AN EVALUATION OF THE COMMUNICATION STRATEGIES USED BY THE NATIONAL MALARIA CONTROL CENTER TO COMBAT MALARIA IN ZAMBIA

By

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DECLARATION

I, Macphersson Mutale, solemnly declare that this dissertation has not been submitted for a degree in this university or any other university. I further declare that the information contained is my own research and were material is borrowed due attribution is given.

Signed.....

Date 30/06/09

APPROVAL

This dissertation of Macphersson Mutale is approved as partial fulfilment of the requirements for the award of Master of Mass Communication (NMCC) Degree of the University of Zambia.

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ABSTRACT

As the National Malaria Control Centre (NMCC) moves into 2015 and beyond, community communication programs should be as critical as during initial scale-up periods to ensure sustainability of the individual and community behaviors regarding malaria prevention and treatment. A key aspect of implementing the various interventions is the need to produce and document, on a timely basis, the relevant data and information for capturing malaria outcomes and service provision.

This work should be read as an attempt to evaluate the communication strategies used by the National Malaria Control Center to combat malaria in Zambia. The researcher spent 52 days at NMCC participating in the day today activities of the organisation and reviewing the material that has been produced on malaria communication.

Secondary source materials were reviewed and these provided a wealth of information used in this work.

There is very little evidence of malaria communication research and practitioners are largely dependent on a 'gut feel'. Audience segmentation and profiling are not practised. This is demonstrated by the lack of audience profile and preference research and the limited capacity to segment and target audiences according to specific information needs and most appropriate means of communication.

To my loving mother, I fondly call Jenny, for having faith in me and teaching me to paddle my own life canoe. You taught me that one's help can only be found at the end of their hand. Mom, God has proved that He answers prayers and I can only say Glory Be to Him who is Almighty. To my brother Lottie, you are the pillar of our family. God will surely reward you.

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Acronyms/Abbreviations

ACT	**Artemisinin Combination Therapy**
ANC	**Antenatal Care**
BCC	**Behavior Change Communication**
BHCP	**Basic Health Care Package**
CBOH	**Central Board of Health**
CCM	**Country Coordinating Mechanism**
CHW	**Community Health Workers**
C-IMCI illnesses	**Community-Integrated Management of Childhood**
DDT	**Dichloro-Diphenyl-Trichlorethane**
DHB	**District Health Board**
DHMT	**District Health Management Team**
DOT	**Directory Observed Therapy**
EPI	**Expanded Programme on Immunization**
FAMS	**Financial, Administrative and Management Systems**
FANC	**Focused Antenatal Care**
FBO	**Faith Based Organization**
GDP	**Gross Domestic Products**
GFATM	**Global Fund to Fight AIDS, Tuberculosis, and Malaria**

HBC	**Home Based Care**
IEC	**Information, Education, and communication**
IPT	**Intermittent Presumptive Treatmement**
IRS	**Indoor Residual Spraying**
ITN	**Insecticide Treated Net**
IVM	**Integrated Vector Management**
LLIN	**Long Lasting Insecticidal Net**
M&E	**Monitoring and Evolution**
MDGs	**Millennium Development Goals**
MiP	**Malaria in Pregnancy**
MIS	**Malaria Information Subsystem**
MOH	**Ministry of Health**
NDP	**National Development Plan**
NGO	**Non-Governmental Organization**
NHC	**Neighbourhood Health Committee**
NHSP	**National Health Strategic Plan**
NMCC	**National Control Centre**
NMCP	**National Control Programme**
NMSP	**National Malaria Strategic Plan**
PHO	**Provincial Health Office**

PMTCT	**Prevention of Mother to Child Transmission**
RBM	**Roll Back Malaria**
RDT	**Rapid Diagnostic Test**
SADC	**Southern Africa Development Community**
SAG	**Strategic Advisory Group**
SP	**Sulfadoxine-Pyreimethamine (Fansidar)**
SWOT	**Strength, Weakness, Opportunities, and Threats**
WHO	**World Health Organization**
WHOPES	**World Health Organization Pesticide Evaluation System**

CHAPTER ONE

1.0.0 Introduction

Ninety percent (90%) of the world's malaria cases occur in Africa. Chloroquine resistance is widespread in Africa. Now, malaria outbreaks are being reported in some locations of Africa that had been previously thought to be at elevations too high for malaria transmission, such as the highlands of Kenya. Some scientists hypothesize this is due to climatic change, while others hypothesize that this is due to human migration. Also, malaria has resurged in certain locations of Africa that had previously had effective control programs, such as Madagascar, South Africa, and Zanzibar (Girardin. Acta Tropica, 2004, 89(2):109–123).

Malaria is a serious and sometimes fatal disease caused by a parasite that commonly infects a certain type of mosquito which feeds on humans. People who get malaria are typically very sick with high fevers, shaking chills, and flu-like illness. Four kinds of malaria parasites can infect humans: *Plasmodium falciparum, P. vivax, P. ovale*, and *P. malariae. Infection* with *P. falciparum*, if not promptly treated, may lead to death. Although malaria can be a deadly disease, illness and death from malaria can usually be prevented.

Information is vital and a valid weapon in the fight against Malaria. Information is important to educate and raise awareness of how and why malaria is transmitted, who is at risk, and what can be done to prevent the spread of the disease.

Communication strategies give guidance to all organizations and individuals involved in malaria prevention and cure activities on how they can communicate to their audiences, and on what they should be communicating.

This is an evaluation of the National Malaria Control Centre's communication strategies and the barriers that make it difficult to achieve these strategies. Furthermore, the research looked at the messages, audiences and channels that have helped different players communicate effectively to their audiences.

It includes the background, objectives, activities and role in combating malaria in Zambia, literature review and the methodology. It also gives the conceptual framework with theories of communication relevant to the study.

Information, Education and Communication (lEC), sometimes referred to as Behavioral Change Communication (BCC), is an interactive process with communities to develop tailored messages and approaches using a variety of communication channels to develop positive behaviors to promote and sustain individual, community and societal behavior change and maintain appropriate behaviour.

1.1.0 BACKGROUND

1.1.1 Malaria Profile

Malaria is a life-threatening parasitic disease transmitted by mosquitoes. It was once thought that the disease came from fetid marshes, hence the name mal aria, ((bad air). In 1880, scientists discovered the real cause of malaria a one-cell parasite called plasmodium. Later they discovered that the parasite is transmitted from person to person through the bite of a female Anopheles mosquito, which requires blood to nurture her eggs.

According to the World Health Organisation,(WHO) today approximately 40% of the world's population mostly those living in the world's poorest countries is at risk of malaria. The disease was once more widespread but it was successfully eliminated from many countries with temperate climates during the mid 20th century. Today malaria is found throughout the tropical and sub-tropical regions of the world and causes more than 300 million acute illnesses and at least one million deaths annually (WHO, 2001).

Ninety per cent of deaths due to malaria occur in Africa south of the Sahara mostly among young children. Malaria kills an African child every 30 seconds. Many children who survive an episode of severe malaria may suffer from learning impairments or brain damage. Pregnant women and their unborn children are also particularly vulnerable to malaria, which is a major cause of perinatal mortality, low birth weight and maternal anaemia.

1.1.2 Challenge

Malaria parasites are developing unacceptable levels of resistance to one drug after another and many insecticides are no longer useful against mosquitoes transmitting the disease. Years of vaccine research have produced few hopeful candidates and although scientists are redoubling the search, an effective vaccine is at best years away.

Science still has no magic bullet for malaria and many doubt that such a single solution will ever exist. Nevertheless, effective low-cost strategies are available for its treatment, prevention and control and the Roll Back Malaria global partnership is vigorously promoting them in Africa and other malaria-endemic regions of the

world. Mosquito nets treated with insecticide reduce malaria transmission and child deaths. Prevention of malaria in pregnant women, through measures such as Intermittent Preventive Treatment and the use of insecticide-treated nets (ITNs), results in improvement in maternal health, infant health and survival. Prompt access to treatment with effective up-to-date medicines, such as artemisinin-based combination therapies (ACTs), saves lives. If countries can apply these and other measures on a wide scale and monitor them, then the burden of malaria will be significantly reduced.

1.1.3 History of malaria in Pre-Independence Zambia

The experience with environmental management of malaria in the copper-mining communities of Zambia (formerly Northern Rhodesia), between 1929 and 1949, has provided a historical example of how integrated malaria control strategies may yield substantial economic benefits, as well as public health gains (Lindsay S et al,1987).

Since the Northern Rhodesian programme was undertaken in an area fraught with high rates of malaria disease, it also illustrates how integrated management may be relevant in areas of endemic disease – as well as in areas of more marginal and epidemic transmission.

1.1.4 Integrated control

In the Northern Rhodesian programme, a package of integrated control measures reduced the malaria incidence rate by 50–75% in the first 3–5 years of programme operation. Between 1930 and 1936, malaria incidence within the four mining communities involved in the programme declined from 457–514 cases to 135–251 cases per 1000 people per year. When indoor residual spraying with DDT was

introduced in 1946, supplementing but not replacing the environmental management measures, there was another sharp decline in malaria incidence to just 21-30 cases per 1000 people (Hoek Wvd, Acta Tropica, 1964, 89(2):95–97).

1.1.5 Comprehensive Approach

Northern Rhodesia's programme was a comprehensive approach, first including improvements in housing, water, sanitation, medical treatment and facilities, and bednets. When these measures alone proved insufficient to substantially reduce disease incidence, surveys of local malarial vector habitats were conducted and environmental management strategies were designed to reduce breeding habitats.

The measures that were designed included vegetation clearance, modification of river boundaries, increasing velocity of the river flow to interrupt larval development, and swamp drainage. An additional component – albeit not one that would be considered environmentally sound today – was the application of oil to open water bodies, which also interrupted larval development (Gallup, JL. 2001, 64(1-2 Suppl.): 85–96).

Strategies were tuned to the local ecology and behaviour of the malaria vectors, some of which preferred shady habitats, and some of which thrived in sunshine. The measures were implemented in parallel by careful cooperation among health, water management, and planning authorities. Monthly malaria-incidence rates and vector-density surveys provided a constant stream of updated information on the effectiveness of the measures taken, so that they could be fine-tuned, and performance improved (Snow R et al., Nature, 2005, 434:214–217).

1.1.6 Malaria Records

The detailed records kept of the programme costs and procedures – together with health, employment, and revenue data from the mining company operations – has facilitated cost-effectiveness analysis, It has been estimated by some experts in retrospective analysis that the malaria-control effort may have averted over 14 000 deaths, and over 517 000 malaria attacks, in a mining community population that swelled from 11,000 employees and their families to over 140,000 people over a period of 20 years. Over the same 20 years, integrated malaria-control costs were estimated to total about US$ 11 million, while nearly US$ 6.5 million in direct medical costs and indirect costs of lost worker productivity were estimated to have been averted, (1995 USD terms) (*The world health report* 2004).

Important economic development and macroeconomic benefits may also have been generated by malaria control. Over the 20-year period the programme was in operation, Northern Rhodesia was transformed from an insignificant player in copper mining, to the third most important copper ore producer worldwide, and in 1938, copper represented 55% of taxable national income (*A review of control methods for African malaria vectors*, 2002).

1.1.7 Information Setbacks

Prior to 1929, unsuccessful malaria control efforts had resulted in migrant workers abandoning some of the same copper mine sites, and rumours flourished along the labour routes of the malaria dangers associated with copper mining in the area. Integrated malaria management both dissipated these fears and stimulated unprecedented in-migration to the mining communities – essential ingredients in the rapid expansion and sustainability of the mining operations. Lag in information distribution was the main factor in this situation. Health workers never paid much

attention to the social conditions of their patients and clients.

While this programme occurred under a colonial regime that is now a historical artifact, such historical experiences with malaria control have been recognized by experts in Africa and elsewhere as potentially relevant to the struggle of modern and independent African nations to address issues of disease, environment and development. In particular, the experience illustrates how concerted intersectoral action between health and economic sectors can yield public health benefits as well as economic payoffs.

1.1.8 Place of Study

The study was conducted in Lusaka, the urban district of Lusaka Province at the National Malaria Control Centre. Lusaka is located in the central part of the country. The province has an estimated population of 1 599973 people (Central Statistical Office, 1999) most of whom live in the urbanised part of Lusaka.

1.1.9 The Global Malaria Problem

Malaria is by far the world's most serious tropical parasitic disease, and it kills more people than any other communicable disease, except tuberculosis. In many developing countries and in Africa especially, malaria exacts an enormous toll in lives, in medical costs, and in days of labuor lost (World Malaria Report: 2005).

The geographical area affected by malaria has shrunk considerably over the past 50 years, but control is becoming more difficult and gains are being eroded. Increased

Malaria still remains the number one killer disease in Zambia despite the many interventions from the government and its cooperating partners. It seems malaria will continue to ravage Zambia economically, politically and socially for the foreseeable future despite it being curable.

Zambia is currently experiencing the health, economic and social impacts of malaria. Malaria has affected all aspects of social and economic development in the nation. Malaria has not only devastated individual families, but also weakened areas of public sector and has also threatened long-term national development. Despite the disease being curable and having indicated some reductions in recent years, there still remains a lot to be done to combat one of the leading killer diseases by all stake holders who include the government; faith based organisations, the private sector as well as the civil society.

The global risk is linked with changes in land use, to activities like road building, mining, logging, and agricultural and irrigation projects, particularly in "frontier" areas like the Amazon and Southeast Asia. Other causes of its spread include global climatic change, disintegration of health services, armed conflicts and mass movements of refugees. The emergence of multi-drug resistant strains of parasites is also exacerbating the situation. Via the explosion of easy international travel, imported cases of malaria are now more frequently registered in developed countries. Malaria is re-emerging in areas where it was previously under control or eradicated e.g. in the Central Asian Republics of Tajikistan and Azerbaijan, and in Korea. Malaria is a public health problem today in more than 90 countries, inhabited by a total of some 2,400 million people - 40% of the world's population.

Worldwide prevalence of the disease is estimated to be in the order of 300-500

million clinical cases each year. More than 90% of all malaria cases are in Africa south of the Sahara. Mortality due to malaria is estimated to be 1.5 to 2.7 million deaths each year. The vast majority of deaths occur among young children in Africa, especially in remote rural areas with poor access to health services. Other high-risk groups are women during pregnancy, and non-immune travellers, refugees, displaced persons and labourers entering endemic areas. Malaria epidemics related to political upheavals, economic difficulties and environmental problems also contribute in the most dramatic way to death tolls and human suffering.

