

Assessing the Prevalence of Malaria among Children between 0 -5 Years in Daru Town, Jawei Chiefdom, Kailahun District

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Abstract:

The human and some primates are the vertebrate hosts for this species which are geographically distributed and can show variation in the pattern and severity of diseases. All forms are by the infected female anopheles' mosquito and occasionally by shared needle, blood transfusion and from mother to fetus. Malaria is the leading killer of children in Africa, accounting for approximately 30 percent of all-cause mortality in children under the age of five. In 2008, there were an estimated 243,000,000 reported worldwide of these, the verse majority of cases (85%) were in African region. Children under the age five accounted for 88% of the cases in Africa". Although the estimated mortality rate for the world is not given for the year 2009, however, the estimated worldwide mortality was estimated at 881,000. 91% of these deaths were in Africa, of which 85% were in children under five years. Africa's malaria burden is worsening, and many factors, including expanding drug resistance, limited access to effective interventions and faltering health services contribute to malaria's growing toll on the continent's health and economic potential. The aim of this study is to obtain current information on the prevalence of malaria among children between 0-5 years within Daru town and the research investigation was done in Yematonya Section (Old Town). There are five streets in this section of which four streets were selected at random. From each street five houses were selected 2nd, 4th, 6th, 8th and 10th house in each of these houses selected, there are a lot of children between 0-5 years of age of which I was able to diagnose them all because of time and the result findings shows that the data presented in the previous tables in this chapter has proved the prevalence of malaria in the Yematanga section in Daru Town. This proof is worth discussing in order to show a clear picture of the prevalence of malaria in Daru Town as a result of the criteria that were used to select the study samples. The investigation indicates differences between the infection rate of male and female children that were tested (24) twenty-four male children were positive of which the percentage was 83% and seventeen female children for malaria and the percentage was 81%. This was got from the twenty-nine (29) males and twenty-one females that were tested. The overall percentage for the infected children was 83% of which these forty-one (41) children were tested positive of malaria. *the following suggestion/recommendation has been made to all who have interest in this field.*

- First of all, government and NGOs should train and encourage health workers to pass on their knowledge of the disease to the community people to prevent themselves from contracting the disease and detect it early when someone falls ill, Government and NGOs should encourage and target research in these areas so that such information can help government and health agencies target their researches (especially drugs) where they are needed most and take programs very effective, According to geographical location and hygiene conditions of this section, the community people should embark on sanitation drive which will help to destroy the breeding site of the mosquitoes.
- The Ministry of Health and Sanitation should embark on training and supervision of health workers to ensure that they carry out their tasks correctly, the government through the Ministry of health and

sanitation in Collaboration with Non-Governmental Organization (NGO) such as International Rescue Committee (IRC) should embark, on health education where the communities are informed of what they can do to prevent and treat malaria and lastly, government and NGO should make it possible for communities to get free treatment and supply of mosquito nets to the community people.

INTRODUCTION

The word malaria comes from Italian word. “Mal” means bad and “aria” means air. The human and some primates are the vertebrate hosts for this species which are geographically distributed and can show variation in the pattern and severity of diseases. All forms are by the infected female anopheles’ mosquito and occasionally by shared needle, blood transfusion and from mother to fetus. Malaria is the leading killer of children in Africa, accounting for approximately 30 percent of all-cause mortality in children under the age of five. In 2008, there were an estimated 243,000,000 reported worldwide of these, the verse majority of cases (85%) were in African region. Children under the age five accounted for 88% of the cases in Africa”. Although the estimated mortality rate for the world is not given for the year 2009, however, the estimated worldwide mortality was estimated at 881,000. 91% of these deaths were in Africa, of which 85% were in children under five years. Africa’s malaria burden is worsening, and many factors, including expanding drug resistance, limited access to effective interventions and faltering health services contribute to malaria’s growing toll on the continent’s health and economic potential. Throughout human history malaria has been one of the greatest pandemic that has affected man ranking with influenza and tuberculosis. Even now as the dominant protozoan diseases, it infects several hundred million and $\frac{1}{3}$ of the world’s population every year (center for diseases control and prevention).

