002	9 / 9 = 100 %
<b>Supervision</b>	
Proportion of health care facilities visited by the supervisors once in 2001	5 / 9 = 55.6 %
Proportion of health care facilities supervised by the district supervisor twice in 2001	1 / 9 = 11.1%
Proportion of health care facility supervised by a district supervisor in three times in 2001	1 / 9 = 11.1%
Proportion of health facility supervised by a district health care supervisor four times in 2001	1 / 9 = 11.1%
Proportion of health facility supervised by a district health care supervisor five times in 2001	1 / 9 = 11.1%

Table 5. Disease prevention and disease surveillance

**Table 5. Disease prevention and disease surveillance**

<b>Indicators</b>	<b>Proportion and Percentages</b>
<b>Health education</b>	
Proportion of health facilities that have health education materials displayed on the wall during the study period	9 / 9 = 100%
Proportion of health education talks on malaria conducted in the clinics assessed per year	2244
Proportion of health care facilities that conducted health education outside the health care facility the last year (2001)	5 / 9 = 55.6%
Proportion of health care facilities that did not conduct health education outside the clinic	4 / 9 = 44.4 %
Proportion of health facilities that conducted health education at school	5 / 9 = 55.6 %
Proportion of health facilities that conducted health education churches	5 / 9 = 55.6 %
<b>Anti- malaria prophylactics services</b>	
Proportion of health care facilities that provide anti-malaria prophylactics to pregnant mothers during ante-natal services	7 / 9 = 77.7 %
<b>Communication</b>	
Proportion of health care facilities that use transport for communication to the next health care level	1 / 9 = 11.1 %
Proportion of health facilities that use a two-way radio for communication to the next health care facility	4 / 9 = 44.4 %
Proportion of health care facilities that use telephones for communication to the next level	4 / 9 = 44.4 %
<b>Disease surveillance</b>	
Proportion of health care facilities that send reports to the district level on monthly basis (regularly)	9 / 9 = 100 %

**Table 6. Patient's clinical status**

<b>Name of the health facilities</b>	<b>Population</b>	<b>Proportion and percentage of patients treated during Feb 20002</b>	<b>Proportion and percentage of malaria cases diagnosed and treated during Feb. 2002</b>	<b>Proportion and percentage of patients referred to the next (all cases) During February 2002</b>
Onamutayi clinic	16334	496/ 16334 = 3 %	70 / 496 = 14.1 %	36 / 70 = 51 %
Ongwediva clinic	29589	1182 /29589 = 4 %	271/ 1182 = 23 %	50 / 271= 18.4 %
Ekamba clinic	8334	295 / 8334 = 3.5 %	25 0/ 295 = 84 %	87 / 250 = 35 %
Oshigambo clinic	12606	703 / 12606 = 5.6 %	126 / 703 = 17 %	41 /126 = 32 %
Onjuulae clinic	5385	211/ 5385 = 3.9 %	80 / 211 = 37.9 %	0 / 0 = 0 %
Ondamono clinic	14452	878 / 14452 = 6 %	125 / 878 = 14.2 %	63/ 125 = 50 %
Ohalushu clinic	18526	369 / 18526 = 2 %	70 / 369 = 18 %	36 / 70 = 8.6 %
Endola clinic	18185	878 18185 = 4.8 %	271 / 878 = 48 %	50 / 271 = 8.5 %
Ongha clinic	15572	563 / 15572 = 3.6 %	295/ 563 = 68 %	87 / 295 = 29.5 %

**Table 7. Comparison of primary health care facilities per district**

**Oshakati district:** ☆ Ongwediva clinic No 1; Onamutayi clinic No 2; Ekamba clinic No 3

**Engela district:** ☆ Ongha clinic No 4; Ohalushu clinic No 5; Endola clinic No 6

**Onandjokwe district:** ☆ Ondamona clinic No 7; Oshigambo clinic No 8; Onyuuulae clinic No 9

**Note:**

The primary health care facilities marked with a star (☆) are urban or peri-urban clinics. (For more details on this analysis see Appendix C on page 44 to 54)

Clinic Number	1 ☆	2	3	4 ☆	5	6 ☆	7	8	9
1. Population per clinic	29589	16334	8334	15572	18526	18185	14452	12606	5385
2. Proportion of all patients diagnosed and treated per health facility in February 2002	1182 / 29589 = 4.1%	496 / 1645 = %	250 / 8334 = 3 %	563 / 15572 = 3.6%	369 / 18526 = 2%	878 / 18185 = 4.8%	878 / 14452 = 6%	703 / 12606 = 5.6%	211 / 5385 = 4%
3. Proportion of malaria cases diagnosed over positive cases treated in February 2002	271 / 1182 = 23 %	70 / 496 = 28 %	295 / 250 = 59%	295 / 563 = 68 %	70 / 369 = 18 %	271 / 878 = 48 %	125 / 878 = 14.2%	126 / 703 = 17 %	80 / 5385 = 37%
4. Proportion of pregnant women attended anti-natal health services over patients given malaria prophylactics in February 2002	85 / 271 = 7.2%	45 / 70 = 18 %	50 / 295 = 10 %	30 / 295 = 10.2 %	45 / 70 = 64.3 %	83 / 271 = 30.6 %	99 / 125 = 79.2 %	57 / 126 = 45 %	0 / 80 = 0 %
5. Proportion of patients referred to the district hospital	50 / 1182 = 18.4%	36 / 496 = 51 %	87 / 250 = 18 %	87 / 563 = 29.5%	36 / 369 = 8.6%	50 / 878 = 8.5%	63 / 878 = 50 %	41 / 703 = 32 %	0 / 211 = 0 %

(all cases) in February 2002									
6. Proportion of health workers in the health facilities assessed in February 2002	8 / 72 = 11 %	7 / 72 = 9.7 %	8 / 72 = 11. %	9 / 72 = 12.5 %	7 / 72 = 9.7 %	8 / 72 = 11. %	9 / 72 = 12.5 %	10 / 72 = 13.8 %	6 / 72 = 8.3 %
7. Average distance per health facility (in kilometre)	10	10	13	13	10	10	13	16	15
8. Time spent on data collection per health facility (in minutes)	45	40	40	45	50	45	45	50	40
9. Number of consulting rooms per health care facility	2	1	2	2	1	2	2	1	1
10. Number of functional weighing scales per health care facility on the day of the study	1	1	1	1	1	1	2	1	3
11. Proportion of functional thermometers per health care facility on the day of the study	2	3	3	3	3	2	2	2	1
12. Proportion of functional diagnostic set per health care facility on the day of the study	2	1	2	2	1	2	1	1	1

Having compared the urban or peri-urban clinics with the rural clinics, I have noted that there were no significant differences in most of the indicators assessed. Nevertheless the urban clinics have a high number of patients referred to the next level of health care than rural clinics.