The World Health organization estimates that Malaria kills one child every 30 seconds. This preventable disease has reached epidemic proportions in many regions of the world, and continues to spread unchecked. In absolute numbers, malaria kills 3,000 children per day under five years of age. It is a death toll that far exceeds the mortality rate from AIDS. African children under five years of age are chronic victims of malaria, suffering an average of six bouts a year. Fatally-afflicted children often die less than 72 hours after developing symptoms. In those children who survive, malaria also drains vital nutrients, impairing their physical and intellectual development. Malarial sickness is also one of the principal reasons for poor school attendance (World Malaria Report: 2005*)*.

In malaria endemic parts of the world, a change in risk of malaria can be the unintended result of economic activity or agricultural policy that changes the use of land (e.g. creation of dams, irrigation schemes, commercial tree cropping and deforestation). Global warming and other climatic events such as EI Nino also play their role in increasing the risk of disease. EI Nino events have had an impact on malaria because the associated weather disturbances influence mosquito breeding

sites, and hence the transmission of the disease. Many areas have experienced dramatic increases in the incidence of malaria during extreme weather events correlated to EI Nino. Moreover, outbreaks may not only be larger, but more severe, as populations affected may not have high levels of immunity.

In today's international world, the phenomenon of "airport malaria," or the importing of malaria by international travelers, is becoming commonplace. The United Kingdom, for example, registered 2,364 cases of malaria in 1997, all of them imported by travelers. "Weekend malaria," which happens when city dwellers in Africa return to their rural settings, is also becoming an increasing problem (Fogg et al, (2004)).

1.1. Malaria in Zambia

While malaria remains a major public health and development challenge in Zambia, a unique opportunity exists to scale up malaria-related interventions, strengthen systems, and make a major effort to roll back malaria in Zambia. Malaria currently accounts for nearly four million clinically diagnosed cases per year, 36% of hospitalisations and outpatient department visits, and from one previous study at University Teaching Hospital, up to 20% of maternal mortality. In addition to the direct health impact of malaria, there is also a severe social and economic burden on our communities and country as a whole, but especially on the poorest among us, and those vulnerable individuals and households who are also trying to cope with the HIV/AIDS pandemic. Thus malaria control is addressed, not as a separate, vertical, disease-specific intervention but as part of a health systems strengthening effort to provide holistic services in all facets of care, and as part of a larger community development effort. Through the National

Malaria Strategic Plan 2006-2011, the Government of Zambia and many Roll Back Malaria Partners are committed to increasing coverage of key malaria control interventions and reducing the burden of malaria throughout the country (*Annual health statistics Bulletin: 2004).*

Malaria is one of the major public health challenges eroding development in the poorest countries in the world. Malaria costs Africa more than US$ 12 billion annually. It has slowed economic growth in African countries by 1.3% per year and malaria-free countries average three times higher GDP per person.

There are an estimated 0.4 episodes of clinical malaria per person in Zambia each year; meaning that the average household of six persons can expect about 2.4 cases of malaria each year. Even when not clinically ill, many individuals are not free of the malaria parasite. Many go about their daily lives with high levels of P. Falciparum continually in the blood.

Repeated sickness from clinical malaria, high rates of death, blood parasite infections, and anaemia cause tremendous suffering to millions each year and their households bear the burden of health expenditures as well as substantial losses of productivity and Income.

Personal expenditures caused by malaria include money spent on insecticide-treated mosquito nets, clinic fees, anti-malarial drugs, and burials. Public expenditures include government spending on health care facilities and staff, publicly managed vector control (such as IRS), education, and research. In countries with a high prevalence of malaria, the disease may account for as much as 40% of public health expenditures, 30% to 50% of inpatient admissions and up

to 50% of outpatient visits (WHO Fact Sheet, 2003).

Repeated malaria infections, caring for a sick relative and malaria-related anemia result in the loss of workdays. Individuals who are tired or sick much of the time are unable to work fully whether the work is at home or in the workplace. Lowered productivity, in turn, results in reduced income or fewer crops for consumption or sale. Thus, potential earnings and household food security are reduced due to frequent illness and malaria deaths.

Repeated malaria infections and anemia among children have a negative impact on schooling resulting from attention deficits and absenteeism. As a result, children may have a difficult time passing their exams or moving to another grade, which may lead to them dropping out of school altogether.

Like any industry, the health sector's productivity declines when its employees are sick. Additionally, the increasing rates of malaria place an increasing burden on health sector resources. When malaria morbidity and mortality is multiplied by related costs, the impact on the health sector and the nation is enormous.

Malaria not only negatively impacts the wealth of a country's residents but it is also a major constraint to economic development. Annual economic growth in countries with high malaria transmission has always been lower than in countries without malaria. The prosperity gap between countries with malaria and countries without malaria is becoming wider with every passing year (Depoortere, E et al 2004).

Map 1.0.0: Map of Zambia

Source: Davies, 1971 *Zambia in Maps*. London.

malaria in line with the global Roll Back Malaria goal of reducing the malaria burden by half by the year 2010.

1.1.14 Core NMCC activities include:

Improving access to prompt and effective treatment through disease recognition, treatment with appropriate drug (Fansidar and Coartem), and compliance with multi-dose therapies.

1. Reducing the burden of malaria in pregnancy through provision of intermittent preventive therapy (IPT), use of insecticide treated mosquito nets (ITN s) and providing services to reduce anemia
2. Increasing access to and use of ITN s and insecticide tablets to retreat the nets
3. Conducting indoor residual spraying in areas where nets are not being distributed.
4. Increasing awareness through information, education and communication (IEC) strategies.
5. Monitoring and evaluation, operational research.
6. Providing overall strategic management of national malaria control activities and partner coordination.

1.1.15 Information, Education and Communication (IEC)

Information, Education and Communication (lEC), sometimes referred to as Behavioural Change Communication (BCC), is an interactive process with communities to develop tailored messages and approaches using a variety of communication channels to develop positive behaviours to promote and sustain individual, community and societal behaviour change and maintain appropriate behaviour.

IEC is a principal intervention in the national malaria control strategy in Zambia. It provides a strategic guide for identifying priorities, thereby facilitates the realization of targets and goals. Its primary goal is to facilitate positive behaviour change and capacity building through the provision of correct and relevant information to empower people for more effective decision-making in health.

IEC/BCC seeks to strengthen all the strategic components of the malaria control programme by supporting the delivery of cost-effective interventions like case management improvement, Integrated Vector Management and programme management.

In order to achieve success in the implementation of key strategies there is need to implement an effective communication strategy in malaria control and prevention. The IEC/BCC Unit is involved in the following activities:

1. Design and development of IEC materials (such as posters, brochures, flyers)
2. Pre-testing of materials
3. Distribution of materials (such as T-shirts, calendars, etc) to districts. Other activities that the Unit coordinates include:
4. Commemoration of Africa Malaria Day, SADC Malaria Week, Child Health

Week activities

5. Facilitate accreditation of foreign journalists
6. Coordinate the Malaria Media Network
7. Act as Secretariat for the National Malaria IEC Working Group
8. Orient drama groups on various malaria issues

1.1.16 Preventing malaria

Preventing malaria is a cornerstone of malaria control activities and is an NMCC priority. Several malaria prevention strategies are currently recommended and implemented in Zambia. Under the umbrella of integrated vector management (IVM), the main transmission prevention strategies are use of insecticide-treated net (ITNs) and indoor residual spraying (IRS). For the prevention of malaria during pregnancy, both use of ITNs and intermittent preventive treatment (IPT) are promoted. This section describes in more detail the NMCC methods and strategies for malaria prevention.

1.1.17 Curing Malaria

Timeliness and quality of treatment have major impacts on determining whether those suffering from malaria shall recover or not, and on the duration of the illness. NMCC is aware that prolonged illness deprives the nation and households of much-needed income and productivity, while also increasing health care costs. Death not only causes emotional pain, but also loss of skilled labour and increased government and household expenditures. To avoid these economic losses, the Ministry of Health, through the NMCC, has invested significant resources in improving malaria treatment as the disease is the highest cause of death in the country.

1.1.18 Monitoring and evaluation

Monitoring and evaluation of the scale up of malaria interventions and their associated impact on malaria burden is essential for understanding progress, successes and challenges in national malaria control efforts. Following the ambitious targets set in the National Malaria Strategic Plan 2006-2011, the RBM partnership in Zambia developed the accompanying National Malaria M&E Plan

to coordinate partner malaria M&E and to define the essential M&E roles necessary for understanding progress in attaining the national targets. The National M&E Plan is a living document that presents key objectives for putting in place an effective system for measurement, performance monitoring and evaluation.

Sound monitoring and evaluation of malaria control efforts at the country level is critical if the malaria community is to demonstrate progress in achieving outcomes and impact. This will require that the basic health information systems are strengthened and that adequate capacity is developed for collecting, analyzing, and disseminating coverage and impact data. In addition, it requires establishing a clear understanding of programmatic implications of implementing effective malaria control through operations research.

The goal of the national monitoring and evaluation system for malaria control in Zambia is to provide reliable information on progress in controlling malaria. A range of data sources, highlighted in the figure below, can be used to inform the monitoring and evaluation of malaria control programmes.

1.1.19 Data Sources for Monitoring and Evaluation

The primary sources of information for monitoring and evaluation come from routine information sources, periodic surveys and research. Routine information reported through the national Health Management Information System (HMIS), as well as programmatic monitoring, are necessary for basic performance monitoring in the delivery of malaria control services. For evaluating national programme efforts, periodic surveys including both household and facility based measurement are necessary to understanding the population-based coverage of interventions in light of multiple partner contributions, including those delivered at the household

and facility levels. Surveys also provide a more rigorous method for evaluating the impact in the presence of interventions, especially when conducted successively. Operational and other research inform such issues as the efficacy of interventions tools and appropriate methods of delivery.

1.2.0. Statement of the Problem

Malaria is a major public health problem in Zambia, accounting for 36% of all outpatient attendances and 48% of cases among children under five years of age (HMIS, 2004). The National Malaria Control Centre (NMCC) estimates that malaria is responsible for nearly 4.3 million clinical cases and an estimated 50,000 deaths per year, including up to 20% of maternal mortality. Malaria's economic impact in Zambia has not yet been quantified, but is likely substantial, with regional estimates suggesting a loss of 1.5% GDP growth annually (*National Malaria Control Programme, Global Fund Action Plan, 2002/4*).

Malaria incidence rates in Zambia tripled over the last three decades, from 121/1000 in 1976 to 428/1000 in 2003. Many factors have led to this increase, including the spread of drug resistance, reduced vector control, decreased access to health care, HIV, and poverty.

Malaria programme coverage has increased substantially across the country from 2000 to 2005. However, current coverage levels remain considerably under the targeted 60% levels established in the previous plan and far below the levels (60% coverage) at which major impact of the interventions on malaria burden would be expected.

In 2004, total malaria incidence dropped to 383/1000 and the total number of reported under-five deaths also dropped to its lowest level in six years. It is too early to claim success, but by all process indicators, and these beginning changes in the impact indicators, Zambia is moving in the right direction.

Malaria poses great challenges to programme implementers especially those in the communication field. Malaria is now the second leading cause of death in Zambia and accounts for 20% and 40% maternal and infant mortality respectively making pregnant women and children under five most vulnerable to malaria. The chronically ill are equally at risk as their immune system becomes compromised (*Annual Health Statistical Bulletin: 2005*).

Other challenges include the rise in resistance to most common anti-malarials, Chloroquine (CQ) and Sulphadoxine-Pyrimethamine (SP) commonly known as fansidar. Evidence from In-vivo drug efficacy monitoring clearly indicated treatment failures to CQ and SP have reached well over the World Health Organisation (WHO) thresholds for drug policy change which has now been revised to adopt the use of Artemisinin-based Combination Therapy (ACTs), Coartem.

Critical to the successful implementation of malaria prevention and control intervention, there are issues of compliance to the new treatment regimen, consistent use of ITNs, confidence in the Indoor Residual Spraying programmes that all require reinforcement with behavioural change messages. These messages are targeted at both the service providers and the community so as to make the patient-provider interaction more effective (*National Health Policies and Strategies: 2003).*

1.3.0 Rationale

Malaria remains a leading cause of morbidity, mortality and non-fatal disability in Zambia, especially among children, pregnant women and the poor. The disease burden caused by malaria in Zambia has grown steadily over the recent decades. Malaria is endemic in most parts of Zambia although rural areas and poor urban cities tend to bear a disproportionate share of malaria transmission and burden. Estimates based on the Health Information System (HIS) suggest that malaria incidence increased from 121.5 per 1,000 in 1976 to 429.3 per 1000 in 2003 *(National malaria situation analysis 2000).*

Recent statistics show that in 2005 some 3.5 million malaria cases were attended to at public health facilities. In the same year, malaria accounted for 23% of all deaths occurring at hospitals, making it the leading cause of death in the country. Malaria, especially in its severe form, affects people in more ways than these metrics can measure. For example, malaria is known to impair the general immunity of children, leaving them susceptible to other causes of illness and death. Malaria also affects the cognitive ability of individuals' .The difficulties with the validity of these numbers notwithstanding, malaria is still considered to be a major health problem that affects the widest section of the Zambian population. However recent statistics show that in 2006, 4,978,458 malaria cases were reported, with an incidence of 412 per 1,000 population. A remarkable reduction was achieved in 2007 with 4,442,518 reported malaria cases, with an incidence of 358 per 1,000 population (Health Management Information System [HMIS]) (*National Health*

Strategic Plan (NHSP):2003).

Good information lays the foundation for successful Behaviour Change and Communication (BCC) and Advocacy. Without credible research that documents the severity of the problem and effectiveness of the proposed solution, it is difficult to sustain BCC campaigns.

This research conducted at NMCC evaluated the impact of IEC materials to determine the level of knowledge of both service providers and members of the community, assess attitudes towards certain malaria interventions, and practices in terms of treatment and prevention of malaria. The study however could not go further to look at the health seeking behaviour of clients and their sources of information because this involves carrying out a countrywide research according to ministry of health standards.

The results are intended to feed into the design and development process of IEC materials to ensure both groups get appropriate and effective information that has an impact and contribute to the attainment of the broader goal of the Ministry of Health: to facilitate equity of access to quality assured, and cost-effective malaria prevention and control interventions close to the household.