Malaria strains health systems particularly in Sierra Leone where it accounts for between 30 and 50 percent of hospital admissions and up to 50 percent of outpatient visits in high – transmission areas. Malaria costs Africa more than US \$ 12 billion annually. It has slowed economic growth in African countries by 13 percent per year, the compounded effects of which are a gross domestic product level up to 32 percent lower than it would have been if malaria had been eliminated in the 1960s. Malaria is a disease caused by a microscopic parasite of the genus plasmodium. Malaria had counted to be a major cause for mortality worldwide and result in an estimated 300-500 million clinical causes in Sub Saharan African. In addition, Malaria related deaths annually of these 50% are African children of whom about 80% die from cerebral malaria (college of medicine and Allied Health Science 1995). Infection with malaria parasite may result in a variety of symptoms ranging from mild symptoms to severe diseases can be categorized as completed (severe) and uncomplicated. In general malaria is a curable disease if diagnosed and treated promptly and correctly. The most prevalent malaria species in Sierra Leone and is responsible for majority of the severe malaria and for the death among children between 0-5 years of age in Sierra Leone and worldwide. The species is known to be the most dangerous malaria parasite in Sierra Leone (College of Medicine and Allied Health Sciences 1995). Several malaria occurs when plasmodium falciparum infection are complicated by serious organ failures or abnormalities in the patient’s blood or metabolisms. The manifestations of severe malaria are:

- i. Cerebral malaria with abnormal behaviour.
- ii. Severe anaemia due to hemolysis.
- iii. Hemoglobin in urine (Hemoglobin uria) due to hemolysis.
- iv. Fluid build in the lungs (pulmonary edema)
- v. Abnormalities in blood coagulation and thrombocytopenia.
- vi. Codivascular collapse and shock.

This study will help to find out the number of children between the ages of 0-5 years that are affected with malaria.

STATEMENT OF THE PROBLEM:

There has been evidence of the prevalence of malaria among children between 0-5 years in Daru. Geographically, Daru area is surrounded by swamps which are the main breeding area for mosquitoes, the vector for malaria parasite. The medical facility within this area for mosquitoes, the vector for malaria parasites. The medical facility within this area is very low. The dwelling structures are poorly constructed. During the rainy season, the area becomes flooded which provides favourable breeding site for the mosquitoes.

AIM OF THE STUDY:

The aim of this study is to obtain current information on the prevalence of malaria among children between 0-5 years within Daru town.

SPECIFIC OBJECTIVES OF THE STUDY:

The specific objectives of this study are as follows:

- ❖ To investigate the type of malaria parasite that dominates in the study area.
- ❖ To carry out laboratory investigation for all sample children between the age group 0-5 years and test microscopically for the presence of malaria parasites.
- ❖ To suggest different control measures of malaria in the study area.

SIGNIFICANCE OF THE STUDY:

This study is very important due to the following reasons:

1. National authorities, International Organizations, World Health Organization (WHO), United Nations Children Fund (UNICEF), Government and Non-Governmental Organization, the private sector connected with malaria control in Sierra Leone will be provided with current information on the prevalence of the diseases within Daru area among children between 0-5 years old. Severe malaria occurs most often in person who have low immunity i.e. due to the reduction of the leucocytes or white blood cells (WBC) or whose immunity has decreased as a result of bacterial infection such as tuberculosis. These include all residents or areas with low or no malaria transmission and young children and pregnant women in the areas with transmission.
2. The informational obtained from research will provide local effort on the control as malaria in Daru area. Despite the combined efforts of both international and national agencies including the WHO to eradicate malaria, it still remains one of the most important public health problem worldwide in terms of lives lost.

DEFINITION OF TERMS:

Malaria -	Disease caused by plasmodium parasite
Anopheles -	A mosquito that causes malaria
Incubation -	Period of time before the signs and symptoms are shown
Diagnose -	Find out the cause of a disease
Specimen -	A product or semblance of something

REVIEW OF RELATED LITERATURE

Malaria or a diseases resembling malaria has been noted more than 4000 years ago. From the Italian word meaning “bad air”. Malaria has probably influenced to a good extent human population and human history (centers for Disease Control Prevention CDS, 2006). The global health and malaria has developed ambitious and overlapping targets with respect to malaria control in Africa (see annex 4). On April 25, 2000, at the