**Table 8. Comments made by the key staff interviewed per health facility.**

Name of the clinic	Comments
Onjuulae clinic:	This clinic feels that, it will be good for them to be provided with glue sticks when the health education materials are distributed which will enable them to display on the wall. As part of the malaria prevention, the clinic needs mosquito nets to sell to the communities including other preventive measures when possible. The clinic requests a workshop on malaria case management to be conducted in order to update health workers with current knowledge.
Ondamono clinic:	The clinic requests a workshop on malaria case management and they need also fansidar to be at clinic level. They are willing to diagnose malaria case with laboratory facility. They are requesting enough health educational materials to be provided in local languages.
Oshigambo clinic:	The clinic needs more training on malaria case management and if possible to be given the anti-malaria drugs to give the community before the malaria session. They request their area to be sprayed every year in order to reduce the number of malaria cases seen at the health facility.
Ekamba clinic:	Although the clinic see few cases that failed to respond to chloroquine, the clinic feels that it will be good if fansidar is made available at clinic level to reduce unnecessary referral.
Ongwediva clinic:	The clinic is willing to diagnose malaria laboratory not only the clinical diagnosis. The clinic requests more training on malaria diagnosis, since only one enrolled nurse is trained in 1994 at this clinic. The clinic needs more than one-malaria treatment policy guideline. The clinic suggests that the health education materials they have are not sufficient.
Onamutayi clinic:	The referrals system is very slow due to transport shortage and the community has limited resources to organise their own transport to the next level. This has been the clinic's constraints which hampers early referral of patients, especially in severe cases.

Endola clinic	The clinic is having a problem of referral, especially during the rainy season. The intermediate hospital Oshakati most of the time have no ambulances and to get an ambulance from Engela Hospital takes long time to arrive. This contributes to the long waiting time of the patient and also contributes to the worsening of patient's conditions including death.
Ohalushu clinic:	The clinic needs more training on malaria case management and if possible to give anti- malaria drugs to the community before the malaria season. The health inspectors need to spray houses in the area every year. The health workers need to be encouraged and to be motivated to give health education to the community members rather than to individuals.
Ongha clinic	This clinic is provided with quinine injection as part of the pilot study on integrated management of childhood diseases, the key staff interviewed at this clinic thought that quinine injection is dangerous to administer. They suggest that it will be good to replace quinine with resorchin indictable, which they think is less dangerous. This health facility also request to be provided with fansidar tablets to treat malaria cases that appear to be resistant to choloroquine in order to avoid unnecessary referrals. They also want their area to be covered by the spraying programme every year to reduce the mosquito population. They suggest that the health workers need to be motivated in order to give health education on malaria to the community members.

## Discussions

The purpose of this study was to develop an instrument for routine quality assessment of malaria case management to be used by the district health care supervisors in public health care clinics in Namibia. According to the RCN standard (1999), the quality assessment of health care is very important to the health care system in developing countries like Namibia. It can provide a way in which health care can be improved without using additional resources.

This study was aimed in assessing the infrastructure or system i.e. accessibility, functional capacity, disease prevention, disease surveillance including the clinical status or outcome of patients.

The literature review, experts and potential stakeholders have been contacted to identify the relevant applicable and acceptable indicators to the Namibian setting. In relation to this the Delhi method was used by communicating with the experts and potential stakeholders by posting indicators collected from the literature search to be ranked and re-ranked until we come to the final ranking which was constructed into a questionnaire which I have used to collect the data.

The following are indicators constructed in the questionnaire and used to collect the information in nine primary health care clinics studied. I have discussed the results based on the area assessed during the study period. For more information on the analysis, see Appendix C on page 44 to 54 for detailed summary of the study results.

### **Accessibility (refer to Table 3 on data analysis)**

On accessibility, the indicators for assessment were based on average distance to be covered by the patients to the nearest health care facility, the services are provided after hours, on Saturdays, Sundays, including public holidays as well as the time spent during this study period per health facility.

Accessibility is an important component of primary health care approach. It includes the way in which the personnel and the patient's activities interact, and interaction between the personnel and patients (Donadedian, 1998 and Medi care, 1990). When patients experience difficulties with their access to the health care, then the quality of health care cannot be achieved.

This study has found that the average distance covered by the patients to the nearest health facility is 10 kilometres to 16 kilometres per health care facility. According to the integrated health care policy document of Namibia (1997), the recommend average distance is 12 kilometres. This study revealed the average distance ranging from 10 to 16 kilometres per health care facility. Onandjokwe district seems to have long distances, averages ranging from 13 kilometre to 16 kilometre per health facility assessed, while Oshakati and Engela district have reasonable distances average ranging from 10 kilometre to 13 kilometre per health facility.

The time I have spent during the interview with key staff and to observe the health facilities was recorded in order to evaluate the time spend in each health facility. The reason behind this was to assess the required information that could be obtained within a manageable limited time of health workers. I have noted that the time I have spent per health facility was ranging from 40 to 50 minutes. I found this time to be reasonable and applicable within the busy schedule of the health workers.

This study has also looked on the accessibility of health services to patients from their houses to the health facility. This was done by assessing the average length of distance they need to be cover to patients in order for them to get malaria treatment within their defined area. This study found that the average distance per health facility ranging from 10 kilometres (km) to 16 kilometres. I have noted that there is variation in kilometres per districts resulted from the way the health facility were located. Onandjokwe district have long distance range from 13km to 16 km, while both Oshakati and Engela district have similar average distance range from 10 km to 13 km per health facility.

This study has assessed the number of health facilities, which provides health care services after working hours and during holidays including Sunday and Saturday. I have found that none of the health care facility was unable to provide health care services after hours. It was also noted that only 44.4% of the health care facility provide services during Saturday only, but all other health care facilities were able to provide health services during holidays and Sundays. This issues of not providing services during holidays, after hours and during Saturdays including Sundays is contributing to the poor management of malaria cases such as early diagnose and treatment of malaria cases as well as the early referral of severe cases, especially during the malaria season. This will affect more of the rural people who are dependent on public health facility for treatment.