1.4.0 Objectives of the Study

The Communications strategy evaluation is a moderate process to understand how the NMCC has used information to develop an effective and inclusive national malaria communication strategy. The evaluation was carried out between April and May 2008, in Lusaka, the urban district of Lusaka Province at the National Malaria Control Centre.

The province has an estimated population of 1 599973 people (Central Statistical Office, 1999) most of whom live in the urbanised part of Lusaka

The main purposes were to assess:

1. Institutional capacity of NMCC to develop, distribute, and evaluate malaria information.
2. The evaluation status of existing malaria and health communications programmes.
3. Evidence of Malaria communication programmes
4. Strategic fit of NMCC communication objectives at national level
5. The gaps and opportunities in terms of capacity, services, information needs, methodological approaches and communication tools
6. The role of malaria information including, means of communication used, media analysis and audience preferences.

CHAPTER TWO

2.0.0 Conceptual and Theoretical Framework

This chapter examines the theories of communication relevant to combating malaria. The main concepts used which require definition are communication, mass communication, development, participatory social change campaign, diffusion of innovation theory and IEC/BCC.

These were used in the report to relate to the researchers experiences and observations during the time in the field.

The theories and concepts explain why certain or particular communication strategies used in malaria control and prevention messages might succeed or fail in the communities where they are applied.

2.1.0 Communication

Communication is the process of exchanging information and ideas. An active process, it involves encoding, transmitting, and decoding intended messages. There are many means of communicating and many different language systems. Speech and language are only a portion of communication. Other aspects of communication may enhance or even eclipse the linguistic code. These aspects are paralinguistic, nonlinguistic, and metalinguistic. Paralinguistic mechanisms signal attitude or emotion and include intonation, stress, rate of delivery, and pause or hesitation. Nonlinguistic clues include gestures, body posture, facial expression, eye contact, head and body movement, and physical distance or proxemics. Metalinquistic cues signal the status of communication based on our intuitions

about the acceptability of utterances. In other words, metalinguistic skills enable us to talk about language, analyze it, think about it, separate it from context, and judge it.

According to Fotheringham "communication is a process involving the selection, production, and transmission of signs in such a way as to help a receiver perceive a meaning similar to that in the mind of the communicator". (Fotheringham, 1966:267) while Bradley calls it "a process, a series of progressive and interdependent steps leading to the attainment of an end, in speech the end being the communication of some specific meaning from one person to another" (Bradley, 1974: 123).

Some authors have said communication occurs when "humans manipulate symbols to stimulate meaning in other humans" (Infant, Rancer and Womack 1997:8). It is important to note from here that for communication to take place, the intended meaning by the sender should be correctly deciphered by the receiver of the message. However the roles of sender and receiver interchange depending on who is talking and who is listening at the time.

This therefore means that if any person or organisation is going to communicate with other people about any kind of development or to put across useful information, the intended audience should get the correct information and get the correct meaning.

2.1.1 Interpersonal Communication

One way of defining interpersonal communication is to compare it to other forms of communication. In so doing, we would examine how many people are involved,

how physically close they are to one another, how many sensory channels are used, and the feedback provided. Interpersonal communication differs from other forms of communication in that there are few participants involved, the interactants are in close physical proximity to each other, there are many sensory channels used, and feedback is immediate (Davies, Steven, 1979).

We have many different relationships with people. Some researchers such as Melkote and others say that our definition of interpersonal communication must account for these differences. These researchers say that interacting with a sales clerk in a store is different than the relationship we have with our friends and family members (Gulmulko, Stanslav, 1971). Thus, some researchers have proposed an alternative way of defining interpersonal communication. This is called the developmental view (Infant, Rancer and Womack 1997). From this view, interpersonal communication is defined as communication that occurs between people who have known each other for some time. Importantly, these people view each other as unique individuals, not as people who are simply acting out social situations.

Interpersonal communication can be vital in the process of communicating malaria messages. According to Melkote "interpersonal communication is more likely to cause attitude change" (Melkote, 1991:29).

2.1.2 Group Communication

Different researchers define a group in different ways. For researchers like White a group is defined as having at least three and no more than twelve or fifteen members. A group needs to have at least three members; otherwise it would simply be a dyad. With three members, coalitions can be formed and some kind of

organization is present. Too large of a group (more than twelve or fifteen members) inhibits the group members' ability to communicate with everyone else in the group (White, 1994:40).

A group's members must be able to communicate freely and openly with all of the other members of the group. Groups will develop norms about discussion and group members will develop roles which will affect the group's interaction.

A group must have a common purpose or goal and they must work together to achieve that goal. The goal brings the group together and holds it together through conflict and tension.

"The advantage is that people are free to get clarification on matters they are not very clear about. Small group communication can take the form of meeting, a working lunch or breakfasted" (White, 1994:40).

2.1.3 Mass Communication

Mass communication occurs when a small number of people send messages to a large anonymous and usually heterogeneous audience through the use of specialized communication media.

The units of analysis for mass communication are the messages, the mediums, and the audience.

Mass Communication represents the creation and sending of a homogeneous

message to a large heterogeneous audience through the media.

In a country like ours, mass communication plays a vital role in creating people's awareness about policies and programmes of development. It helps in motivating them to be active partners in the nation-building endeavour. A skilful synthesis between traditional and folk forms of communication on the one hand and modern audio-visual media including Satellite Communication on the other is being attempted.

2.2.0 Approaches to Communication

2.2.1 Conceptual Framework

Development communication is the integration of strategic communication in development projects.

Strategic communication is a powerful tool that can improve the chances of success of development projects. It strives for behaviour change not just information dissemination, education, or awareness-raising. While the latter are necessary ingredients of communication, they are not sufficient for getting people to change long-established practices or behaviours.

All development requires some kind of behavior change on the part of stakeholders. Research shows that changing knowledge and attitudes does not necessarily translate into behavior change. In order to effect behaviour change, it is necessary to understand why people do what they do and understand the barriers to change or adopting new practices. It is not enough to raise awareness of the

"benefits", it is critical to understand peoples' barriers or the "costs" they perceive such a change would entail (Steven 1979:312).

Meaningful communication is about getting information out to particular audiences, listening to their feedback, and responding appropriately. Whether discussing a development project or broader economic reforms - from health, education or rural development to private sector development, financial reform or judicial reform - the idea is to build consensus through raising public understanding and generating well-informed dialogue among stakeholders.

Well-conceived, professionally implemented communication programs that are tied directly to reform efforts or development project objectives that bring understanding of local political, social and cultural realities to bear in the design of development programs can make the difference between a project's success and failure.

2.3.0 Importance of Communication

According to Infate et al, (1997:23) "it is important to communicate because it helps us create cooperation and interaction with one another, promote democracy, acquire information and entertain ourselves."

Communication is one of the basic functions of management in any organization and its importance can hardly be overemphasized. It is a process of transmitting information, ideas, thoughts, opinions and plans between various parts of an organization.

It is not possible to have human relations without communication. However, good and effective communication is required not only for good human relations but also for good and successful business.

With effective communication, you can maintain a good human relation in the organization and by encouraging ideas or suggestions from employees or workers and implementing them whenever possible, you can also increase production at low cost.

Communication is either oral or written. In oral communication, listeners can make out what the speaker is trying to say, but in written communication, text matter in the message is a reflection of your thinking. So, written communication or message should be clear, purposeful and concise with correct words, to avoid any misinterpretation of your message. Written communications "provides a permanent record for future use and it also gives an opportunity to employees to put up their comments or suggestions in writing" (Melkote 1991:236).

2.4.0 Development communication

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long-established practices or behaviors.

Development Communications

Development Communications is a specialist field of communications that has been emergent over the last decade. It is characterised by an interdisciplinary approach and is a fusion of contemporary social, anthropological, developmental, communication and marketing theory and practice. Development Communications puts knowledge and choice at the centre of the agenda and is distinguished by:

People's rights to a voice

People's rights to information

Freedom of all communication channels

Participation

Ownership of knowledge

Accountability of governments and societies

People's improved ability to put informed choices into practice

(Kent Sidel, 1993).

All development requires some kind of behaviour change on the part of stakeholders. Research shows that changing knowledge and attitudes does not necessarily translate into behaviour change. In order to effect behaviour change, it is necessary to understand why people do what they do and understand the barriers to change or adopting new practices. It is not enough to raise awareness of the "benefits", it is critical to understand peoples' barriers or the "costs" they perceive such a change would entail.

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Well-conceived, professionally implemented communication programs that are tied directly to reform efforts or development project objectives that bring understanding of local political, social and cultural realities to bear in the design of development programs can make the difference between a project's success and failure.

2.4.1 Economic development is a measure of how wealthy a country is - and of how this wealth is generated (for example agriculture is considered less economically advanced than banking).

2.4.2 Human development measures the extent to which people have access to wealth, jobs, knowledge, nutrition, health, leisure and safety - as well as political and cultural freedom. The more material elements in this list, such as wealth and nutrition, are often grouped together under the heading standard of living. The less material elements, such as health and leisure, are often referred to as quality of life.

2.5.0 Review of Theories

2.5.1 Definition of Diffusion of Innovation

In his comprehensive book *Diffusion of Innovation*, Everett Rogers defines diffusion as the process by which an innovation is communicated through certain channels over time among the members of a social system. Rogers' definition

contains four elements that are present in the diffusion of innovation process. The four main elements are:

(1) Innovation - an idea, practices, or objects that is perceived as knew by an individual or other unit of adoption.

(2) Communication channels - the means by which messages get from one individual to another.

(3) Time - the three time factors are:

(a) innovation-decision process

(b) relative time with which an innovation is adopted by an individual or group.

(c) innovation's rate of adoption.

(4) Social system - a set of interrelated units that are engaged in joint problem solving to accomplish a common goal.

2.5.2 Background on Diffusion of Innovation

The original diffusion research was done as early as 1903 by the French sociologist Gabriel Tarde who plotted the original S-shaped diffusion curve. Tardes' 1903 S-shaped curve is of current importance because "most innovations have an S-shaped rate of adoption" (Rogers, 1983:126). The variance lies in the slope of the "S". Some new innovations diffuse rapidly creating a steep S-curve; other innovations have a slower rate of adoption, creating a more gradual slope of the S-curve. The rate of adoption, or diffusion rate has become an important area of research to sociologists, and more specifically, to advertisers.

In the 1940's, two sociologists, Bryce Ryan and Neal Gross published their seminal study of the diffusion of hybrid seed among Iowa farmers" renewing interest in the diffusion of innovation S-curve. The now infamous hybrid-corn study resulted in a

Although additional names and titles for the adopters of an innovation have been used in other research studies, Everett Rogers labels for the five adopter categories are the preferred or standard for the industry. Moreover, the specific characteristics that Rogers' identifies for each adopter category is of significance to communicators interested in creating an integrated marketing plan targeting a specific audience.

2.5.3 The Adoption Process

In his book *Diffusion of Innovations*, Rogers defines the diffusion process as one "which is the spread of a new idea from its source of invention or creation to its ultimate users or adopters". Rogers differentiates the adoption process from the diffusion process in that the diffusion process occurs within society, as a group process; whereas, the adoption process is pertains to an individual. Rogers defines says that "the adoption process as the mental process through which an individual passes from first hearing about an innovation to final adoption".

2.5.4 Five Stages of Adoption

Rogers breaks the adoption process down into five stages. Although, more or fewer stages may exist, Rogers says that "at the present time there seem to be five main functions". The five stages are:

(1) Awareness,

(2) Interest,

(3) Evaluation,

(4) Trial, and

(5) Adoption.

In the awareness stage "the individual is exposed to the innovation but lacks complete information about it". At the interest or information stage "the individual

ıe relatively later adopters had twice as many discountenances as the earlier ıopters. Previous researchers had assumed that later adopters were relatively less ıovative because they did not adopt or were relatively slow to adopt innovations. ıis evidence suggests the later adopters may adopt, but then discontinue at a later ›int in time.

›gers identifies two types of discontinuance:

(1) Disenchantment discontinuance - a decision to reject an idea as a result of dissatisfaction with it's performance, and

(2) Replacement discontinuance - a decision to reject an idea in order to adopt a better idea.

.5.6 The Innovation - Decision Process

›gers defines the innovation-decision process as the "process through which an dividual (or other decision making unit such as a group, society, economy, or ›untry) passes through the innovation-decision process".

here are five stages in the Innovation-Decision Process:

(1) From first knowledge of innovation,

(2) To forming an attitude toward the innovation,

(3) To a decision to adopt or reject,

(4) To implementation of the new idea,

(5) To confirmation of this decision.

It should be noted that prior conditions affect the innovation-decision process. Prior conditions such as:

(1) Previous practice,

(2) Felt needs/problems,

(3) Innovativeness, and

(4) Norms of the social systems.

The first stage of the innovation-decision process entails seeking one or more of three types of knowledge about the innovation. Rogers describes these as:

1. Awareness knowledge is information that an innovation exists.
2. How-to-knowledge consists of the information necessary to use an innovation properly, and
3. Principles knowledge consists of information dealing with the functioning principles underlying how the innovation works.

Rogers states that awareness and knowledge of an innovation can be made most efficiently through mass media.

The following chart identifies seven characteristics consistently found in `early knowers'. These characteristics should be taken into consideration when targeting the early or late knower segment of the population.

1. Earlier knowers of an innovation have more formal education than later knowers.

2. Earlier knowers of an innovation have higher socioeconomic status than late knowers.

3. Earlier knowers of an innovation have more exposure to mass media channels of communication than later knowers.

4. Earlier knowers of an innovation have more exposure to interpersonal channels than later knowers.

5. Earlier knowers of an innovation have more change agent contact than later knowers.

6. Earlier knowers of an innovation have more social participation than later knowers.

7. Earlier knowers of an innovation have more cosmopolite than later knowers.

2.5.7 Consequences of Innovations

Rogers identifies three consequences or changes:

(1) Desirable versus undesirable consequences

(2) Direct versus indirect consequences, and

(3) Anticipated versus unanticipated consequences.

For the most part, the world of advertising is concerned with the diffusion of innovation process in terms of how such research studies can facilitate product adoption and therefore market segmentation. But it should be mentioned that additional research exists on the diffusion of innovation theory in other scientific disciplines, such as economic development and in the technological sector.

2.6.0 The Relevance of the Theory to the Study

Rogers's theory is of great importance to this study because it helps us to understand the processes that people go through before they can adapt to new messages about malaria.