Abuja submit in Nigeria, the Roll Back Malaria (RBM) partnership and Africa Health Ministers set targets of exceeding 80 percent coverage for these intervention by 2015. Recent surveys indicate that current national coverage levels in Africa for each of the Abuja targets range from 5-40 percent. Malaria has caused hardship to humanity as well as loss of human lives, civilization declined and advanced mainly due to malaria. Malaria is one of the leading causes of mortality among children of age group 0-5 years and pregnant women in many African countries including Sierra Leone (History of Malaria Control 2006). Despite the combined effort of both national and international agencies including the World Health Organization (WHO) to eradicate malaria it remains one of the most important public health problems worldwide. The Millennium Development Goals (MDGs) were established to focus international effort on addressing critical issues related to health, poverty and equity. Malaria features prominently in the Millennium Development Goals and these Internationally accepted goals build upon the Roll Back Malaria Partnership Goals and the Abuja Targets. The Sierra Leone 2011 – 2015 National Malaria Strategic Plan strives to achieve both the RBM Abuja Goals and the Health Millennium Development Goals (MDGs).

Charles Louis Alpones Laveran, a French army surgeon stationed in constative on Algeria was the first to notice parasite in the blood of a patient suffering from malaria. This occurred on the 6th of November 1880 (history of Malaria Control, 2006). Camello Gogi, an Italian established that there were at least two forms of diseases, one with tension periodicity and one with quartan periodicity. He also observed that the forms produced differing number of merozoites upon maturity and that fever coincided with the rapture and release of merozoites into the blood stream. The Italian Scientist Giovanni Batistia Grassi and Rainmando filetic first introduced the names plasmodium vivax and plasmodium malaria for two of the malaria parasites that affects humans in 1890. An American, William H. Weleh received the subjects and in 1897, he named malignanterian malaria parasite plasmodium falciparum. In 1992 John William Weastson Stephen described the four human malaria parasites plasmodium Ovale Center for Disease Control and Prevention, 2006. Although malaria was once distributed throughout the world, the control of mosquitoes in temperate areas has successfully reduced. Despite these achievements, approximately 260 million new cases reported each year, about $\frac{2}{3}$ of them in Africa (Foundation in Microbiology). The most frequent victims are children 0-5 and young adult of whom at least two million died annually. The total case rate in the U.S.A is about one thousand new cases per year, most of which occurs in immigrants (Foundation in Microbiology). I August 20th 1887, Ronald Ross a British officer in India medical services was the first to demonstrate that malaria parasite could be transmitted from infected patients through mosquitoes. This necessitate a sporogomic cycle with this research he identified the habit of these mosquitoes but also proposed deducted plan of action to contain in their breeding. Generally, in warmed regions closer to the equator, malaria is transmitted year round. Transmission will be more intense and plasmodium falciparum predominates. The highest transmission ins found in Africa South of the Sahara. In coll regions, transmission will be less intense and more seasonal factors that determine the occurrence of malaria life cycle.

- a. Anopheles mosquitoes must be present which are in contact with human and in which the parasites can complete the “Invertebrate host” half of their life cycle.
- b. Human must be present, who are in contact with Anopheles mosquitoes and in whom the parasite can complete the vertebrate host half of their life cycle.
- c. Malaria parasite must be present.

Malaria is transmitted by the bite or certain species or infected female anopheles’ mosquitoes. A single infected vector during her life time, may infect several persons. The mosquitos’ bit is not infective unless the sporozities are present in its salivary glands. Malaria may be induced accidentally by hypodermic intramuscular and intravenous infection of blood of plasma, example blood transfusion, and malaria in drug addict. Blood transfusion poses a problem because the parasite keeps their infective activity during at least 14

days in blood bottles stored at a days. Persons who have lived in an endemic area (including those who have been taking antimalarial, prophylactics) and anyone who has had malaria should not be accept as blood donor until 3 years after words. Congenital infection of the new born from an infected mother may also occur but is comparatively rare. Differential diagnosis of malaria may be made by examining either thin or thick film. The blood picture of the stages of the parasites found by Plasmodium Vivax, plasmodium malaria and Plasmodium Ovale changes as the disease progresses through each 48 hours or 72 hours cycle. Most found in the blood cells are at the schizont stage.