#### **Functional capacity (refer to Table 4 on data analysis)**

The functional capacity assessed include indicators i.e. number of health workers in the facility per categories; number of health workers trained on malaria case management; average frequency the facilities run out of anti-malaria drugs per year; number of consultation rooms with diagnostic equipment (Scales, diagnostic set and thermometer); number of health facilities with work schedules; number of health facilities with malaria guidelines; number of health facilities with health educational materials displayed on the wall; number of facilities run out of drugs for the past 12 months; number of visits conducted by the district primary health care supervisors per year; number of health facility having a functional communication system

#### **Training during the past 5 years**

I have found that the number of health workers trained on malaria case management during the past 5 years was 39.4 % among those who work in the health facility assessed. On the other hand, 60.6 % of the health workers were not trained for the past five years.

This percentage calculated is only for the health staff that has to deal with case management, excluding the other categories such as cleaners, security guards and clerk.

This proportion is insufficient to draw a conclusion due to the fact that the malaria control programme is aiming at correct diagnose and appropriate treatment. This aim cannot be achieved with this percentage of health workers trained in malaria. Although I cannot draw a conclusion with this little information from nine primary health care facilities piloted.

### **Anti- malaria shortages during the past 12months**

I have studied the frequency in which the health facilities ran out of anti-malarial drugs. I have found out that only 33 % of the health facilities assessed ran out of anti- malarial drugs during the past 12 months. The days that these health facilities stayed without anti-malarial drugs range from 2 two 7 days. To get another stock depends on the availability of transport at district level.

### **Referral system**

This study have assessed the number of hours the health facility would take to refer the patients to the next health care level. This study found out that it takes on average 2 to 5 hours to refer a patient to the next level. In all 100 % facilities the referral system was rated to be slow and 44.4 % of the health facilities experienced that sometimes the referral systems were none existence due to transport shortage at district level.

There were variations in the referral hours of patients to the next level of care per districts and per health facilities assessed. Oshakati and Engela district's patients have long waiting hours compare to Onandjokwe district, although this figures will not be representatives of health facilities in the districts as a whole. This variation is caused by long distance, transport shortage as well as the commitment of people responsible for this task.

### **Consulting rooms, equipment and accessories**

This study revealed that 55.5 % of the health facilities have two consulting rooms each. Other 44.4 % of the health facilities have one consulting room each. I have also noted that 77.7 % of the health care facilities have one weighing scale each, 11.1% have two weighing scales per facility, while another 11.1% have two weighing scales. This study have found that 55.5 % of health facilities have one diagnostic set per facility, while 44.4 % have two diagnostic sets per facilities. This study have noted that 44.4 % of the health care facilities have two thermometers, another 44.4% have three thermometers, while 11.1% have one thermometers per health care facility.

## **Drug use and management**

This study has assessed the availability of the National malaria treatment Guidelines in these health facilities. According to the malaria drug policy in Namibia, the first treatment drug of choice is chloroquine for the treatment of simple malaria cases. Chloroquine is the only anti-malarial drug available at primary health care level. The second treatment of choice is fansidar, which is available at health centre level and hospital level where laboratory diagnostic facilities are available. The third line treatment of choice is Quinine, which is only available at hospitals (National Malaria Policy, 1995).

I have assessed if malaria cases were treated according to the guideline as well as the availability of work schedules of health workers in health facility. I have found out that all nine health facilities have a working schedule and responded that they are treating malaria according to the guideline, nevertheless I have found out that one clinic did not have treatment guideline. It was difficult for me to find out if malaria cases were treated according to the guideline through record review because the signs and symptoms were not recorded in the medical records. The health workers had only recorded the diagnosis and the treatment given to patients.

This study has also found out that all 89% of the health facility assessed have National malaria Case Management Policy. The availability is very important because it serves as a guideline in way malaria should be diagnosed and treated.

The study assessed if there were health care facilities, which give additional drugs to malaria diagnose patients. According to the interview and observation, this revealed that 44.4% of the health facilities give additional drugs such as Vitamins and some antibiotics according to signs and symptoms the specific patient's percents. Nevertheless, the other 55.6% did not give any additional drugs.

The reason for this was to figure out if the health workers are not treating malaria with anti-malaria drugs alone. This may give one an idea if malaria drugs are still effective although the programme is aimed at conducting drug resistant studies after every two years at sentinel sites. This may also provide a snapshot on other drugs, which are used by the health workers to add to anti-malaria drugs. Misusing of drugs is contributing to drug resistant and leaving one to look for other drugs that may be expensive to be used on a wide scale.

## **Categories of health staff in the facilities**

The number and categories of health workers per health care facility were assessed during this study period. I have found that the total number of registered nurse in the health facilities under the study were 14, enrolled midwives were 4, enrolled nurses were 11, assistant nurses were 4, the clerks were 2, cleaners were 19 while the security guards were 18 per health facility. This study has found that 77 % of the health facilities does not have a clerk. The clerical work is been carried out by another category of health workers on top of their own job descriptions.

One of the strengths was that all the health care facilities have one or two registered nurses who are equipped with necessary skills to carry out primary health care activities required at clinic level. All health facilities assessed has two security officers each to safeguard the property in the health facility.

### **Supervision**

The study has also assessed the number of visits the district primary health care supervisors conducted to three specific health care facilities per year. I have noted that 55 % of health facilities were only visited once, 11 % of the health facilities were visited four times, 11 % were visited twice and 11 % were visited three times, 11 % were visited five times by their district primary health care supervisors.

This study found out that 55.5 % of the health facilities was only visited once by the district supervisors last year. Referred to the annual malaria reports of 2000 and 2001, it was stated that poor supervision is a major obstacle contributing to the poor quality of malaria case management. This study evidenced this statement, although the study was only conducted in a few health care facilities which might not represent all the health care facilities in the Northwest Health Directorate.

### **Disease prevention and surveillance (Refer to Table 5 on data analysis)**

#### **Health education**

The indicators for disease prevention are, number of health education talks conducted on malaria in the facilities per month and number of pregnant women attending ante- natal clinic and correct preventive anti- malarial drugs.

This study noted that all 100 % of health facilities have health education material; on malaria displayed on the wall, although there was a variation in number per health facility. The number of health education sessions conducted range from 36 to 360 per year but this figure was for all health education talks conducted in the health facility of all disease in aggregation.