In evaluating the communication strategies used by NMCC to combat malaria in Zambia, it has become apparent that the progress that has been achieved over the years, while being as a result of proper planning in terms of what messages to use, the use of appropriate channels, and use of the right people to endorse NMCC campaigns, its not possible to attribute this progress to the communication

strategies used by NMCC. This is because NMCC has not yet conducted a nation wide research to establish the effectiveness of their communication strategies.

It is important to note that in the early days of the introduction of the Roll Back Malaria program in Zambia, the urban dwellers embraced the interventions more quickly and willingly than the rural dwellers. A report by the ministry of health in 1999 indicates that a lot of people in rural areas rejected mosquito nets for example claiming that they suffocate (MoH report #32 of 1999). According to Rogers this rejection should be anticipated and communication planners should be able to know that initial rejection of early massages does not render them ineffective.

According the information contained in a cross sectional research done by NMCC, it was noted that in the fight against malaria, discontinuance has not mainly been because people are unhappy with the product but rather because they can not either afford the products or the use the products for other "urgent" needs. The insect side treated mosquito nets for example have been used as fishing nets in some parts of the country rather than using them as protection against mosquito bites.

The knowledge stage of the innovation-decision process is of great value to people involved in message development and dissemination because at this vulnerable stage of the innovation-decision process, communicators are able to create an impressionable impact on their target audience. Communicators should focus their efforts on creating awareness and knowledge when promoting a new product or innovation. The IEC section of the NMCC and the Health Information Services of the ministry of health have dedicated their efforts in ensuring that awareness is created among communities about malaria. This process is of great importance

because behaviour change can only come about when there is a constant flow of reinforcing messages.

CHAPTER THREE

3.0.0 Literature Review

3.1.0 The Global Malaria Situation

Studies have shown that approximately 300 million people worldwide are affected by malaria and between 1million and 1.5 million people die from it every year. Previously extremely widespread, malaria is now mainly confined to Africa, Asia and Latin America. The problems of controlling malaria in these countries are aggravated by inadequate health structures and poor socioeconomic conditions. The situation has become even more complex over the last few years with the increase in resistance to the drugs normally used to combat the parasite that causes the disease (*World Malaria Report, 2005).*

Malaria is caused by protozoan parasites of the genus *Plasmodium.* Four species of *Plasmodium* can produce the disease in its various forms:

1. Plasmodium falciparum
2. Plasmodium vivax
3. Plasmodium ovale
4. Plasmodium malaria

P. falciparum is the most widespread and dangerous of the four: untreated it can be deadly. Malaria parasites are transmitted from one person to another by the female anopheline mosquito. The males do not transmit the disease as they feed only on plant juices. There are about 380 species of anopheline mosquito, but only 60 or so are able to transmit the parasite. Like all other mosquitos, the anophelines

breed in water, each species having its preferred breeding grounds, feeding patterns and resting place. Their sensitivity to insecticides is also highly variable. Plasmodium develops in the gut of the mosquito and is passed on in the saliva of an infected insect each time it takes a new blood meal. The parasites are then carried by the blood in the victim's liver where they invade the cells and multiply sometimes leading to fatal cerebral malaria (Hamer DH, Sipilanyambe N. 2004a).

After 9-16 days they return to the blood and penetrate the red cells, where they multiply again, progressively breaking down the red cells. This induces bouts of fever and anaemia in the infected individual. In cerebral malaria, the infected red cells obstruct the blood vessels in the brain. Other vital organs can also be damaged often leading to the death of the patient.

Malaria is diagnosed by the clinical symptoms and microscopic examination of the blood. It can normally be cured by antimalarial drugs. The symptoms, fever, shivering, pain in the joints and headache, quickly disappear once the parasite is killed. In certain regions, however, the parasites have developed resistance to certain antimalarial drugs, particularly chloroquine. Patients in these areas require treatment with other more expensive drugs. Cases of severe disease including cerebral malaria require hospital care.

In endemic regions, where transmission is high, people are continuously infected so that they gradually develop immunity to the disease. Until they have acquired such immunity, children remain highly vulnerable. Pregnant women are also highly susceptible since the natural defence mechanisms are reduced during pregnancy. Malaria has been known since time immemorial, but it was centuries before the true causes were understood. Previously, it was thought that "miasma"

Eighty per cent of the cases occur in tropical Africa, where malaria accounts for 10% to 30% of all hospital admissions and is responsible for 15% to 25% of all deaths of children under the age of five. Around 800,000 children under the age of five die from malaria every year, making this disease one of the major causes of infant and juvenile mortality. Pregnant women are also at risk since the disease is responsible for a substantial number of miscarriages and low birth weight babies. Malaria thus has social consequences and is a heavy burden on economic development. It is estimated that a single bout of malaria costs a sum equivalent to over 10 working days in Africa. The cost of treatment is between $USO.08 and $US5.30 according to the type of drugs prescribed as determined by local drug resistance. In 1987, the total "cost" of malaria - health care, treatment, lost production, etc. was estimated to be $US800 million for tropical Africa and this figure is currently estimated to be more than $US1, 800 million.

The distribution of malaria varies greatly from country to country and within the countries themselves. In 1990, 75% of all recorded cases outside of Africa were concentrated in nine countries (*World Malaria Report 2005).*

The significance of malaria as a health problem is increasing in many parts of the world. Epidemics are even occurring around traditionally endemic zones in areas where transmission had been eliminated. These outbreaks are generally associated with deteriorating social and economic conditions, and main victims are underprivileged rural populations. Demographic, economic and political pressures compel entire populations (seasonal workers, nomadic tribes and farmers migrating to newly-developed urban areas or new agricultural and economic developments) to leave malaria free areas and move into endemic zones. People are non-immune

are at high risk of severe disease. Unfortunately, these population movements and the intensive urbanization are not always accompanied by adequate development of sanitation and health care. In many areas conflict, economic crises and administrative disorganization can result in the disruption of health services. The absence of adequate health services frequently results in recourse to self-administration of drugs often with incomplete treatment. This is a major factor in the increase in resistance of the parasites to previously effective drugs.

In all situations, experts have concluded that control programmes should be based on four objectives:

1. Provision of early diagnosis and prompt treatment to all people at risk
2. Selective application of sustainable preventive measures, including vector control adapted to the local situations.
3. An immediate, vigorous and wide-scale response to epidemics.
4. The development of reliable information on infection risk, living conditions of concerned populations, and vectors.

Malaria is complex but it is a curable and preventable disease. Lives can be saved if the disease is detected early and adequately treated. It is known what action is necessary to prevent the disease and to avoid or contain epidemics and other critical situations. The technology to prevent, monitor, diagnose and treat malaria exists. It needs to be adapted to local conditions and to be applied through local and national malaria control programmes.

3.2.0 The challenges of communicating malaria information.

Strategically designed communication can play a key role in taking RBM to scale. Communication strategies are generally called for whenever there is a need to change awareness, knowledge, attitudes, social norms, skills, or expectations. Certainly, the RBM strategies call for all of these (Barnes, K. I. Et al 2005).

Experience in Africa, where malaria communication has typically lagged behind other RBM efforts, highlights communication challenges at individual, family, community, health delivery and policy levels. This study is a modesty contribution to this literature.

3.2.1 Ineffective advocacy and communication skills among Malaria Control Programmes

Although malaria programmes are generally well funded, they are sometimes buried deep inside Ministry of Health bureaucracies, with little direct influence over policies and strategic decisions, which could improve the control of malaria (e.g. home management, prepackaged drugs, treatment guidelines, ITNs, IPT, etc.) (Breman et al, 2001).

3.2.2 Often conflicting information and advice about malaria provided through other health programmes

Malaria communication efforts need to be integrated with reproductive, maternal and child health programmes, with environmental, school, and community health programmes, and with commercial manufacturers and importers of nets, insecticides and drugs. Key messages, information, and communication strategies to support malaria initiatives, policies, and guidelines are best developed and implemented in partnership with a variety of public and private stakeholders.

Unfortunately, true collaboration and partnership is often hindered by competition and mistrust (Brieger, 2004).

3.2.4 Low status and poor appreciation for health communication among malaria experts

Most Malaria Control Programmes (MCPs) are managed by doctors with little or no training in communication. Usually, the health educators posted to MCPs are not doctors and are considered junior to other medical staff. As a result, health educators are often too low in status to effectively coordinate and mobilize support for national malaria communication Strategies (Gallup, et al 2005).

3.2.5 Strategic communication requires time and resource allocation

Often, communication planning begins after other malaria interventions are advanced. In many cases, Malaria Control Programmes budget inadequate time and financial, human, and material resources for malaria communication (Marsh, et al,2005).

3.2.6 Malaria communication is rarely evaluated

Very few studies have looked at the impact of various malaria communication strategies. Thus, there is little evidence showing that communication can effectively influence malaria practices. There is also little known about the relative effectiveness of various communication strategies on malaria control (Rietveld, 2002).

3.3.0 The National Malaria Burden

Malaria is endemic throughout Zambia, which has extremely high rates of malaria related morbidity and mortality. More than 70,000 Zambian children under the age of five died in 2001, and malaria caused at least a quarter of these deaths.

As treatment failure rates with chloroquine have risen from zero in 1980 to close to 40 percent in 2000, the government of Zambia has become one of the first countries in Africa to adopt artemisinin-based combination therapy in its national treatment protocols. This treatment has been demonstrated as effective in situations of high resistance and has been shown to significantly reduce malaria-related mortality (*Annual health statistics Bulletin: 2003*).

While malaria remains a major public health and development challenge in Zambia, a unique opportunity exists to scale up malaria-related interventions, strengthen systems, and make a major effort to Roll Back Malaria in Zambia. Malaria currently accounts for nearly four million clinically diagnosed cases per year, 36% of hospitalisations and outpatient department visits, and from one previous study at University Teaching Hospital, up to 20% of maternal mortality. In addition to the direct health impact of malaria, there is also a severe social and economic burden on communities and country as a whole, but especially on the poorest among us, and those vulnerable individuals and households who are also trying to cope with the HIV / AIDS pandemic. Thus malaria control is addressed, not as a separate, vertical, disease-specific intervention but as part of a health systems strengthening effort to provide holistic services in all facets of care, and as part of a larger community development effort. Through the National Malaria Strategic Plan 2006-2011, the Government of Zambia and many Roll Back Malaria Partners are committed to increasing coverage of key malaria control interventions and reducing the burden of malaria throughout the country (*National Strategic Health Plan:2006).*

In Zambia, 95% of malaria cases are caused by P. falciparum with P. malarie comprising 3% and P. ovale 2%. P. vivax is very rare in Zambia (NMCC, 1999). P. falciparum is the malaria parasite that is most associated with severe malaria.
In order to develop, the malaria parasite must spend part of its life cycle in the human body and part of its life cycle in a mosquito. It is picked up from an infected human host by a mosquito vector. It then develops in the body of the mosquito and is injected by the mosquito into another human being.

Zambia is among the countries in Africa with the highest malaria-related maternal mortality. In controlling malaria in Zambia, one of the strategies that the Ministry of Health and National Malaria Control Centre has adopted through the Anti-malarial Drug Policy is the presumptive treatment of fever with sulpha-Pyrimethamine (SP), known as Fansidar (as the first-line drug replacing chloroquine), and the promotion of efforts to increase its availability at the community level. Nonetheless, during the period that the fieldwork for the 2001-2002 ZDHS was conducted, chloroquine was the national drug of choice. The data on anti-malarial drugs from the 2001-2002 ZD HS depend on accurate reporting of types of drugs taken. It is likely hat some women were not sure of the type of drug they took during pregnancy or gave to their children Generating sound evidence is a priority area for the National Malaria Control Centre (NMCC) because this facilitates implementation of evidence-based health care interventions. This leads to efficiencies in planning and resource utilisation. (CBoH/IHE/UNZA, 2004.)

The NMCC is implementing key strategies, which globally have been found to be effective in combating malaria. It thus becomes necessary to ensure that the progress and impact made by use of such strategies in the Zambian context is assessed and also that new ways of managing malaria are investigated.

Much of the work conducted is very applied in nature, which creates a valuable and practical approach to assessing the malaria control efforts. Many of the study sites fall within the RBM sentinel sites for malaria information system. These districts are representative of the malaria epidemiology, socioeconomic characteristics and geographical diversity.

Each year, priority areas for malaria research are identified and studies are conducted in line with recognised standards for credible research.
The main activities include:

1. Therapeutic assessment of antimalarial drugs
2. Adherence studies
3. Knowledge, attitude and practices assessments of health workers and care
seekers
4. Home management of malaria
5. Economic evaluations in malaria control
6. District research capacity building
7. Local and international university students' supervision for malaria research
8. Vector susceptibility studies
9. RBM malaria surveys
10. Outcomes monitoring of malaria interventions
11. Coordinating the National Malaria Research Working Group

Information is vital and a valid weapon in the fight against Malaria. Information is important to educate and raise awareness of how and why malaria is transmitted,

who is at risk, and what can be done to prevent the spread of the disease.

Communication strategies give guidance to all organisations and individuals involved in malaria prevention and cure activities on how they can communicate to their audiences, and on what they should be communicating.

3.3.1 Malaria Statistics.

Although malaria continues to be the major cause of visitation to health facilities, the national incidence of the disease has been decreasing during the period 2003 to 2005.

A comparison of malaria incidence by provinces shows that malaria incidence for Central, Copperbelt, Eastern, Southern and Western provinces have been decreasing over the past three years. The remaining provinces recorded a fluctuating pattern of malaria incidence during the period 2003 to 2005.

Trend analysis shows that malaria incidence and death rates tripled over the past three decades. The burden of disease has been highest among children under five years of age (up to 40% of the overall infant mortality rates), pregnant women (up to 20% of the overall maternal mortality rate), and among the poor and vulnerable in society. Nationally, 17% of children below five years of age were positive for malaria parasitemia, with 13% suffering from severe anaemia (Malaria Indicator Survey 2006). In addition to its direct health impact, malaria causes a severe social and economic burden on communities, especially on the poorest and most vulnerable individuals and households who are also trying to cope with the HIV/AIDS pandemic. The high morbidity levels have contributed to decreased productivity through absenteeism and lowered output. In 2006, an incidence of 412 per 1,000 population (4,978,458 cases) was reported through the Health Management Information System (HMIS), making malaria one of the top ten

diseases, accounting for 45% of hospitalisations and outpatient department visits with a reported 6,484 institutional deaths per year (Ministry of Health, 2006a). A remarkable reduction in malaria incidence was achieved in 2007, with 4,442,518 reported malaria cases and an incidence of 358 per 1,000 population

Table 1.1 presents data on malaria incidence per 1,000 population and case fatality rates per 1,000 admissions (hospitals only) by age group and province, in 2005. The Table shows that in 2005, malaria incidence was highest in Eastern Province (447 per 1,000 population) followed by North Western Province (439 per 1,000 population). Lusaka Province (i.e. 313 per 1,000 populations) had the lowest incidence of malaria during the same period under review. Overall, malaria incidence was about six times higher in the under five 5 years age group than the age group 5 years and above (Ministry of Health, 2006a).