After the paroxysm, trophozoite tends to be predominant. Thick film diagnosis is a little more challenging because the red cells are destroyed and the parasites are not spread out. However, more challenging because the red cell is destroyed and the parasite are not spread out. However, more positive finding will be reported with thick films. For Plasmodium Vivax, the characteristics form for diagnosis is the trophozoite which assure a variety of shape. Mature schizont show clusters of fifteen (15) or more morozites. It is found in the topics – sub topics and temperate region. The size of the parasite varies depending on the stage of development. In the body they are found in the intracellular parenchyma cell of the liver and the red blood cells. (Foundation in Microbiology). Plasmodium malaria shows compact trophozoite with much pigment. Malaria schizont have 6-12 merozoties. This causes quantan fever. Plasmodium falciparum causes malignant tertian and falciparum malaria. They are prevalent in topics and sub topics. They are found infected red blood cells. The parasite increases in size through various stages of development and have irregular shapes. All stages of the parasite are found in peripheral blood (Foundation in Microbiology). Development of malaria parasite is divided into two main groups. The sexual stages and the asexual stage. The asexual stage in when on infected female anopheles' mosquito inject blood necessary to develop her eggs. Immediately its reject saliva which contains anti coquant into the punctured capillary. The sporozities circulate through the body and later reside in the liver. Within living cells, the process as asexual division allied schizogony generate daughter parasite called merozoties. This process takes 5-6 days depending on the type species of the parasite when the packed liver cells burst, it releases from 2,000-40,000 merozoties, into the blood stream. The merozoties are transformed into a ring form called trophozoite and feed on the red blood cells and later become schizont. When massive infected red cells burst the liberated merozoties are faced to infect more red cells. All some points, certain merozoties differentiate into macrogamete (female) and microgamete (male). The sexual stage is when a mosquito draws infected red blood cells into its stomach. In the stomach, the microgameters release sperm-like gametes to fertilize the macrogametes to produce Oocyst. The Oocysts undergoes mitotic division releasing sporozities that migrates to the salivary glands and makes the sporozities available for infection when the mosquito seed on the next victim. The female anopheles' mosquito bites a person infected with malaria and pikes up plasmodium gametocytes along with blood gametes from male and female gametocytes, fertilization occurs. The zygote is the only diploid stage in the life cycle. Oocysts develops from the zygote in the wall of the mosquitos' gut. Thousands of sporozities develop in the Oocysts and then migrate to the mosquitoes' solivary gland. The infected mosquitoes bit another person infecting the victim with the plasmodium sporozities. The sporozities enters the victim's liver cells. After several days, they undergo multiple division because the merozoties which then used their complexes process to penetrate the victim's red blood cells. The merozoties grow and divides asexually into great number of new merozoties, repeatedly breaking out of red blood cells of interval. This causes periodic chills and fever. Some of the merozoties divide to form gametocytes which complete the life cycle in a new female mosquito.

This is the length of time between the infective mosquito bite and first appearance of clinical signs of which fever is most common. This period is usually not less than 10 days. The duration as the incubation period varies with the species of parasites, and in natural infection (in mosquito – transmitted malaria) this is 12 (9-14) days for falciparum malaria, 14(8-17) days for vivax malaria, 28(18-40) days for quartan malaria and 17(16-18) days for Ovale malaria with some strains of

plasmodium vivax, this may also occur with other species in person who have been taking suppressive anti malaria drugs. The classical clinical signs and symptoms of malaria result from the body's responses to the periodic influx of merozoites, pigment and debris discharged from infected red cells. After an incubation period of 10-16 days, the first symptoms are fatigue, aches, the chill, fever and sweating appears at first in an irregular pattern but later recurring at 48 or 72 hours' interval as the result as rupturing red blood cells. The classical but rarely observed malaria attack last hours. If consist of:

- i. A cold stage i.e. Sensation of cold, shivering.
- ii. A hot stage i.e. Fever, headaches, vomiting and seizures in young children.
- iii. The sweating stage i.e. Sweat, return to normal temperature and tiredness.

Classically (but infrequently observed) the attacks occurs every second day with the tertian parasites i.e. plasmodium falciparum, plasmodium vivax and every third day with the quartan with a combination of the following symptoms. Fever chills, sweats, headaches, Nausea and Vomiting, body aches (source). Physical finding may include elevated temperature perspiration, wediness and enlarged spleen. In plasmodium falciparum malaria additional finding may include mild jaundice, enlargement of the liver and increased respiratory rate. As the concept of control replace that as eradication in many national programs, a rethink in the prioritization of control methods must occur. These priorities approaches must be based on epidemiological consideration, adverse effect on health economy, technical feasibility, functional resource human resources and community participation. Recently, WHO stressed a number of points relevant to future strategy of malaria control.

Basically, there are two different approaches:

- i. The management of malaria cases in the community.
- ii. Active intervention to control or interrupt malaria transmission with community participation.