According to the Alma Ata Declaration (1978) and the Health Promotion Policy (1980), there is a need for health education to focus on the community rather than individual, since diseases such as malaria are caused by mosquito bites. The control of mosquitoes and their breeding sites require community efforts that is why it is important for health workers to direct health education to the community to gain participation for the community as a whole.

#### **Provision of anti-malarial prophylactics to pregnant women**

Anti-malaria prophylactics are given routinely to all pregnant mothers attending ante-natal health care services at public health care facilities in the malaria affected areas of

Namibia. I have also found out that the number of pregnant women who attended antenatal services and provided with malaria prophylactics at these health facilities ranges from 5.7 % to 79 % per specific health facility. There was an indication that some health facilities were attended by a higher number of pregnant women than other facilities.

I have found that 77.7 % of health care facilities provide anti-malaria prophylactics to pregnant women, while the other 23.3 % do not provide this services due to the capacity of health workers at that specific health care facility. This study has also witnesses that lack of capacity on a certain services is hampering the quality of health care. I have noted that 54.6 % of health facilities provide health education outside the health facility, while the other 44.4 % are only conducted health education at the healthcare facilities.

### **Communication system**

I have found out that all health facilities assessed have communication systems that were functional ranging from transport, telephone and two-way radio communications.

This study found out that 11.1 % use transport as a means of communication, 55.6 % use two-way radios for communication, while the other 33.3 % of health facilities were using telephones as a means of communication to the next level of care.

I have also assessed the time that I have spent per facility to complete the interview with key staff, observe the health facility as well as reviewed records. The average time spend per health facility ranged from 40 to 50 minute depending on the size of the clinic.

The preventive part of malaria was also assessed, as to whether the health facilities have health education materials displayed on the walls and if they are conducting health educational talks on malaria prevention and treatment at health facilities. I have noted that all nine-health facilities have health educational materials displayed on the walls and conduct health education session on daily basis. This has been indicated by their reports and work schedule. The number of health education sessions conducted varies per health facilities and was ranging from 36 to 360 per year. This health education figures were not for malaria health education alone but it was an aggregated figure of all health education sessions conducted for all conditions treated at that specific health facility. I have found also that more malaria session where scheduled and conducted during the rain season when malaria is more prevalent.

This study has assessed the malaria activities outside the health facilities as part of the health facility's responsibility. This study found that 44.4 % of the health facilities did not conduct any malaria health services outside the health care facilities. On the other hand, there were 54.6 % of health facilities that conducted health education at schools and churches. Health education is the major component of disease prevention, especially in the case of malaria, which is a preventable disease. Malaria can be treated and cure but can also lead to severe complications that require complexity, management and even death. Prevention is better than cure says the literature.

The study also assessed the communication system of the health facilities under study. I have found out that 11.1 % of one health facility communicates by transport, while 44.4 % of health facilities communicated through a two-way radio and another 44.4 % of health care facilities use telephones as means of communication.

All health care facilities assessed have means of communication to the next level of care to advocate for support and guidance when required which is a pre-requisite for earlier referral of malaria patients.

### **Surveillance**

On disease surveillance this study focus on the proportion of health facilities that submitted their reports and has filled reports during the last 12 months.

This study noted that all 100 % of the health facilities submitted their reports to the district on monthly basis and during the malaria transmission period on weekly basis. This is witnessed by the reports filed in the health facilities that has been assessed.

### **Patient clinical status (refer to Table 6 on data analysis)**

The patient's clinical status was assessed using indicators such as the total number of patients diagnosed and treated during Feb. 2002 in the health facilities; a number of malaria cases diagnosed and treated during Feb. 2002; a number of all patients referred to the next level during February 2002. The number of pregnant women who attended anti-natal health care services has been assessed as well.

### **Treatment and diagnosis**

I have found out that the number of patients treated per health facility were ranging from 3 % to 6 % per months. Although there were variation in numbers of patients diagnosed and treated per specific health facility.

This study has also found out that the proportion of malaria cases diagnosed and treated per health facility in February 2002 over those treated for all diseases in the health care facility was ranging from 14.25 to 68 %. On the other hand, these numbers may vary per month according to the factors which influence malaria transmission, such as rainfall, humidity and temperature.

### **Patient referred to the next level of health care**

This study has also found out that the referral cases per health care facility were ranging from 8.5 % to 51 %. I have noted that some of the health care facility refers many patients than other facilities. This may need a well-organised referral system, although there is a shortage of transport and poor infrastructure (roads) in the districts, as the key staff interviewed at this health facilities indicated.

I have conducted an interview with key staff on how they view the referral system related to early referral of patients. I have noted that 100 % of the health facility regards their referral systems as slow and 44.4 % out of 100 % revealed that some times the referral system may remain none existence due to transport shortage in the districts.

This study found that 100 % of health facilities have slow referral systems and 44.4 % out of the 100 % say that some times the referral system can remain none existence for that specific day.

An efficient referral system is very important for severe malaria patient which may need additional care that is not provided at primary health care level if the early referral advocated in the National Malaria Control Guideline (1995) as one of the strategies for proper malaria case management are to be achieved.

### **Summary of comments made by key staff interviewed**

The quality assessment instrument has also offered the key staff interviewed a chance to comment on malaria case management in general in order to supplement on the information covered in the instrument. The comments gathered from key staff interviewed per health care facility during the study period were follows:

- The health facilities suggest that they need refresher training on malaria case management.
- The referral is too slow for severe malaria patients and some patients were referred back to the clinic without the clinician at district level considered the previous history of the patients, written on their health passport.
- Some key staff interviewed at the health facilities revealed that, it has been a long time since the spraying team had sprayed the area. They thought that the increase of malaria in the area is due to this reason.
- 55.6% of the health facilities assessed suggests that it would be worthwhile to provide the health facilities with second line drugs of choice (fansidar). The second anti-malaria treatment is fansidar, which is recommended for treatment for simple malaria cases that were not responding to chloroquine. The purpose of having fansidar is to reduce unnecessary referrals on these patients, which is costly to patients.
- The key staff interviewed revealed a need for diagnose malaria using other means of diagnose malaria besides the clinical diagnosis. They suggest the possibility of being provided with laboratory diagnose facilities or malaria testing kit to be advertised in media.

### **Limitations of this study**

This pilot study was unable to assess some of the proposed indicators that we have found useful for the assessment of quality of malaria case management such as: -

- Number of cases that failed to respond to chloroquine (treatment failures).
- Number of malaria cases at correct diagnose and treated
- Availability of laboratory facility, since all of the primary health facility did not have laboratory facilities.
- Number of febrile cases diagnosed, since this is recorded in aggregation under other diseases.