Table1.0: Malaria Incidence and Case Fatality Rates by age group, Zambia, 2005

Province	Incidence rate per 1,000 population (All health facilities)			Case Fatality rate per 1,00 admission (Hospitals only)		
	Under 5	**Over 5**	**Total**	**Under 5**	**Over 5**	**Total**
Central	1,017	187	331	43	59	50
Copperbelt	960	235	377	30	66	51
Eastern	1,392	213	447	58	84	68
Luapula	1,445	162	407	44	65	51
Lusaka	806	190	313	39	65	50
Northern	1,103	140	331	32	32	32
North-Western	1,353	212	439	20	35	24
Southern	933	198	344	41	69	55
Western	1,375	240	430	21	62	36
Zambia	**1,108**	**197**	**373**	**37**	**63**	**49**

Source: *MoH, HMIS 2005*

The Table also shows that in 2005, Eastern province (68 per 1,000 admissions) had the highest malaria hospital case fatality rate followed by Southern province (55 per 1,000 population). The lowest hospital case fatality rate was in Northern Western Province (24 per 1,000 population).

Overall, hospital case fatality rate was higher for the age group 5 years and above than the age group 5 years and below.

3.3.2 Recent Trends

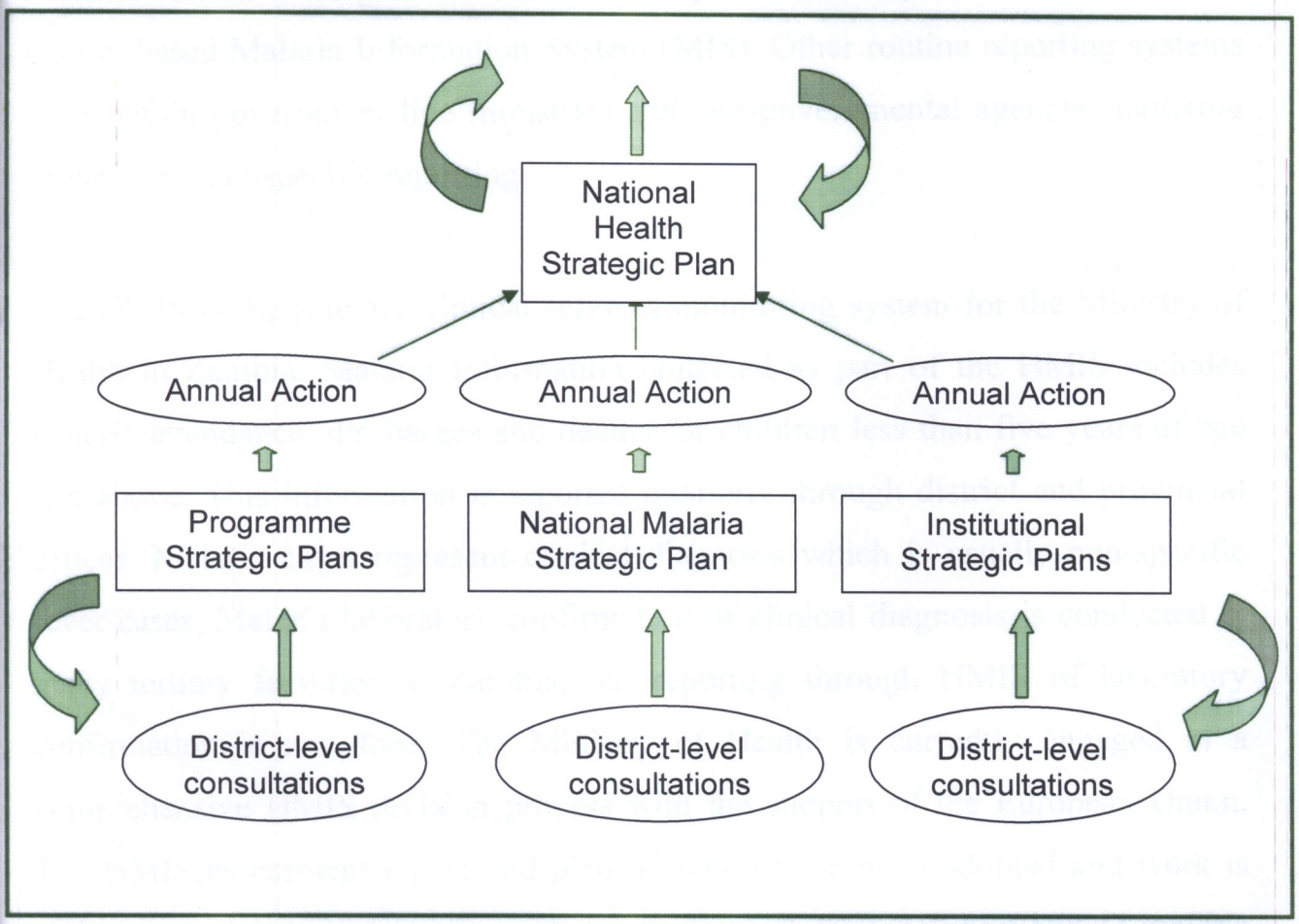
Malaria is the most dangerous parasitic disease in the world. It kills 3,000 children every day and more than one million each year. The majority of these deaths occur among children under five years of age and pregnant women in Africa southern of the Sahara Africa. The clinical disease burden is especially high among these two groups as a result of immature and weakened immunity respectively (WHO, *Abuja Declaration and the Plan of Action2002).*

Prompt delivery of effective anti-malarial drugs during malarial episodes has a major impacts on determining whether those suffering from malaria shall recover or not, and on the duration of the illness. The Zambian government is aware that prolonged illness deprives the nation and households of much-needed income and productivity, while also increasing health care costs. Death not only causes emotional pain, but also loss of skilled labour and increased government and household expenditures. To avoid these economic losses, the Ministry of Health, through the NMCC, has invested significant resources in improving malaria treatment as the disease is the highest cause of death in the country.

In 2004, Zambia changed its policy to artemether-lumafantrine (brand name Coartem for use as first-line treatment for uncomplicated malaria. Coartem is highly effective artemisinin-based combination therapy. This policy change suggests national confidence in its ability to reduce malaria burden rapidly to the extent that shouldering these costs is a reasonable public health decision. In cases of complicated malaria, the recommended drug is quinine. In Zambia,

Demographic and Health Surveys were conducted in 1992, 1996 and most recently in 2001-02 (Central Statistical Office, Zambia Ministry of Health et al. 2002), (Central Statistical Office, Zambia Ministry of Health et al. 1997). These are facilitated through the Central Statistical Office, with additional financial support from the Central Board of Health. The most recent DHS in 2006, included standardized questions on coverage of key interventions including fever treatment among children under five with anti-malarial drugs and possession and use of insecticide-treated nets, as well as all-cause child mortality.

Table 2.0: malaria strategies and implementation levels



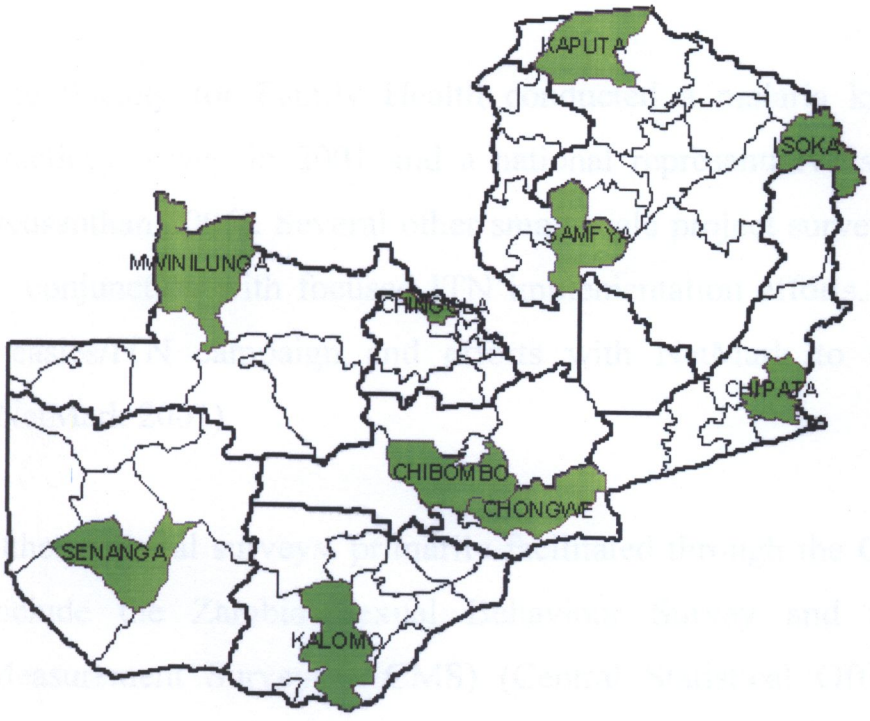
In 2001, a World Health Survey, supported by the World Health Organization, was conducted in Zambia measuring fever prevalence and use of anti-malarial among febrile children under five and coverage of ITNs. The results from this survey are not yet available. In 1999, a UNICEF-supported Multiple Indicator Cluster Survey (MICS), was conducted throughout Zambia measuring fever prevalence and use of anti-malarial among children under five and coverage of ITNs. Both of these efforts were national in scale.

The principle routine reporting systems currently available in Zambia include the national Health Management Information System (HMIS) and the ten sentinel district based Malaria Information System (MIS). Other routine reporting systems exist within government line ministries and non-governmental agencies targeting disease or issue-specific reporting.

The HMIS is the primary clinical services monitoring system for the Ministry of Health in Zambia. Malaria information collected as part of the HMIS includes malaria attendance, discharges and deaths for children less than five years of age and above. This information is reported quarterly through district and provincial offices. Malaria cases represent clinical diagnosis which is usually non-specific fever cases. Malaria laboratory confirmation of clinical diagnosis is conducted in many tertiary facilities in Zambia, but reporting through HMIS of laboratory confirmation is not done. The Ministry of Health is currently engaged in a comprehensive HMIS revision process with the support of the European Union. The HMIS assessment report and plan of action have been adopted and work is underway to incorporate an expanded malaria portfolio for understanding malaria burden and delivery of key malaria control services.

With the support of the World Bank and key malaria M&E stakeholders, a plan for improving district performance monitoring has also been developed in 2006. It is hoped that progress made in this effort will inform the overall HMIS revision for malaria and also guide partners in the planning and availability of key routinely reported malaria information (Ministry of Health 2004b).

Zambia's Malaria Information System (MIS) is currently being used to collect malaria information from the ten sentinel districts, shown on the map below, on a monthly basis. The MIS captures information related to case management, malaria in pregnancy and insecticide treated nets (ITNs).



Source: Davies, 1971 *Zambia in Maps*. London

Map 2.0.0: Map of Zambia 10 malaria sentinel districts

Several other national and subnational survey efforts exist relevant for monitoring coverage malaria interventions. With support from WHO, ZAMBUMP, the University of Zambia and other agencies, two subnational malaria surveys covering community, facility, and district level assessments as well as managerial aspects of malaria control interventions were conducted in 2000 and again in 2004 (Roll Back Malaria Zambia 2001). The original 'baseline' survey was used to provide information of development of the National Strategic Plan 2000-2005. These two efforts focused on the ten sentinel districts identified for the malaria information system. The results from the most recent survey are not yet available.

The Society for Family Health conducted a malaria knowledge attitudes and practices survey in 2001 and a national representative survey in October 2005 (Kusanthan 2006). Several other small scale project surveys have been conducted in conjunction with focused ITN implementation efforts. These include a linked measles/ITN campaign and efforts with NetMark to stimulate ITN markets (NetMark 2001).

Other national surveys, primarily facilitated through the Central Statistics Office, include the Zambia Sexual Behaviour Survey and the Living Conditions Measurement Surveys (LCMS) (Central Statistical Office 2004). These have examined general health conditions such as fever prevalence among survey target groups and are also well suited for assessing coverage of malaria interventions in the future. In particular the LCMSs are useful in evaluating economic status and wellbeing of Zambians over time. To date, no comprehensive national household survey effort to understand coverage of malaria interventions and changes in

malaria-specific impact has been conducted. However, both DHS 2001-02 and MICS 1999 assessed all-cause child mortality which are useful for determining the relative impact of malaria interventions on all cause mortality.

An ideal nationally-representative household survey including the core RBM coverage indicators for ITN possession and use, IPT among pregnant women would also include assessments of anaemia among target children and parasite prevalence. This survey forms the basis of the RBM-recommended malaria indicator survey with survey methods and questionnaires already developed. Further this malaria-specific survey should be conducted during peak malaria transmission for optimal results include questions on general malaria knowledge, caregiver patterns recognition of malaria signs and symptoms for evaluating impact of behaviour change communication activities.

3.4.0 The importance of communication in the fight against malaria

There is no single correct formula for strategic communication within the health communication framework. A mix of approaches is needed, linked to evidence and guided by a set of standards. The NMCC has a greater role to play in creating malaria materials that enhance the effective sharing of information between service providers, cooperating partners, community based health organisations and the communities. During the research, the author noted that there is a good linkage between the NMCC, the donor community and cooperating partners likes CHAZ. However, this does not seem to be the case with the end users of the NMCC information and material, the communities. According to their own cross sectional research, NMCC did acknowledge that despite the significant strides that have been made in delivering malaria information and materials, most members of

community still feel malaria messages are still "complicated and in only meant for the elite" (Chanda.P, 2007:9) .

3.5.0 The role of communication in malaria control

To meet the NMCC's targets, communication needs to be fully integrated into the broad spectrum of malaria interventions and not seen as an isolated intervention, an after-thought or add-on. With adequate time and resources, strategically designed communication can play an important role in scaling up prevention and control efforts at the individual/household, community, health delivery, decentralized and national levels.

Malaria communication should be integrated with other health education and communication efforts. Malaria control programmes need to balance malaria-focused and integrated communication approaches. For example, after initial introduction through focused communications, malaria control in pregnancy should become an integral part of reproductive and maternal health communication. Likewise, information and education about home management of malaria in children should become part of Integrated Management of Childhood Illnesses (IMCI) communication.