The clinical management of malaria cases (i.e. diagnosis and treatment) to reduce morbidity and mortality ought to be the first priority. It is well within the capability of the existing primary health care system. All four cases attending Public Health Centers (PHC) dispensaries hospital for treatment should be presumed to be suffering from malaria. Therefore, in case laboratory diagnosis is not immediately possible, the differential diagnosis on clinical finding samples are made.

RESEARCH METHODOLOGY

This research was carried out in the township of Daru in the Jawei Chiefdom Kailahun District in the Eastern Region of Sierra Leone. Daru is a fairly big town which is densely populated with approximately 20,000 inhabitants. The major economic activities of the inhabitants are farming, business and fishing. This research was carried out in the Daru. The standards of living for most of the inhabitants are below average, poor housing and poor sanitation. Daru is surrounded by swamps and river Moea. During the rainy season, there are series of stagnant water pools and dirt scattered all over the environment such environment can encourage the vector of malaria parasite i.e mosquito to breed and multiply in number. This town was selected for my research because of the geographical location, poor sanitation and poor standard of living of the inhabitants. There are a lot of medical problems affecting this town which needs to be investigated. This study theme is to investigate the prevalence of malaria among children between the age 0-5 years old.

SAMPLING METHOD:

This was done in Yematonya Section (Old Town). There are five street in this section of which four streets were selected at random. From each street five houses were selected 2nd, 4th, 6th, 8th and 10th house in each of these houses selected, there are a lot of children between 0-5 years of age of which I was enable to diagnose them all because of time. In this case, two children of the age group were selected from among ten children by playing raffle in each of the selected houses from the five four street which sum up to fifty children. The relatives of these children were informed for their approval to collect blood sample from their children. The bloods were collected in 2ml per child, in order to avoid wastage of blood. The blood was collected in the morning hours because it was the only suitable time I was able to meet all the children in their respective houses.

DATA COLLECTION PROCEDURES:

The data obtained for this research was collected mainly by the research using several research tools-observation during field trips structured interview. Data was also obtained from records kept in the health centres/ clinics and records kept in the laboratories visited by the researcher. But the primary source of all data collected was from the results of laboratory test, the samples specimen used was obtained from right across the population i.e. children and adults (Men and Women). The laboratory investigation was able to prove the prevalence of malaria among the population investigated. Collection of samples for investigation was in stages. During random sampling, houses that were selected were labeled for further visit. The children were selected in each house that was labeled per street. The parents of these children were informed for their kind permission to carry out the investigation using their children. Samples from forty (40) children, ten (10) from each street were collected for laboratory test.

LABORATORY INVESTIGATION:

Laboratory investigation that was conducted was done in stages ie ten samples per visit until all the forty samples were collected. The reason was that the laboratory facilities that was made available to the researcher not allows larger scale diagnosis at time. In collecting samples, new needles and syringes were used to collect blood samples. This was done to avoid the transfer of infection from one child to another. Ten needles and syringes were used per unit 2ml of blood were collected from each child to avoid waste as blood and put in a test tube which contain Ethyl Diamint Tetra acetic acid (EDTA). The EDTA stop the blood from clotting. The collected blood samples were put into specimen container to be investigated of the Government Hospital Kenema for detail laboratory investigation for the presence of malaria parasites. During this investigation, thick and thin, films were prepared from the blood samples that were collected. The thick films diagnosis is a vitro more challenging because the red cells are destroyed and parasites are not spread out. However, more positive findings were reported with the thick film. It can also help to diagnose scanty parasite from a specimen. It also showed the developmental stages of all the plasmodium in the blood films prepared. On the other hand, the thin films helped the researcher to know which type of plasmodium is prevalent and it shows the morphology of blood cells. The standard operating procedures (SOP) was observed. Below is the Sop

Observed:

Title: Examination of thick and films for malaria parasites.

Summary: The whole blood was used to prepare thick and films in order to investigate the presence of malaria parasites.

Specimen: Whole blood with Ethyl Diomint Tetra Acetic Acid (EDTA).

Equipment: Microscope with x100 object, slide water, alcohol and staining racks.

Reagents: Giemasa stain i.e. 1/20 which takes 20 minutes to stain.

SAMPLE PREPARATION:

Blood sample were collected and thick and thin film were prepared to be observe the microscope using x 100 oil immersion objective.