### **Recommendations**

- Referral system should be improved if early and prompt adequate treatment is to be achieved for malaria case management at primary health care facility.
- There is a need to provide the primary health care facility with other means of diagnosis malaria rather than rely on clinical diagnosis of malaria if the over diagnosis of malaria cases are to be reduced.
- There is a need to conduct refresher training for health workers on malaria for effective malaria case management.
- There is a need to revise the National Treatment Guideline. This guideline lasts for seven years from the date it was produced and various changes have been taking place that needs to be included.
- There is a need for district supervisors to supervise their district more often since it last only one clinic supervised more than 4 times a year.
- There is a need for health workers at primary health care to conduct more health education outside the clinic in order for them to provide information to the community rather than to individual.
- There is a need to record the diagnosis and treatment as well as the progress of patient detailed in order to overcome the above-mentioned limitations.

### **Dissemination of study results**

The study results will be distributed to the following departments

1. Department of Primary Health Care in Windhoek Namibia
2. World Health Organisation representative in Windhoek, Namibia
3. Department of Primary Health Care Northwest Health Directorate in Oshakati, Namibia
4. The district management co-ordinating committees of the three districts where the piloted study based.

## REFERENCES

- Amando et.al (1992). District health care challenge for planning and evaluation. 2<sup>nd</sup> edition, Macmillan.
- Bellin and Dubler N.N. (2001). The quality Improvement Divide and the Need for External Oversight-American Journal of Public Health. September 2001, Vol.91. No. 9, p. 1512 – 1514.
- Blackwell (1994). Dynamic standard setting approach: Journal of nursing. Scientific publications. Osney Mead Oxford, Ox2 OEL, P.89-91
- Bowling A. (1997). Research methods in health: Investigate health and health services, Open University Press, Buckham, Philadelphia.
- Code of Federal Regulations. (1991). Public welfare (protection of human subjects), 45 CFR, 46.102(d).
- Department of health (1995). A guide to action. Primary health cares in Mpumalanga, South Africa, p.143-140.
- Department of publications, (1999). Joint Commission on accreditation of Health care Organisations. Hospital accreditation Standards. Oakbrook Terrace, 111:
- Dunn C (1990). Tools and Techniques for Nursing standard 5 (9) Quality assurance supplement, 6.
- Donabedian A. (1988). The quality of care: How can it be assessed. (Jama, September23/30,1988, No. 12. Vol. 260, p.1744 – 1747.
- Giffiths report. (1983). Report of an inquiry into the management of health service to the secretary of state, HMSO, London.
- Goldstone, L.A; Ball J.A and Collier M.M (1984). Monitor an Index of Quality of Nursing for Acute Medical and surgical Wards. New Castle upon Tyne Polytechnical Products. LTD, England.
- Heygyvary S.T and Haussman R.K.D. (1975). Monitoring Nursing Care Quality-Journal of Nursing administration, June 17- 26, America
- Hublely J. (1995). Communicating health: An action guide to health education and health promotion, Macmillan.
- Goldstone, L.A; Ball J.A and Collier M.M. (1984) Monitor an Index of the quality of nursing for Acute Medical and Surgical Wards. New Castle upon Tyne Polytechnical products LTD, England.

Ministry of health and social services (1995). National Policy and Strategy for Malaria Control, Windhoek – Namibia, p. 3- 4, 6.

Ministry of Health and Social Services (1999/ 2000). Annual Report – National Vector-Borne Disease Control Programme, Windhoek-Namibia, p. 10 –11.

MIM: Africa (2000). “Atlanta meeting on HIV and malaria”.

Naidoo J and Wills J. (1994). Health promotion. Foundation for practice, London, Philadelphia, Toronto-Tokyo, p. 154- 160.

Offei A. (1996). Making quality count. Health action / issues 15 / January to March 1996 Eastern Region Ghana, p.5 –11.

ORC Macro (2001) Service provision assessment Guidelines and field Instruments measure DHS+. Calverton, MD USA:ORC. Macro. P.18.

To Err Is Human (1995). Building a safer Health System. DC: National Press, Washington.

RCN standard of care project (1986). Standard of cancer nursing, Royal College of nursing, London.

World Health Organisation (1997). Quality measurement Workshop proceedings and advisory proceedings.

**Appendix A**

**CONSENT FORM**

I understand that this study will involve the inspection of health facilities, interview of key staff and reviewing of patient records without recording the patient names or their identities.

I give the permission for this study to take place.

Signature of Director of health services:-----

Signature of district health manager: -----

Signature of facility health manager:-----

Date:-----

Time:-----

University of Cape Town

**Appendix B**

**QUALITY ASSESSMENT QUESTIONNAIRE**

The researcher to collect data on the structure has used this instrument; process and outcome of health care during the study. The questionnaire has been explained to the health workers who participated in the study before the study has been started. The health workers have been interviewed and medical records have also been reviewed used questionnaire per individual health care facility.

Name of district..... Population:-----

Name of health facility..... Name of clinic nurse.....

Date of visit..... Supervisor name.....

Time spent.....

**A. Infrastructure**

1. What are the average distance patients travel in your defined area to this clinic? Less than 5 k/m ----- , longer than 10 k/m-----or more longer than 10 k/m , specify --  
-----
2. Does this clinics provide service after five o, clock? Please tick, Yes  or no
3. Does this clinic provide service during Saturdays and Sundays and holidays? Please tick, Yes  or No

**B Functional capacity**

4. How many health workers are at this clinic

Registered nurse-----

Auxiliary nurse -----

Cleaner -----

Clerk -----

Other category please specifies ----- and number-----

5. How many health workers were trained on malaria case management? -----

6. (a) How many times did this clinic run out anti – malarial drugs during the past 12 months? ----- (b) for how long -----