Communication efforts should be strategically designed from an audience perspective to address the social and contextual environment as well as individual behaviours and knowledge. The coordinated use of interpersonal communication, community mobilization, advocacy and mass media have been effective in a variety of other public health agendas. Integrating strategic communication approaches and service delivery can enhance utilization of services and improve client compliance. In fact, the integration of community based distribution of anti-

malarials and malaria information and education has been documented to reduce under-five mortality by 41% in one Ethiopian programme (Marsh & Kachur, 2002; WHO & UNICEF, 2003).

As with HIV/AIDS, malaria communication will be more effective when a multi-sectoral approach is adopted. Labour, agriculture, education, and gender are all affected by and can play significant roles in malaria control.

Communication is essential to advocacy, communicating policy changes, home based management, improving the quality of health care, creating demand for malaria services and products, changing household practices, and mobilizing communities for malaria control.

Advocating for Malaria Prevention and Control Particularly in the areas of malaria in pregnancy, home management, drug policy, epidemic-preparedness and prevention, there is need in many communities to introduce policies and programs that are technically sound and feasible. In order to do this, it is essential to reach out to policy makers and other influential people and win their active support for NMCC-recommended malaria control strategies. This will require evidence-based and compelling arguments that speak to the interests, concerns and needs of this unique audience.

Effective advocacy among influential individuals and groups can also help address some of the underlying societal and environmental factors that influence individuals' ability to take action, either in terms of prevention or treatment (e.g. exempting ITNs from import taxes; reclassifying anti-malarial drugs so they can be

legally dispensed by patent drug vendors and community based workers; and organizing rotating funds for purchasing ITNs).

Religious, health, political, commercial, traditional and community leaders, through their positions of power and respect, can make malaria a public issue and support recommended prevention and control practices, helping to overcome barriers to adoption, acting as role models, and changing community norms around treatment seeking and prevention. Advocacy efforts can equip these influential individuals with malaria information and create opportunities for them to address their constituencies, whether through mass media or group forums.

Carefully planned advocacy campaigns can help to make malaria control programmes more effective. Through advocacy, the MoH can be convinced to reposition Malaria Control Programmes so they are better able to influence policy, provide effective guidance for malaria control strategies, and monitor and evaluate implementation. Within Malaria Control Programmes, advocacy can convince medical experts of the need for strategic communication, appreciation for the communication process, can improve time and resource allocations for malaria communication and can improve the status of health educators.

3.6.0 Communicating Policy Changes

New guidelines need to be communicated to health providers and drug vendors in both the formal and informal sectors. The public also needs to be informed and educated about changes in malaria treatment policies, thus preventing public fears and backlash against new anti-malarial drugs. Well-developed communication strategies can also improve acceptance of and compliance with drug regimens,

especially combination therapies, at all levels of official and unofficial health care systems, private sector, and community.

Information, education and communication for health providers, clients, and influencers is also essential to effectively introduce new initiatives such as home management by community based providers or patent drug vendors, and IPT for antenatal clients.

3.7.0 Improving the Quality of Client-Provider Interactions

Equipping providers—facility, community-based, and non-formal vendors—with interpersonal communication skills and malaria information so they can effectively interact with their clients is essential. Too often, providers lack guidelines and other job aids, client education materials, and/or the interpersonal skills to do this. While logistics and technical training and supervision are essential ingredients to the safe and effective delivery of malaria related services, so are the communication tools that support service delivery. It is through effective communication that service providers can best influence treatment compliance and effectiveness.

Communication programs can also contribute to a reduction in anti-malarial drug resistance by changing health workers' and drug vendors' prescription practices. This may entail short orientation courses for health workers and simple job aids that serve as reminders of treatment schedules for various age groups.

3.8.0 Creating Demand for Malaria Services and Products

Providing malaria treatment through community based providers and selling subsidized ITNs through a voucher system will not automatically increase

appropriate treatment or ITN use unless such initiatives are coupled with active communication. This may take the form of branding and media promotion; referrals through health services; community mobilization activities; or a combination of the three. Demand creation involves more than informing people about products or services. It involves understanding the audience's socio-psychological environment and designing messages and materials that inform, educate, and motivate audiences within that context.

3.9.0 Changing Household Practices

Communication through a variety of channels is the best way to change individual and community attitudes and practices that act as barriers to effective malaria control. Through multi-channel communication, including interpersonal, community, electronic and print media, malaria programs can:

(i) Create a sense of urgency among parents and guardians about fevers in under-five year olds so that appropriate treatment is initiated within 24 hours.

(ii) Prepare parents and guardians of young children to recognize and treat fevers promptly and correctly at home.

(iii) Make IPT during pregnancy a normal and safe practice.

(iv) Convince the public of the safety of ITNs for children and pregnant women.

(v) Mobilizing Communities for Malaria Control

By stimulating community dialogue about malaria, communities can assess their own malaria situation and come up with relevant solutions.

Communities can be mobilized to establish drug revolving funds; to organize periodic net re-treatment; to organize transportation for children with complicated malaria; and to select community members for training as drug distributors. Through community education and dialogue, ITN use, IPT, and immediate appropriate treatment of malaria can become social norms. Communities can also take a more active role in regulating the activities of service providers, whether community-based volunteers, non-formal vendors, or health workers.

CHAPTER FOUR

4.0.0 Methodology

4.1.0 Research Questions.

During the research the researcher asked the following questions;

1. What channels does the National Malaria Control Centre use to disseminate information on Malaria?
2. How often do they use these channels?
3. How effective are the communication channels on their intended target?
4. Which channels used by the NMCC, if any, are thought to have yielded more behavioural change and on which audience?
5. To what extent do communicators in Malaria at NMCC follow the principles of communication to achieve their results?

4.1.1 Method

This research focused on the material that has been produced in the combating of malaria, who the target audience or group are, who participates in message development and what criterion was used to select participants in the message development. The researcher spent 52 days at NMCC participating in the day today activities of the organisation and reviewing the material that has been produced on malaria communication.

Twelve in-depth interviews were conducted with NMCC workers.

A focus group discussion was held.

Secondary source materials were reviewed and these provided a wealth of information used in this work.

4.1.2 In-Depth Interviews

Twelve in-depth interviews were conducted with the following people

1. Behaviour Change Communication Specialist,
2. Monitoring and Evaluation specialist,
3. Indoor Residue Spray Specialist,
4. the Entomologist,
5. Insect side Treated Nets Specialist,
6. Case Management specialist,
7. Scientific Officer
8. And five other support staff.

The researcher wanted to have first hand information from these specialists who are directly involved in the day to day development of malaria communication materials.

4.1.3 Focus Group Discussions

A focus group discussion of six people was conducted. The researcher encouraged all group members to participate freely in the discussions by

providing an enabling environment. The people involved were the Behaviour Change Communication Specialist, Monitoring and Evaluation specialist, Indoor Residue Spray Specialist, the Entomologist, the Insect side Treated Nets Specialist, Case Management specialist. The discussion focused on getting their views and experiences regarding the communication strategies used by NMCC to reach out to its targets.

4.1.4 Participant Observation

The researcher spent 52 days at NMC Head Office observing and participating in the day to day activities of the organization. From the Head Office the researcher had a chance to look at the documents of the organization and found out what kind of records NMCC keeps. This gave the researcher an insight into the kind of organizational communication existing at the institution. During the same period the researcher observed how the staff work and interact with each other within the organization. He also gathered some information through unsolicited comments from members of staff and other supporting staff he met. At the time of attachment, the Ministry was planning for the Africa Malaria Day (AMD) which is an annual calendar under the Roll Back Malaria (RBM) program. The researcher participated in the design of the Malaria Day posters (though at this stage message development was already done).

4.2.0 Study Design

The study was a cross sectional evaluation of the information which the NMC uses in combating malaria in the country. As stated earlier qualitative methods were used to collect the information. It is important to note at this stage that it was not possible for the researcher to evaluate the effectiveness of the communication

strategies used by NMCC in terms of channels and content because it was not possible to get feedback from the end users of NMCC messages. This was because NMCC could not sanction the use of a representative sample of 300 based in Lusaka urban alone. They felt the sample will not be representative enough of their heterogeneous audiences. It is important however to note that the aim of this research is to evaluate the communication strategies used by NMCC to combat malaria in Zambia, hence the focus on the channels used, content development and transmission as well as its effectiveness. Since its inception, NMCC has not conducted a countrywide research to get feedback from the users of their IEC/BCC messages. However NMCC has conducted two cross sectional researches (one in 2001 and the most recent in 2007) evaluating the effectiveness of their communication strategies. It is on these and the other material from the mainstream Ministry of Health that the researcher based his analysis of the effectiveness of the strategies in this report. It is equally important to appreciate the fact that health communication in Zambia has been lagging behind for a long time now.

Thus, this research should be seen as an attempt to evaluate communication strategies using already existing materials. Despite these shortcomings, its worth noting that the information presented here is credible and is documented in various literature present at both NMCC, Ministry of health and other supporting organisations.

4.2.1 Study Place

The NMCC, which is a department under the directorate of Public Health and Research of the Ministry of Health, provides technical support and coordination for a wide range of partners including research and training institutes and Provincial and District Health Offices. NMCC is part of the large ministry of Health system

and hence most of the activities are done in coordination with other departments in the ministry and other ministries and stakeholders.

4.3.0 Ethical Considerations/Consent

The greatest ethical challenge was to get clearance from the ministry to do a representative study of the information feed back from the consumers. Due to financial and other constraints, the researcher suggested to have a representative sample of 300 done in the three different density areas of Lusaka. However, the feeling of the Ministry was that this sample will not be representative enough and will not reflect the diverse audiences of NMCC materials. All the information collected during the study was confidential. However since the study was non-invasive, there were not many critical ethical issues to worry about. The research was cleared by the NMCC and the participants also were not coerced.

4.4.0 Data Gathering

Both primary and secondary sources of data were used in this study.

4.4.0 Primary Sources of Data

Data collection involved structured questionnaires administered to NMCC workers and support staff, interview checklists as while as in-depth and focus group discussions

4.4.1 Secondary Sources of Data

The data here included;

1. Collection from archival sources. Apart from providing literature, these were also consulted to provide or confirm existing data and information on the malaria problem.

2. Malaria materials were obtained from both the National Malaria Control Centre and the Ministry of Health who have a wealthy of information on malaria.

3. Other sources like websites libraries and information databases were also consulted regularly

4.4.2 Data Entry and Analysis

Data was entered in Microsoft Access and analyzed using SPSS and EPI info. Descriptive proportions were generated to provide an overview of the characteristics of interest. These formed a basis for interpretation of variables

4.5.0 Limitations of the study

1. When the study was proposed the researcher wanted to do both qualitative as well as quantitative research but it was discovered that to do such a research needed to cover the whole country and this was not financially feasible. The researcher therefore decided to do a qualitative research. The limitation is that

most of the primary information is obtained from participants who are workers of the organization under study and this may compromise the reliability of information got.

2. The use of research questions rather than hypothesis is a limiting factor in terms of robustness of the study and its conclusions. This leaves the study in the realm of exploratory research which invites further research.

3. The purposive sampling that was used was aimed at people with relevant information but in most cases it is the consumers of information who have the real feel of the impact of the information.

4. Overall the greatest limitation to this study was the fact the researcher could not obtain information from the end users of NMCC IEC/BCC information. This information could have been vital in evaluating the effectiveness of their communication strategies.

CHAPTER FIVE

5.0.0 Data Analysis Interpretation and Discussion

5.1.0 Introduction

This chapter gives an analysis, interpretation and discussion of the findings of this study. The aim of the study was to evaluate the communication strategies used by the National Malaria Control Centre to combat malaria in Zambia. As stated earlier the study was conducted using qualitative methods of research. This was done in order to get first hand information from people who are directly involved in the development, production and dissemination of malaria information in Zambia.

Data analysis was done using three programs; Microsoft Excel, Microsoft PowerPoint and EPI info. Descriptive proportions were generated to provide an overview of the characteristics of interest. These formed a basis for interpretation of variables. The resulting data is presented in detail in various tables, graphs and charts. The details also come out in the subsequent descriptive discussions.

Afterwards data from archival and other sources was also presented. This data forms a core of this study because it highlights all the methods and processes of malaria information dissemination in Zambia.

5.1.1 Analysis and interpretation of the findings

The National Malaria Control Centre has set out to achieve the Roll Back Malaria targets by 2015 using various strategies. These are required for effective communication between service providers and consumers of interventions, whether

patients, family members or communities. Communication has been used to increase knowledge of:

1. The transmission and prevention of malaria;

2. The link between bed net use and malaria control;

3. The recognition of signs and symptoms, risk groups, rapid treatment-seeking behaviour and full compliance with treatment;

4. The consequences of malaria in pregnancy and the need for antenatal care which includes LLINs and, as appropriate, IPTp; and

5. The motivation and intention to use tools for malaria prevention and control.

Motivating households to prevent and treat malaria requires sustained communication interventions guided by well-planned and locally appropriate communication strategies. The Communication programs have embraced basic strategies to increase demand for and acceptance of malaria interventions and services, including information, education and communication (IEC) and behaviour change communication (BCC) methodologies. IEC is broadly defined as providing knowledge to enable individuals, families, groups, organizations and communities to play active roles in achieving, protecting and sustaining their own health. BCC includes the basic components of IEC, but starts with a focus on the key individual and group behaviours to be changed and employs a wider range of interventions beyond cognitive-based, knowledge transfer.

Communication for Social Change is a more participatory approach to engaging communities that focuses more on the client-identified end actions in regard to the

health intervention. There is wide agreement that communication programs need to combine both the delivery of messages and other behavioural interventions and opportunities for dialogue, shared learning and consensus-building to produce results.

Regardless of the methodology, any effective communication program aims to affect the health-seeking or care-providing behaviour of individuals and communities creating demand and sustaining use of malaria services and products. It has become clear and apparent to the NMCC that it is important to not only create demand via communication, but also to focus on increasing appropriate utilization of service and products, such as ensuring a household dynamic where pregnant women and children sleep under mosquito nets. The resulting field effectiveness due to appropriate utilization of preventive interventions has become a key driver of treatment costs. For example, increasing operational effectiveness of LLINs and IRS from their current field effectiveness of 50-60% up to 98% can theoretically reduce incidence and therefore treatment costs, by almost 50%. The RBM global program conducted a research that revealed that modelling a 98% effectiveness rate showed a potential cumulative savings globally of US$ 960 million from 2009-15. This makes a powerful argument for investing in communication and behaviour change programs.