Test producer: Two clean sides were used for the preparation of thick and thin films, the film was air dried and then fixed, with 96% alcohol for 20-30 minutes.

- i. The two slides were placed on stained rock.
- ii. The two slides were flooded with 1/20 prepared Giemsa stain for 20-30 minutes.
- iii. The slides were washed with gentle flow of tap water.
- iv. The slides were air dried and observed under the microscope using x 100 oil immersion object.

Evaluation: The researcher found that samples collected for investigation were 75% positive and plasmodium falciparum was the causative agent of the malaria in this section.

DATA TREATMENT:

This research was analysed quantitatively and qualitatively in a table and description form based on the objectives of the study.

DATA FINDINGS, ANALYSIS AND PRESENTATION

The data obtained from series of chemical tests for the presence of malaria parasite in (40) samples that were selected in Daru Yematanga section. The different sets of data obtained from the investigation are presented as follows:

The table below shows percentage of positive cases of malaria in forty (40) children between age 0-5 years.

TABLE I: PERCENTAGE OF MALARIA POSITIVE CASES:

Number of Street	No. Of Children Selected	Positive so Malaria	Percentage
Turay Street	10	8	20%
Wosoma Road	10	7	17.5%
Tanga Street	10	8	20%
Vandy Street	10	7	17.5%
Total	40	30	75%

The table shows the distribution of the forty (40) children that were selected in Yematanga section Daru for the investigation of malaria. Parasite from the table the number of positive cases among the selected samples was thirty (30) children out of forty (40) children. The overall percentage of positive children (case) was 75%. From table, we can see from the following bar Chart which street in the most seriously affected:

Figure I: Showing the Positive Cases and Malaria cases by Street:

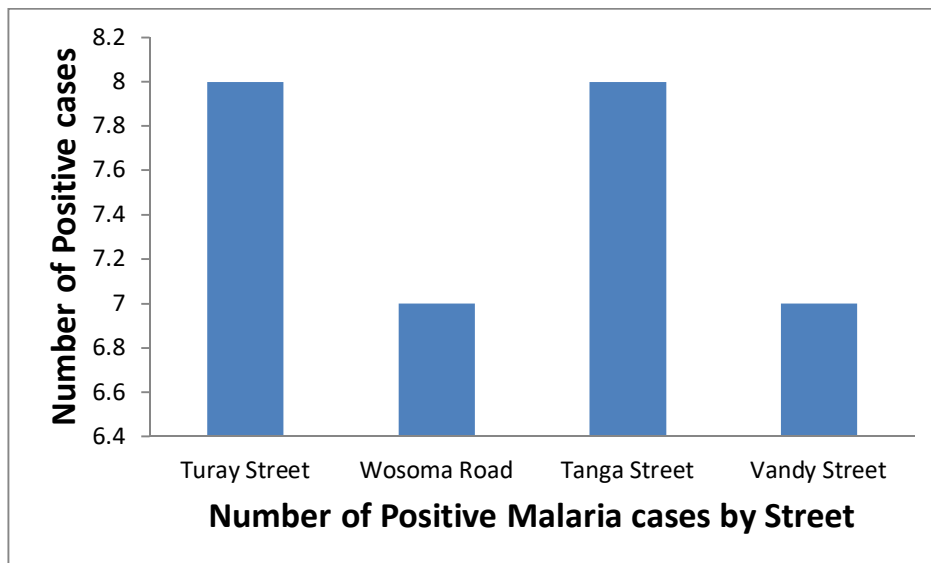
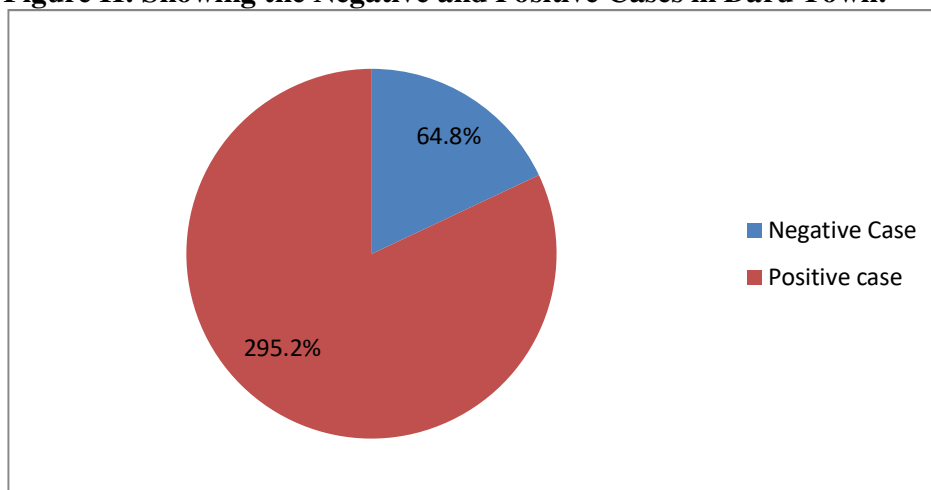