7. How many consulting rooms do you have? -----

8. How many of the consulting rooms have the following functioning diagnostic equipment?

-Scale, please indicate -----

-Diagnostic set, please indicate -----

-Thermometer, please indicate -----

9. Does this clinic have a work schedule or activity list? Yes  or No

10. Does this clinic have malaria national treatment guideline? Yes  or No

### C. Disease prevention

11. Does this clinic have health education material on malaria prevention and treatment?  
Yes  or No

13. Does this clinic conduct health education session for the patients? Yes  or No

15. If, yes how many health sessions do the clinic conducted per year? -----

16. Does this clinic provides ante-natal service for pregnant mothers? Yes  or no

17. If yes, how many pregnant women do you see per month? -----

18. How many pregnant women among those seen at this clinic were provided with ant-malarial preventive treatment? -----

### D. Disease surveillance

19. Does this clinic have a communications system that is functional? Yes or No

20. If yes, please indicate type: a) transport ----- b) Two-way radios communication  
-----; c) Telephone -----

21. Does this clinic sends reports to the district level on a regular basis and is these report  
filed? Yes  or No

22. Are malaria drugs prescribed in accordance with the treatment guideline at this clinic?  
Yes  or No

22. How many patients diagnose with malaria was seen at this clinic per month? -----  
--

23. How many malaria cases seen at this clinic per months were correctly diagnosed and treated?

24. How efficient is the referral system at this clinic? Please indicate; good-----, slow---  
- or none -----

(b) How long does it take to refer a patient to the district level? Please specify -----

25. How many patients does this clinic refer to the next level of care per month? -----

26. How many malaria patients treated fail to respond to anti -malaria drugs that are available at this clinic per month? -----

27. Does this clinic have laboratory facilities? Yes or no

28. Does this clinic take malaria blood smears? Yes or No

29. How many malaria smears does this clinic take and send to the district hospital per month? -----

30. How long does it take for the clinic to get the malaria smear results? Less than two weeks-----, more than two weeks,----- more than two weeks

31. Does this clinic diagnose and treat febrile cases? Yes or No

32. How many febrile cases does this clinic treat per month? -----

33. What additional drugs does the clinic give to malaria diagnosed patients? Please specify -----

34. How many times per year is this clinic visited by a district supervisor? Please specify -----

35. Does this clinic provide malaria-related services outside the clinic as part of the clinic's responsibility  Yes  or No , please indicate what type of activities are these are -----

36. Comments:-----  
-----

## Appendix C

### SUMMARY OF RESULTS COLLECTED FROM THE NINE PRIMARY HEALTH CARE FACILITIES (CLINICS) IN THREE DISTRICTS OF DIFFERENT REGIONS.

#### District 1

Region: Oshana

District: Ohakati

Population: 180035.14

Date of clinic assessment	Questionnaire details	Clinic Name: Omamutayi	Clinic Name: Ongwediva	Clinic Name: Ekamba
Population		16334	29589	8334
<b>Total Number of patient treated in each clinic in February (all conditions)</b>		496 / 16334 = 3 %	1182 / 29589 = 4 %	250 / 8334 = 3 %
Accessibility				
The facilities have average distance:	Enter the number from question 1	10km	10-km	10km
The facility offers service after five o, clock	Enter number to question 2	No	No	No
Functional capacity				
Categories of health workers in the health facilities:	Enter number to question 4			
Registered nurse	Enter number to question 4	1	2	2
Enrolled nurse	Enter number to question 4	2	1	1
Auxiliary nurse	Enter number to question 4	–	1	1
Cleaner	Enter number to question 4	2	2	2
Clerk	Enter number to question 4	–	–	–
Other categories: Security	Enter category and number to question 4	2	2	2
Number of health	Enter number to	3	1	2

workers trained on malaria case management	question 5			
Numbers of times the clinic run out of stock during the past 12 months	Enter number to question 6	–	–	1
And how long it take	Enter number to question 6	–	–	1 week
Number of consulting rooms a clinic have	Enter number to question 7	2	1	2
Number of consulting rooms has the following functioning diagnostic equipment?	Enter number to question 8			
Scale	Enter number to question 8	1	1	1
Diagnostic set	Enter number to question 8	1	2	2
Thermometer	Enter number to question 8	3	2	3
Does the clinic have work schedule	Enter Yes or No to question 9	Yes	Yes	Yes
Does the clinic have National Malaria Treatment Guideline	Enter Yes or No to question 10	Yes	Yes	Yes
<b>Disease prevention</b>				
Does the clinic have health education materials on prevention and treatment?	Enter Yes or No to question 11	Yes	Yes	Yes
Does this clinics conduct health education session for patients?	Enter Yes or No to question 12	Yes	Yes	Yes
If yes, How many health education sessions conducted per year?	Enter number to question 13	360	360	360
Does this clinic provide ante – natal service for pregnant mothers?	Enter Yes or No to question 14	Yes	Yes	Yes
If yes, how many pregnant women do you see per month?	Enter number for question 15	45 / 250 = 18 %	85 / 1182 = 7.2 %	50 / 496 = 10 %
How many pregnant	Enter number to	45	85	50

women among those seen at clinic was provided with anti – malarial preventive treatment?	question 16			
<b>Disease surveillance</b>				
Does clinic have communications system that is functional?	Enter yes or no to question 17	Yes	Yes	Yes
If yes, indicate the type:-	Enter number to question 18			
Transport	Enter number to question 18			
Tow- way radio communication	Enter number to question 18	Yes		
Telephone	Enter number to question 18		Yes	Yes
Does clinic send reports to the district level on regular basis and these reports filed?	Enter yes or no to question 19	Yes	Yes	Yes
<b>Diagnosis, treatment and referrals</b>				
Are malaria drugs prescribed in accordance with the treatment guidelines at clinics?	Enter yes or no to question 20	Yes	Yes	Yes
How many patients diagnose with malaria was seen at this clinic per months?	Enter number to question 21	$70 / 250 = 28\%$	$271 / 1182 = 23\%$	$295 / 496 = 59\%$
What additional drugs does the clinic give to malaria-diagnosed patient?	Enter name of the additional drugs to question 25	No	Depends on the signs + symptoms	No
How efficient is the referral system at this clinic? Indicate if good, slow or none.	Enter good, slow or none to question 31(a)	Slow and sometimes None	Slow	Slow and some times none
How long does it take to refer a patient to the district level?	Enter number to question 31(b)	4 hrs	4 hrs	4 hrs
How many patients does this clinics refer to the next level of care per month?	Enter number to question 32	$36 / 70 = 51\%$	$50 / 271 = 18.4\%$	$87 / 496 = 17.5\%$

How many times per year is this clinic visited by a district supervisor?	Enter number to question 33	1	2	:
Does this clinic provide malaria – related services outside the clinic as part of the clinic’s responsibility?	Enter yes or no to question 34 (a)	Yes	No	No
If yes please indicate the type of activities.	Enter indicate type of activities to question 34(b)	Health education at schools and churches	–	–