There are many steps in the process of engaging whole communities to prevent and treat malaria effectively. The National Malaria control Center has identified many ways of doing this and that the use of methods such as engagement, requires a change in normative standards, which is most effectively achieved when local leaders are active in program planning and implementation, along with NGOs and other community organizations.

Communication programs have created opportunities and motivated people to discuss malaria issues, both among themselves and with decision-makers and service-providers. In addition to changing household practices, social norms and mobilizing communities to participate actively in malaria interventions, communication programs have also improved the quality of client-provider interactions by providing health workers with the interpersonal skills and the motivation to communicate more effectively with clients. Communication objectives include increasing knowledge, intention to act, a sense that actions conform to social norms, visible support from community leaders and modification of service delivery to increase opportunities for people to adopt appropriate health seeking behaviors.

Formative research, early research which helps to highlight the community context and how best to structure a program for that community, has been the basis on which effective communication strategies have been built. Such research has helped planners understand the basic social, cultural and political opportunities and challenges the intervention program faces. The communication program planners have then fashioned service delivery and messages to address gaps in knowledge, perceived norms or other barriers to accessing and utilizing services. To ensure that the program has not deviated from the intended plan, planners continuously monitor process indicators carefully and report on activities and results. An evaluation of the impact of malaria programs have included both intermediate objectives (knowledge, attitude, perceived norms and efficacy) as well as behaviors, such as the appropriate use of bed nets in homes.

Communication activities have been integrated into National Strategic Health Plan, malaria business plans, and education programs from the very beginning. Community involvement and participation during the design and implementation

has ensured the activities are successful. Lessons learned in health promotion have demonstrated that neglecting community involvement in all stages of the program design and implementation have decreased the chances of the programs succeeding.

Below the researcher answers and analyses the findings of this research, firstly by answering the research questions using the data obtained using a self-administered questionnaire given to 12 members of staff and later the responses obtained through in-depth and focus group discussions. The researcher goes on to analyse information obtained from different archival sources. It is important to emphasize here that all the information here is documented.

5.2.0 Presentation of findings

5.2.1 The channels used by National Malaria Control Centre to disseminate Malaria information

According to the data obtained it was discovered that there are various channels used in the fight against malaria in Zambia. The table and graph below shows the responses of the participants in the research as to the channels that NMCC uses in combating malaria in Zambia.

The channels NMCC use to fight malaria

		Number of respondents	Percent	Valid Percent	Cumulative Percent
Valid	Television	3	25.0	25.0	25.0
	Radio	4	33.3	33.3	58.3
	Newspapers	1	8.3	8.3	66.7
	Magazines	1	8.3	8.3	75.0
	internet	1	8.3	8.3	83.3
	brochures, pamphlets and posters	1	8.3	8.3	91.7
	theatre for community development	1	8.3	8.3	100.0
	Total	12	100.0	100.0	100.0

Table5.2.1: **The channels NMCC use to fight malaria**

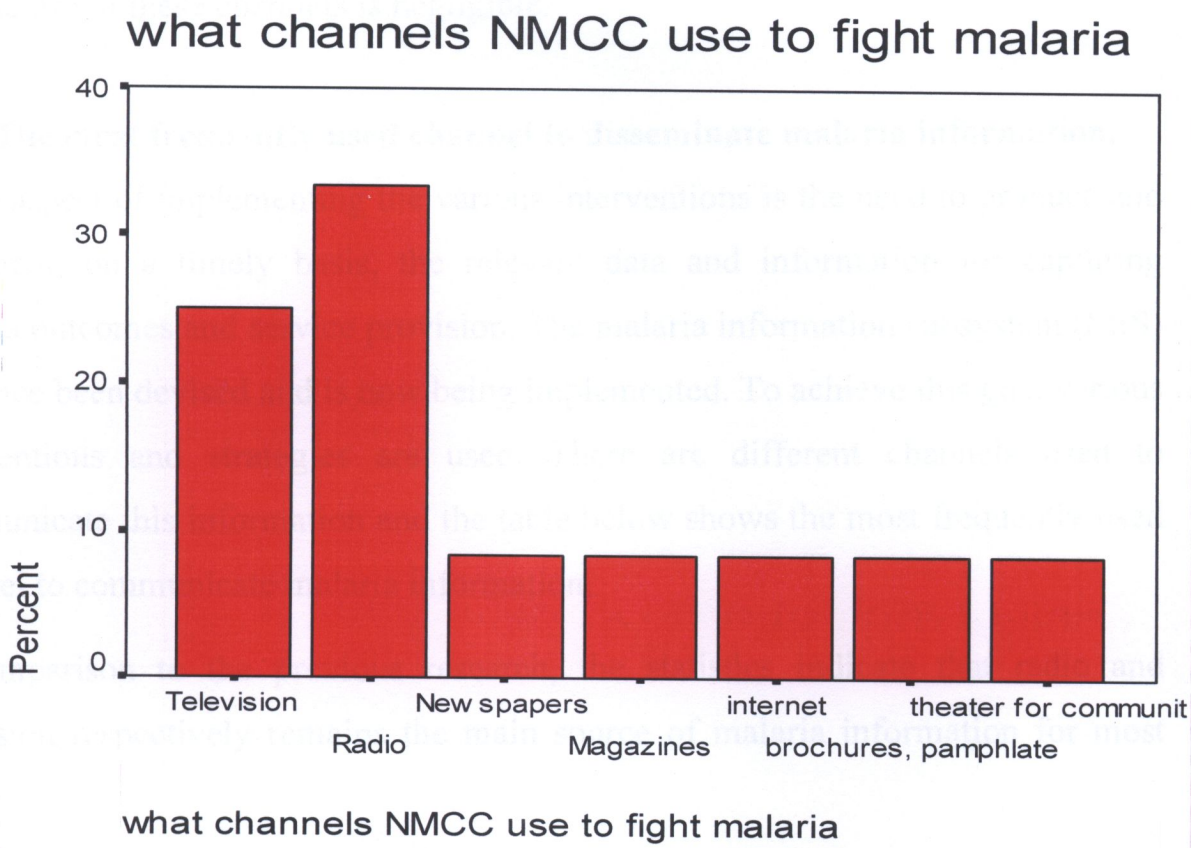


Table 5.2.2 The channels NMCC uses to fight malaria

From the data obtained, the most used channel of combating malaria is radio accounting for 33.3 percent of the overall communication channels used. Television is next accounting for 25 percent of the strategies while newspapers, magazines, internet, brochures, pamphlets and posters and theatre for community development each accounts for 8.3 percent of the overall communication channels. It was further observed during the in-depth and focus group discussions that radio is the most used channel because it reaches even the rural areas that cannot access television. There was also a general acknowledgement of the importance of theatre for community development in rural communities.

It was also noted during the course of the study that there are other channels used to combat malaria like school debates CBOs FBO and door to door campaigns but that the use of these channels is negligible.

5.2.2 The most frequently used channel to disseminate malaria information.

A key aspect of implementing the various interventions is the need to produce and document, on a timely basis, the relevant data and information for capturing malaria outcomes and service provision. The malaria information subsystem (MIS) has since been devised and is now being implemented. To achieve this goal various interventions and strategies are used. There are different channels used to communicate this information and the table below shows the most frequently used channel to communicate malaria information.

In comparison to the previous research, the statistics indicate that radio and television respectively remains the main source of malaria information for most people.

Distribution of intervention by information source

Characteristics	Television		Radio		Drama		Poster		Songs/Jingle		Newspaper	
	N	%	N	%	N	%	N	%	N	%	N	%
Prevention	141	(35.4)	154	(38.7)	54	(13.6)	145	(36.4)	76	(19.1)	51	(12.8)
Treatment	62	(15.6)	60	(15.1)	24	(6)	41	(10.3)	30	(7.5)	34	(8.5)
Re-treatment	-		39	(9.8)	-		25	(6.3)	18	(4.5)	11	(2.8)
Environment Management	-		27	(6.8)	9	(2.3)	18	(4.5)	3	(0.8)	4	(1)
IRS	-		1	(0.3)	4	(1)	6	(1.5)	1	(0.3)	1	(0.3)

Source: IEC/BCC impact assessment, 2007.

malaria.

these is most frequently used to disseminate malaria ii

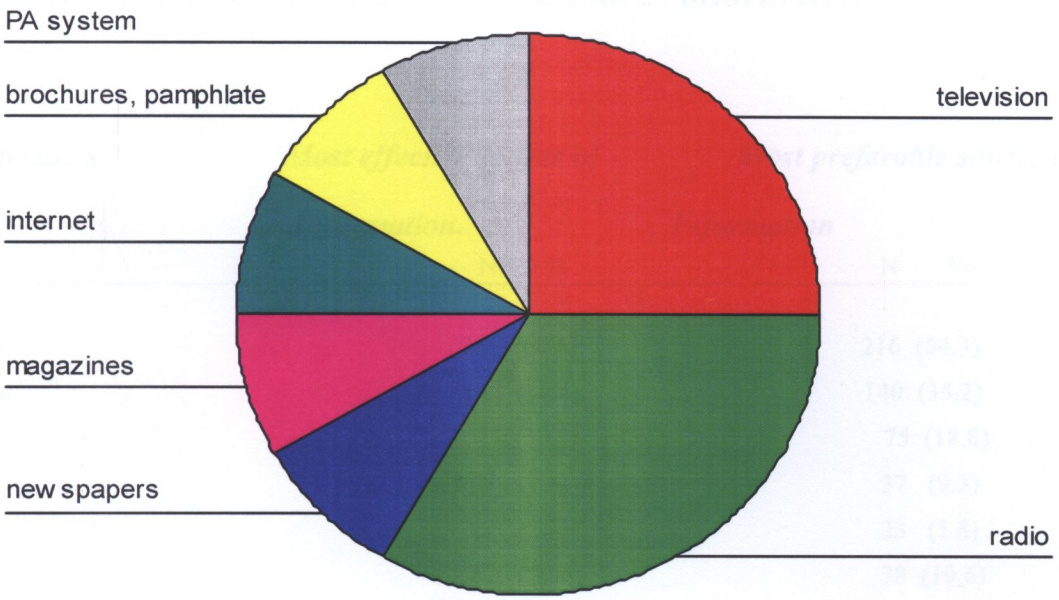


Table 5.4.1: The most frequently used method to disseminate malaria information.

The data below shows the results obtained during the 2007 IEC/BCC impact assessment in the selected districts. It is a reflection of most of the responses given by the participants in the study.

Table 5.5.1: Most effective and preferred source information

Characteristics	*Most effective source of Information.*		*Most preferable source of Information*	
	N	%	N	%
Radio	241	(60.6)	216	(54.3)
Television	145	(36.4)	140	(35.2)
Drama	77	(19.3)	75	(18.8)
Songs	33	(7.5)	37	(9.3)
Leaflets	22	(5.5)	23	(5.8)
Posters	82	(20.6)	78	(19.6)
Services	88	(22.1)	80	(20.1)
Public Address System	67	(16.8)	75	(18.8)
Community Leaders	59	(14.8)	49	(12.3

Source: IEC/BCC impact assessment, 2007.

5.2.3 The effectiveness of the communication channels on their intended target.

Measuring the effectiveness of communication is the most challenging task to any researcher. This research was not any different. It was more challenging in this case because the people who were participating in the research were all members of the organization under analysis. For this reason the researcher had to rely extensively on already written material in the archives of NMCC and MoH. It was further noted that the only way to measure the effectiveness of malaria information

dissemination is to measure if the strategies have helped to reduce malaria prevalence.

However, the data below is a presentation of findings from the in-depth interviews and the focus group discussions.

5.2.4 Has the communication strategies helped reduce malaria prevalence?

		Number of respondents	Percent	Valid Percent	Cumulative Percent
Valid	yes	11	91.7	91.7	91.7
	no	1	8.3	8.3	100.0
	Total	12	100.0	100.0	

Table 5.5: The effectiveness of the communication.

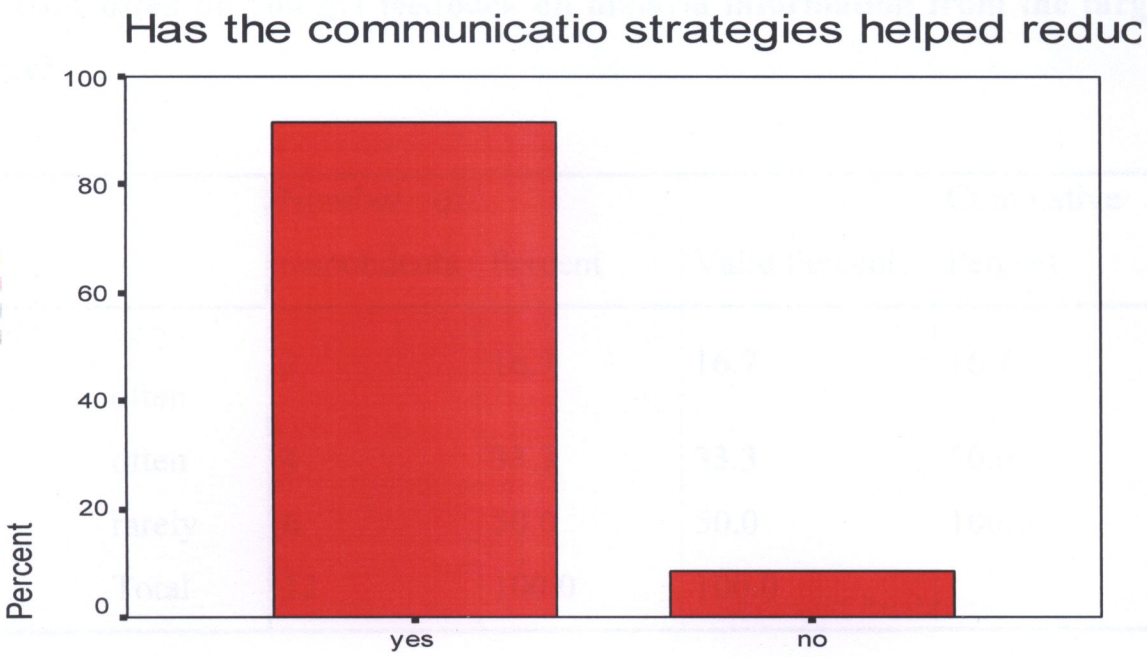


Table 5.6: The effectiveness of the communication.