Figure II: Showing the Negative and Positive Cases in Daru Town:



The pie chart is showing the proportion of negative and positive cases in the overall population targeted for this research.

TABLE II: PERCENTAGE OF FEMALE CHILDREN POSITIVE FOR MALARIA PARASITE:

Name of Street	No. Of Female Children	Positive for Malaria	Percentage
Turay Street	6 Female	5	31.25%
Wosoma Road	3 Female	3	18.75%
Tanga Street	2 Female	2	12.50%
Vandy Street	5 Female	3	18.75%
Total	16 Female	13	18.25%

The table shows the number of female children between the age (0-5) who were positive for the malaria parasite. Tanga street was the least street that was infected. The total number of female children selected was sixteen (16) of which thirteen (13) were tested positive. The total percentage of female children who were infected of malaria parasite was 81.25%.

TABLE III: THE PREVALENCE OF MALARIA FALCIPARIUM:

Number of Street	No. Of Children Selected	Positive for Malaria	Percentage
Turay Street	10	8	20.0%
Wosoma Road	10	7	17.5%
Tanga Street	10	8	20.0%
Vandy Street	10	8	20.0%
Total	40	31	75%

DISCUSSION OF RESULT:

The data presented in the previous tables in this chapter has proved the prevalence of malaria in the Yematanga section in Daru Town. This proof is worth discussing in order to show a clear picture of the prevalence of malaria in Daru Town as a result of the criteria that were used to select the study samples. The investigation indicates differences between the infection rate of male and female children that were tested (24) twenty-four male children were positive of which the percentage was 83% and seventeen female children for malaria and the percentage was 81%. This was got from the twenty-nine (29) males and twenty-one females that were tested. The overall percentage for the infected children was 83% of which these forty-one (41) children were tested positive of malaria. This result is in line with the research done by Joe Vandy, medical laboratory technology of the Government Hospital Kenema in 2005 on the presence of malaria in the township of Daru (unpolished result). WHO is currently emphasizing malaria control/eradication of which the drug treatment is an important component under the revised strategy, mass drug administration has been recommended in highly endemic area. While drugs may provide a temporary relief the ultimate solution lies on the interruption of transmission. This result appears that every child in this section is vulnerable to malaria infection. However, on the male children were found to be more infected than female children. According to the result obtained revealed that Turay Street was found to be the most infected with malaria parasite because the street is close to a swampy area. According to the reading on the thin film, prepared from all the specimen collected indicate that plasmodium Falciparum is the parasite most predominant in Daru Town.

TABLE IV: THE TYPES OF MALARIA PARASTES PREVENT IN THE POPULATION:

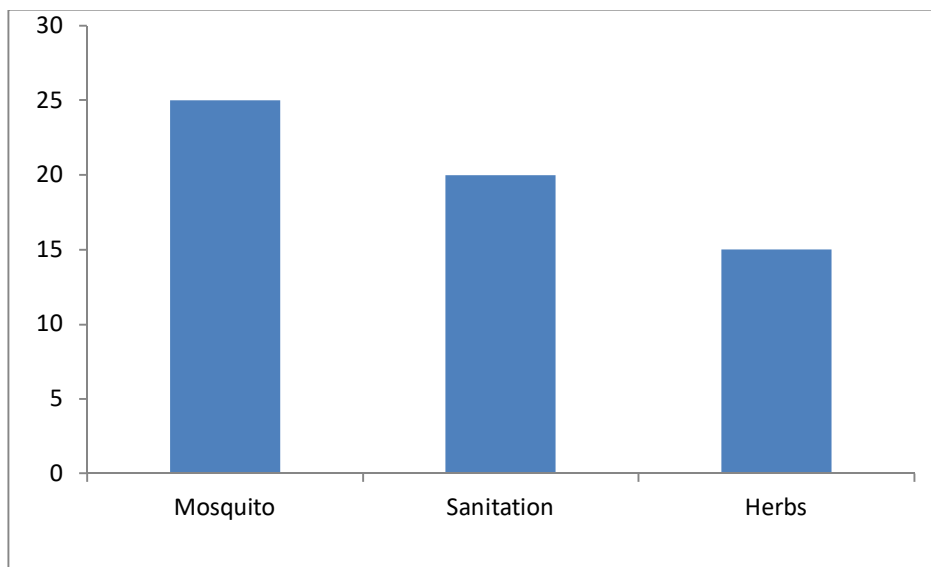
Number of Street	No. Of Children Selected	Falciparum	Vivax	Ovali	Malaria
Turay Street	10	7	0	0	0
Wosoma Road	10	8	0	0	0
Tanga Street	10	8	0	0	0
Vandy Street	10	8	0	0	0
Total	40	31	0	0	0