University of Cape Town

**District 2**

Region: Oshikoto

District: Onandjokwe

Population: 148784.54

Date of clinic assessment	Questionnaire details	Clinic Name: Oshigambo	Clinic Name: Onjuulae	Clinic Name: Ondamono
<b>Population</b>		12606	5385	14452
Total number of all health conditions treated at the clinic in February 2002		703 / 12606 = 5.6 %	211 / 5385 = 4 %	878 / 14452 = 6 %
<b>Accessibility</b>				
The facilities have average distance:	Enter the number from question 1	16	15	13
The facility that provide services during Saturdays, Sundays and holidays	Enter number to question 3	Saturday	No	No
<b>Functional capacity</b>				
The total number and category of health workers at facility:-	Enter number to question 4			
Registered nurse	Enter number to question 4	2	1	1
Enrolled midwife	Enter number to question 4	1	1	2
Enrolled nurse	Enter number to question 4	2	0	1
Auxiliary nurse	Enter number to question 4	0	0	0
Cleaner	Enter number to question 4	3	2	2
Clerk	Enter number to question 4	0	0	1
Other categories: Security	Enter category and number to question 4	2	2	2
Number of health workers trained on malaria case	Enter number to question 5	1	0	0

management				
Numbers of times the clinic run out of stock during the past 12 months	Enter number to question 6	0	2	0
And how long it take	Enter number to question 6	0	Less than a week	0
Number of consulting rooms a clinic have	Enter number to question 7	1	1	2
Number of consulting rooms has the following functioning diagnostic equipment?	Enter number to question 8			
Scale	Enter number to question 8	1	3	2
Diagnostic set	Enter number to question 8	1	1	1
Thermometer	Enter number to question 8	2	1	2
Does the clinic have work schedule	Enter Yes or No to question 9	Yes	Yes	Yes
Does the clinic have National Malaria Treatment Guideline	Enter Yes or No to question 10	Yes	No	Yes
<b>Disease prevention</b>				
Does the clinic have health education materials on prevention and treatment?	Enter Yes or No to question 11	Yes	Yes	Yes
Does this clinics conduct health education session for patients?	Enter Yes or No to question 12	Yes	Yes	Yes
If yes, How many health education sessions conducted per year?	Enter number to question 13	48	360	36
Does this clinic provide ante – natal service for pregnant mothers?	Enter Yes or No to question 14	Yes	No	Yes
If yes, how many pregnant women do you see per month?	Enter number for question 15	$57 / 126 = 45.2 \%$	0	$99 / 125 = 79.2 \%$

How many pregnant women among those seen at clinic was provided with anti – malarial preventive treatment?	Enter number to question 16	57	0	99
<b>Disease surveillance</b>				
Does clinic have communications system that is functional?	Enter yes or no to question 17	Yes	Yes	Yes
If yes, indicate the type:-	Enter number to question 18			
Transport	Enter number to question 18			
Tow- way radio communication	Enter number to question 18		Yes	Yes
Telephone	Enter number to question 18	Yes		
<b>Diagnosis, treatment and referrals</b>				
Are malaria drugs prescribed in accordance with the treatment guidelines at clinics?	Enter yes or no to question 20	Yes	Yes	Yes
How many patients diagnose with malaria was seen at this clinic per months?	Enter number to question 21	$126 / 703 = 17 \%$	$80 / 211 = 37 \%$	$125 / 878 = 14.2 \%$
What additional drugs does the clinic give to malaria-diagnosed patient?	Enter name of the additional drugs to question 25	Depends on the signs and symptoms	Vitamins and antibiotics	Depends on the signs and symptoms
How efficient is the referral System at this clinic? Indicate if good, slow or none.	Enter good, slow or none to question 31(a)	Slow	Slow	Slow
How long does it take to refer a patient to the district level?	Enter number to question 31(b)	2 hrs	2 hrs	3hrs
How many patients does this clinics refer to the next level of care per month?	Enter number to question 32	$41 / 126 = 32 \%$	0	$63 / 125 = 50 \%$

How many times per year is this clinic visited by a district supervisor?	Enter number to question 33	2	3	4
Does this clinic provide malaria – related services outside the clinic as part of the clinic’s responsibility?	Enter yes or no to question 34 (a)	Yes	Yes	Yes
If yes please indicate the type of activities.	Enter indicate type of activities to question 34(b)	Health education at schools and churches	Health education at schools and churches	Health education at churches

### District 3

Region: Ohangwena

District: Engela

Population: 183368.84

Date of clinic assessment	Questionnaire details	Clinic Name Ohalushu	Clinic Name Endola	Clinic Name Ongha
<b>Population</b>		18526	18185	15572
Total number of health conditions treated in the clinic during February 2002		$369 / 18526 = 2\%$	$878 / 18185 = 4.8\%$	$563 / 15572 = 3.6\%$
<b>Accessibility</b>				
The facilities have average distance:	Enter the number from question 1	10km	10km	10km
The facility offers service after five o, clock	Enter number to question 2	No	No	No
The facility that provide services during Saturdays, Sundays and holidays	Enter number to question 3	No	Saturday	Saturday

<b>Functional capacity</b>				
The total number and category of health workers at facility:-	Enter number to question 4			
Registered nurse	Enter number to question 4	1	2	2
Enrolled nurse	Enter number to question 4	2	1	1
Auxiliary nurse	Enter number to question 4	0	1	1
Cleaner	Enter number to question 4	2	2	2
Clerk	Enter number to question 4	0	0	1
Other categories	Enter category and number to question 4	2	2	2
Number of health workers trained on malaria case management	Enter number to question 5	3	1	2
Numbers of times the clinic run out of stock during the past 12 months	Enter number to question 6	0	0	1
And how long it take	Enter number to question 6	0	0	1 week
Number of consulting rooms a clinic have	Enter number to question 7	2	1	2
Number of consulting rooms has the following functioning diagnostic equipment?	Enter number to question 8			
Scale	Enter number to question 8	1	1	1
Diagnostic set	Enter number to question 8	1	2	2
Thermometer	Enter number to question 8	3	2	3
Does the clinic have work schedule	Enter Yes or No to question	Yes	Yes	Yes