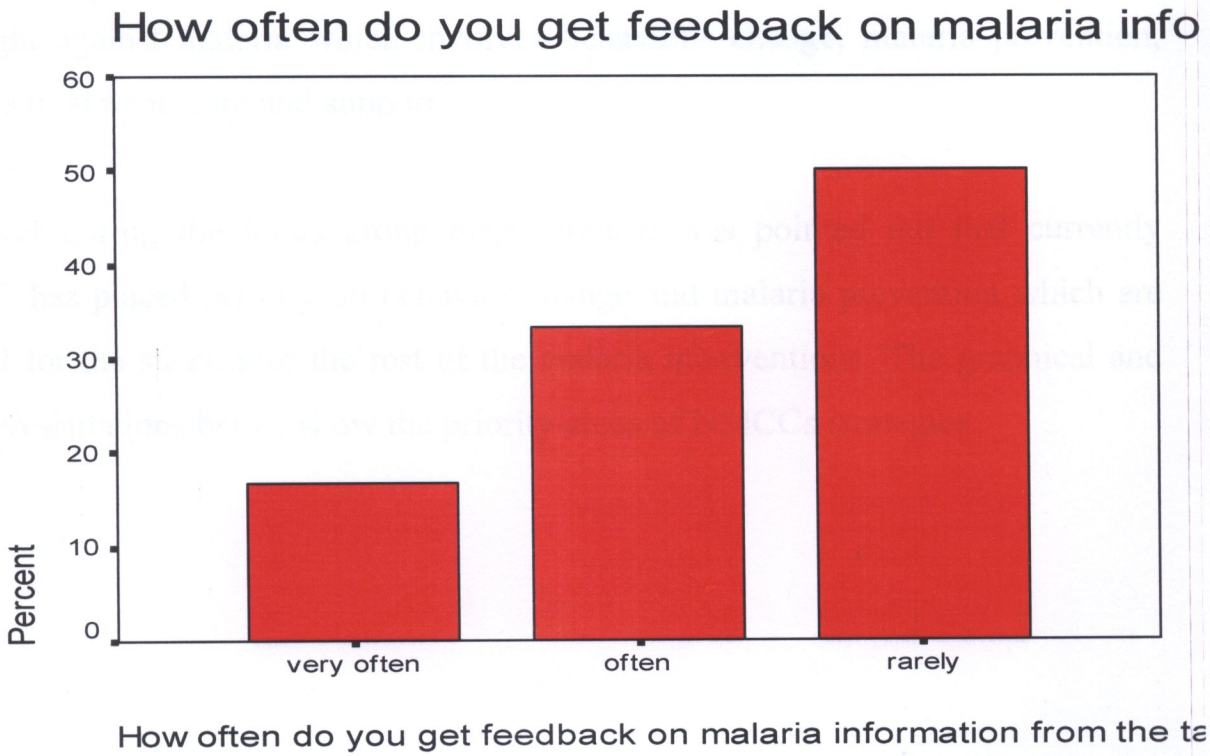
According to the findings, 91.7 percent of the respondents indicated that the communication strategies have helped reduce the prevalence of malaria and therefore effective while only 8.3 percent said the strategies were not as effective.

The researcher went further to look at the feedback the organization gets from its service and information seekers.

5.2.5 How often do you get feedback on malaria information from the target groups?

		Number of respondents	Percent	Valid Percent	Cumulative Percent
Valid	very often	2	16.7	16.7	16.7
	often	4	33.3	33.3	50.0
	rarely	6	50.0	50.0	100.0
	Total	12	100.0	100.0	

Table 5.7: feedback on malaria information.



Despite the respondents acknowledging the effectiveness of the communication strategies, it was discovered that not much feedback is gotten from the people who are users of NMCC information materials. It is important to emphasize that they were just the views of the respondents based on what they know. However when the researcher concluded the findings, it was not clear whether these communication strategies have yielded positive results or not because no proper research has been done.

The table and graph above indicates that only 50 of the respondents were affirmative on the feed back from the general public while the other 50 percent noted that they rarely get the feed back.

5.2.6 The Priority Strategy in the Fight against Malaria.

There are several interventions in the fight against malaria at different levels. During the research it was discovered that the NMCC uses a five tier approach to the fight against malaria which involves behaviour change, malaria prevention, malaria treatment, care and support.

However during the focus group discussions it was pointed out that currently NMCC has placed priority on behavior change and malaria prevention which are critical for the success of the rest of the malaria interventions. The graphical and table presentations below show the priority areas of NMCCs strategies.

Which one is the priority communication strategy used by NMCC to fight malaria?

		Number of respondents	Percent	Valid Percent	Cumulative Percent
Valid	behaviour change	7	58.3	58.3	58.3
	malaria prevention	5	41.7	41.7	100.0
	Total	12	100.0	100.0	

Table 5.8: Priority communication strategy used by NMCC to fight malaria

58.3 percent of the respondents noted that behaviour change information is the best to combat malaria while 41.7 percent said malaria prevention massages were more vital if malaria is to be fought ably.

Notwithstanding the foregoing figures, NMCC is equally committed to the other three strategies of malaria treatment, care and support.

It was discovered during the in-depth interviews that each year there are areas that are prioritised based of the statistics on the ground. It was further revealed that malaria is not fought in isolation but in line with other diseases like tuberculosis and HIV/AIDS.

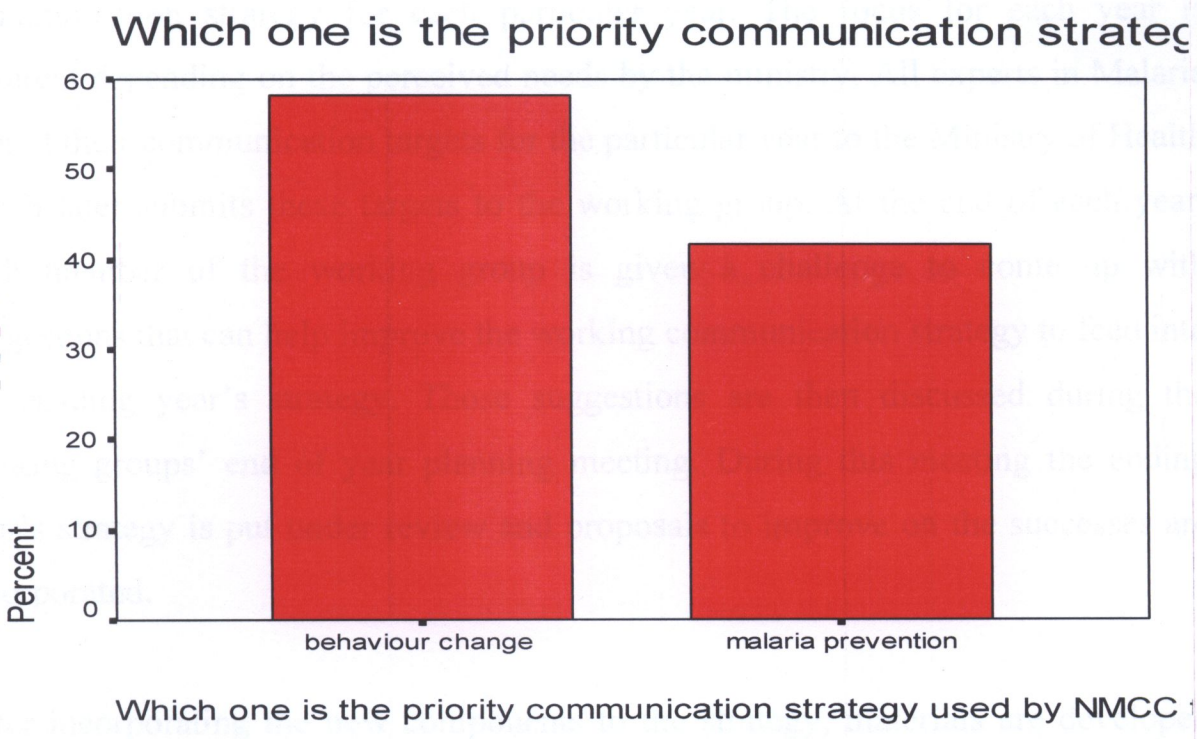


Table 5.9: Priority communication strategy used by NMCC to fight malaria

5.3.0 Communication Channels and Strategies.

5.3.1 Message Development.

Message or content development is critical in the formulation of a successful media campaign. The NMCC in collaboration with the Ministry of Health have set up a working group on malaria which comes up with appropriate information concerning the combating of malaria. This group composes of IEC specialists from the Ministry of Health, cooperating partners and headed by the NMCC IEC Specialist.

The working group comes up with the content that is later developed into the

communication strategy for each particular year. The focus for each year is different depending on the perceived needs by the ministry. All experts in Malaria submit their communication targets for the particular year to the Ministry of Health which later submits these targets to the working group. At the end of each year, each member of the working group is given a challenge to come up with suggestions that can help improve the working communication strategy to feed into the ensuing year's strategy. Those suggestions are then discussed during the working groups' end of year planning meeting. During this meeting the ending year's strategy is put under review and proposals to improve on the successes are incorporated.

After incorporating the new components to the strategy, materials are developed and sent to all the malaria experts and a sample is done in all the malaria sentinel districts to pre-test the viability of the new strategy. After pre-testing another meeting is called to look at the submissions of both the malaria experts and the results from end users in the malaria sentinel districts. With this information, the working group is ready to develop a new working malaria communication strategy.

It is however important to note that this process is not simple due to the bureaucratic intricacies involved. The ministry has to constantly sanction each stage of the communication strategy development because the strategy has to fit into the general and main-stream health plan.

5.4.0 Strategies

The following are specific strategies NMCC is using to combat malaria using

IEC/BCC materials.

1. Supply press kits and appropriate background material to media, opinion leaders, health workers and other partners

2. Arrange for innovative and creative use of radio and television broadcast of PSAs, videos on local radio and television stations

3. Stimulate community radio broadcasts based on core messages and PSAs

4. Ensure news, feature and other in-depth coverage of malaria in both local print and electronic media

5. Ensure news, feature and other in-depth coverage of Africa Malaria Day and malaria in general for both local print and electronic media

6. Create media programme culminating in news conference led by highest profile leadership and backed founding partners and local celebrities.

7. On the actual Malaria Day, create media programme culminating in news conference led by highest profile leadership and backed by founding partners and local celebrities.

8. Organize news conferences led by high profile political figures and/or celebrities

9. Distribute any generic Africa Malaria Day posters

10. Organize Government and RBM Partnership launch of public education campaign on malaria control, focused on use of PSAs.

11. Host review workshop of country malaria situation (Current Situation, Trends, Prospects) with public and private sector (manufacturers, suppliers, distributors,

vendors, religious bodies and NGOs) participation

12. Launch RBM Partnership issue of country Annual Malaria Update Report

13. Commission theme songs, theatre pieces for AMD commemoration and later use

14. Post bill boards at strategic locations in capitals and major towns

15. Produce other promotional materials including stickers, postcards, pens, pencils, inscribed school exercise books

16. Liaise with NGOs and other partners to reach remotest areas

17. Collaborate with United Nations International Children's Emergence Fund and other partners in AMD in creation and running of other activities.

5.4.1 Channels: Radio

From the data obtained, the most used channel of combating malaria is radio accounting for 33.3 percent of the overall communication channels used.

5.4.2 Content/nature of messages

1. Malaria is preventable and curable

2. There is a need for prevention and control of malaria at the community level

3. Malaria can and should be managed starting from home

4. Communities should seek prompt access to treatment

5. IEC/BCCs are invaluable in the prevention of malaria for the entire family but more so for pregnant women and young children

5.4.3 Targets

Between now and 2015

i. At least 90 percent of those affected by malaria should have access to rapid, adequate and affordable treatment.

ii. At least 90 per cent of those at risk, especially pregnant women and children under five, should benefit from the most appropriate IEC/BCC campaign information.

iii. At least 70 per cent of pregnant women at risk, especially those at first pregnancy, should have access to protective treatment or prophylaxis and IE/BCC information.

5.4.4 Channels: Television

From the data obtained, the second most used channel of combating malaria is television accounting for 25 percent of the overall communication channels used.

5.4.5 Content/nature of messages

1. The prevention of malaria using IEC/BCC

2. The rapid diagnosis and treatment of the illness close to, or at home

3. The strengthening of mobilization and organization for community, family and personal prevention and treatment of malaria

4. The protection and treatment of especially pregnant women and children

5. Ensuring that at least 90 percent of those suffering from malaria have access to rapid, adequate and affordable treatment and exposed to IEC/BCC information

6. Ensuring that at least 90 per cent of those at risk, especially pregnant women and children under five, benefit from the most appropriate combinations of personal and communal protection, including IEC/BCC.

7. Ensuring that at least 90 per cent of pregnant women at risk, especially those at first pregnancy, have access to protective treatment or prophylaxis and exposed to IEC/BCC information.

5.4.6 Targets

Between now and 2015

i. At least 90 percent of those affected by malaria should have access to rapid, adequate and affordable treatment.

ii. At least 90 per cent of those at risk, especially pregnant women and children under five, should benefit from the most appropriate IEC/BCC campaign information.

iii. At least 70 per cent of pregnant women at risk, especially those at first pregnancy, should have access to protective treatment or prophylaxis

5.4.7 Channels: Newspapers

Newspapers account for 8.3% of the communication strategies used in the fight against malaria by the NMCC in Zambia.

5.4.8 Content/nature of messages

1. Provide local Newspapers with Malaria information in English and using local context, and other promotional material. .
2. Organize poem, essay, drawing, poster design and other competitions in schools around core messages and put placements in the newspapers.

3. Launch creation of Roll Back Malaria messages and place them in local Newspapers.
4. Place demonstrations on the treatment and re-treatment of nets
5. Supply pre-packaged anti-malaria medication, where available, to local communities
6. Publicize materials provided by the country and regional offices, and Ministry of Health

5.4.9 Targets

Between now and 2015

i. At least 90 percent of those affected by malaria should have access to rapid, adequate and affordable treatment

ii. At least 90 per cent of those at risk, especially pregnant women and children under five, should benefit from the most appropriate IEC/BCC campaign information.

iii. At least 70 per cent of pregnant women at risk, especially those at first pregnancy, should have access to protective treatment or prophylaxis

5.4.10 Channels: Posters Pamphlets and Brochures

Posters pamphlets and Brochures account for another 8.3 percent of the communication strategies used in the fight against malaria by the NMCC in Zambia