It is implied from this analysis that the whole population tested from all the streets were positive only for the falciparum strain of malaria. This confirms the general thinking in medical circles that the other strains of malaria are mostly found in travelers/foreigners.

TABLE V: PREVALENCE MEASURES BY THE POPULATION:

Number of Street	No. Of Children Selected	Sleep Net	Low Bush	Sanitation of Herbs
Turay Street	10	6	2	2
Wosoma Road	10	5	3	2
Tanga Street	10	6	3	1
Vandy Street	10	4	4	2
Total	40	21	12	7

It can be seen that mosquito nets are more reliable for the prevention of malaria and as such more people use it. The bar graph below is an attempt to clarify the above statement from the figures in the table.



Bar chart showing the most widely used preventive measures.

Drugs Administered by Medical personnel to treat malaria:

Name of Street	Positive	Quinine	Artesunate	Foncider	Artimeter	Camo Quine	
Turay Street	10	7	4	2	1	3	0
Wosoma Road	10	8	3	3	2	2	0
Tanga Street	10	8	3	2	3	1	0
Vandy Street	10	8	4	2	1	0	0
Total	40	31	14	9	7	6	1

SUMMARY, CONCLUSION AND RECOMMENDATION

Malaria has been understood to be a killer disease and also fatal. It causes suffering of the patient and slowly subdues the patient to death, and this has been so since human civilization. Also, mankind been trying to understand the disease (it cause possible cure). But through time lots of investigation/research have been conducted and facts gathered. Malaria is now available and has been put under some control in some countries or kept of bay. But in the developing world – Africa and Asia, Malaria continues to cause devastation on the population. Hence affecting, the developmental agendas of the countries/regions. Malaria causes weakness in the patient, loss of appetite, anaemia and if not cured lead to death. But with the discoveries of drug, like

quinine and later Artesunate and amodiaquine, it is possible to cure malaria. But the big question is how we can prevent it especially in poor countries like Sierra Leone. With places as remote as Daru. No vaccine has yet been discovered and as such we continue to research the disease. This piece as the disease and help eliminate it in our communities and nation as a whole we have come to know and understand the causative agent or parasite, the vectors, the sign and symptoms, of the disease, some effective, preventive measures and now trying to eliminate it.

This research has tried to reveal the prevalence of malaria in the Daru Community in this attempt the research also found out the dominant species of malaria that affect the people of this community and also how they prevent themselves from contracting and how they treat when they fall ill with malaria. Based on these, the following suggestion/recommendation has been made to all who have interest in this field.

- i. First of all, government and NGOs should train and encourage health workers to pass on their knowledge of the disease to the community people to prevent themselves from contracting the disease and detect it early when someone falls ill.
- ii. Government and NGOs should encourage and target research in these areas so that such information can help government and health agencies target their researches (especially drugs) where they are needed most and take programs very effective.
- iii. According to geographical location and hygiene conditions of this section, the community people should embark on sanitation drive which will help to destroy the breeding site of the mosquitoes.
- iv. The Ministry of Health and Sanitation should embark on training and supervision of health workers to ensure that they carry out their tasks correctly.
- v. The government through the Ministry of health and sanitation in Collaboration with Non-Governmental Organization (NGO) such as International Rescue Committee (IRC) should embark, on health education where the communities are informed of what they can do to prevent and treat malaria.
- vi. Lastly, government and NGO should make it possible for communities to get free treatment and supply of mosquito nets to the community people.

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