	9			
Does the clinic have National Malaria Treatment Guideline	Enter Yes or No to question 10	Yes	Yes	Yes
<b>Disease prevention</b>				
Does the clinic have health education materials on prevention and treatment?	Enter Yes or No to question 11	Yes	Yes	Yes
Does this clinics conduct health education session for patients?	Enter Yes or No to question 12	Yes	Yes	Yes
If yes, How many health education sessions conducted per year?	Enter number to question 13	360	When necessary	360
Does this clinic provide ante – natal service for pregnant mothers?	Enter Yes or No to question 14	Yes	Yes	Yes
If yes, how many pregnant women where provided with anti- malaria prophylaxis during February 2002		50	45	83
<b>Disease surveillance</b>				
Does clinic have communications system that is functional?	Enter yes or no to question 17	Yes	Yes	Yes
If yes, indicate the type:-	Enter number to question 18			
Transport	Enter number to question 18			
Tow- way radio communication	Enter number to question 18	Yes		
Telephone	Enter number to question 18		Yes	Yes
Does clinic send reports to the	Enter yes or no to question 19	Yes	Yes	Yes

district level on regular basis and these reports filed?				
<b>Diagnosis, treatment and referrals</b>				
Are malaria drugs prescribed in accordance with the treatment guidelines at clinics?	Enter yes or no to question 20	Yes	Yes	Yes
How many patients diagnose with malaria was seen at this clinic during February 2002	Enter number to question 21	70 / 369 = 18%	271 / 563 = 48%	295 / 878 = 68%
What additional drugs does the clinic give to malaria-diagnosed patient?	Enter name of the additional drugs to question 25	No	Depends on the signs and symptoms	No
How efficient is the referral System at this clinic? Indicate if good, slow or none.	Enter good, slow or none to question 31(a)	Slow and some times none	Slow	Slow and some times none
How long does it take to refer a patient to the district level?	Enter number to question 31(b)	4hrs	4hrs	4hrs
How many patients does this clinics refer to the next level of care per month?	Enter number to question 32	36 / 70 = 8.6 %	50 / 271 = 8.5 %	87 / 295 = 29.5 %
How many times per year is this clinic visited by a district supervisor?	Enter number to question 33	1	2	1
Does this clinic provide malaria – related services outside the clinic as part of the clinic’s responsibility?	Enter yes or no to question 34 (a)	Yes	No	No

If yes please indicate the type of activities.	Enter indicate type of activities to question 34(b)	Health education at schools and churches	0	0
--	---	--	---	---

## Appendix D

### DEFINITION OF KEY WORDS

Key word	Definition
1. Quality assessment:	The process of determining whether goods or services reach an established standard (usually through tools such as checklist).
2. Indicators	An aspect of service selected for measurement.
3. Medical audit	An examination of medical practices to make sure that it reaches defined standards.
4. Access	Ease with which health services may be utilised; encompasses geographical access (the distances from the facilities), financial access (refers to affordability of services) and social access (refers to the attitudes of health workers).
5. Accessibility	Indicator measuring access to the health centre, based on the distance, time, cost and possibly socio- cultural factors.
6. Activity	A group of tasks with a common purpose.
7. Audit	A calling to account, usually applied to the use of funds, but also applied to any function or action that has measurable consequences; hence" clinical audit" refers to an evaluation of the value of a clinical procedures in producing the desired result or consequence.
8. Budget	The process of matching proposed expenditures to available financial resources with a view to achieve desired results.

9. Checklist	A list of items or descriptions of actions to be looked at, one at a time, to ensure that no items or action is overlooked.
10. Clinic	Is a fixed structure in which basic health services are provided, usually by nurses; linked to a community health centre?
11. Compliance	Meeting agreed standards.
12. Community involvement	The active involvement of people living together in some form social organisation and cohesion in the planning, operation and control of primary care, using local, national and other resources.
13. Total quality management	A management system, which tries to ensure that all aspects of work contributing to quality, reinforces each other.
14. Comprehensive	The fullest possible range of, for example, primary health services, the provision of prevention, promotion, curative and rehabilitative cares by a health care facility or authority.
15. Collaborate	Work jointly with others
16. Effectiveness	The best possible outcome
17. Efficiency	The attainment of the best outcome or result at the lowest possible cost.
18. Evaluation	The measurement of performance, based on the established criteria, to ensure that the objectives are being met.
19. Facilities	A building, a room or site that makes an activity possible e.g. a clinic, health centre or hospital.
20. Feedback	Information which helps to evaluate an activity
21. Follow-up	Maintaining contact with a person (e.g.) patient or watching over the development of a process.
22. Goals	These are large 'direction-setting' wants or needs which provide overall direction for planning.
23. Health	State of complete physical and mental and social well-being, not merely the absence or infirmity.
24. Health district	Geographical area that is small enough to allow maximal

	involvement of community participation so that local health needs are met, but also large enough to effect economies of scale.
25. Health services	A system of institutions, people, technologies and resources designed to improve the health status of the population.
26. Health team	Health workers having a common goal, with each member contributing its achievement in accordance with his or her competence and skills and in co – ordination with the function of others.
27. Indicators	These are measurable, quantifiable criteria, which would be measured as part of monitoring and evaluation in order to determine the extent to which objectives and targets have been met.
28. Information	Data processed for a purpose (e. g) decision making)
29. Implementation	Carrying out a planned activity or programme.
30. Integrate	Putting different parts together to form a whole. In the field of health care, it applies to activities, programme, planners and services.
31. Monitoring	Keeping track of the way activities are being implemented to meet the objectives set and undertaking corrective measure, if necessary.
32. Motivation	Whatever stimulates an individual to make an effort or take action
33. Prevention	To ensure that diseases or illness do not occur.
34. Primary health care	Essential health care based on practical, scientifically-sound and socially acceptable methods and technology made universally accessible to individuals an families in the community through their full participation and that the community and country can afford to maintain at every stage of their development in the spirit of self – reliance and self determination.
35. Programme	All the activities directed towards the achievement of defined goals and targets

36. Referral mechanism	Procedures for and ways and means of sending patients to an appropriate facility, institute or specialist at the next level of the health care system.
38. Resources	The available means (personnel, equipment, time, and money) to supply or achieve an objective or goal.
39. Secondary data	Information obtained from health records, health surveys, reports, etc. as opposed to primary data.
40. Structure	Pattern of organisation
41. Sustainability	Capacity to continue when external assistance ceases
42. Target	A goal to be achieved, within a certain time, and which can be measured.
43. Technical support	Assistance in connection with special knowledge, skills and technology.
43. Malaria treatment failure	Refers to a patient-diagnose and treated with a full course of Anti- malaria drugs and not been well after completion of the full course of treatment.
44. Quality assurance	A management system, which builds quality assessment, monitoring and improvement into normal working practices.