# COMPARISON OF THE RAINING SEASON'S INCIDENCE OF MALARIA IN MICHIKA

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**ABSTARCT:** This work is a compilation and processing of all malaria cases reported from June to October for two years, 2019 and 2020 at general hospital Michika, Adamawa State Nigeria. The aim of the study is to document and compare the incidence of malaria within the said period with regard to various age categorization, gender and the parasite density. A total of 2960 cases of malaria was reported, 1535 in 2019 and 1425 in 2020. In the year 2019, 34.7% of the cases were male while 52.64% were female, the remaining was not specified. With respect to age, 10% of the cases were age 5 and below, 12.75 were between 6 and 20, 25.93% were of age 21-50, 14.2% were 50 and above while the rest is no well documented. In relation to parasite density, 28.59% have a parasite density of positive 1, 55.44% have a parasite load of 2 positive, 1.17% has a density of 3 positive while the remaining was not well captured. In the year 2020, 37.54% of the cases were male while 57.12% were female, the rest was not captured. 6.39% of the cases were children of age 5 and below, 14.44% were of age 6-20, 26.88% were of age 21-50, 15.93% were of age 50 and above while the rest is not captured. With regards to parasite density, 19.65% have a parasite load of 1 positive, 53.82% have a parasite load of 2 positive, 0.56% have a parasite load of 3 was not well recorded.
**Keyword:** Malaria, Density, Gender, Age, Michika.

## INTRODUCTION

Malaria is by far the most commonest and major source of illness in Africa and many parts of the world. It is a grave global health challenge that can result into sudden death if not diagnosed and treated on time (WHO, 2009). About 300-500 million cases of malaria is reported annually (WHO, 2002) and pregnant women and children under 5 years are said to be the most vulnerable of being infected with the disease (WHO, 2019). Malaria is caused by a microscopic parasite called *plasmodium* that undergoes a complex life cycle which upon maturation affects the red blood cells; *plasmodium* are vectored by female anopheles mosquito and infection can be from infected mosquito to man or vice versa (WHO, 2009). Symptoms of malaria include fever, malaise, weakness, headache, gastrointestinal complications, neurological complains and pains (CDC, 2019). Even in situations where these symptoms have been observed, it is good and always advisable to visit a good laboratory for blood

examination before a final conclusion should be made about the malaria status of an individual and the administration of medicine (WHO, 2015 and CDC, 2019).

A person that is to be tested for malaria usually will have some of his data taken down such as name, gender, age, address and phone number which is to be kept confidential (WHO, 2015). This has been a great challenge to most developing countries because the data generated is incomplete and not reliable. Hay & Snow (2006) observed and reported this anomaly in Kenya that at best, the information that can be derived from these data are guess work. Similarly, Pakka (2021) Found out many of the important data of patients are missing from their record which makes it of little importance for policy making and drawing inferences. Accurate patient record is of vital importance (WHO, 2015). Great care should be taken during all the process of the microscopic examination of blood, gloves should be worn, lancets should be used and properly disposed (WHO, 2009). A thick blood film is used to search for *plasmodium* parasite because it is concentrated while the thin blood film is used to ascertain the species of the *plasmodium* (WHO, 2009). Malaria is a major source of absenteeism of students from school and people at work. Defeating malaria is a great possibility for North America and Europe have done it and many countries of the world have been certify free of Malaria, only imported cases are usually reported in these countries (WHO, 2019). Despite of the success that have been registered in the battle against Malaria, it is still reemerging in some areas because of climate change, decline in vigilance and reduction of resources channeled for the control of it (WHO, 2002 and WHO, 2019).

## METHODOLOGY AND STUDY AREA
This exercise is a survey that involves a painstaking collection of all malaria cases at general hospital, Michika Local Government Area, Adamawa State, Nigeria. This records was collected after due consultation of relevant authority. Relevant data such as the age, gender, density of parasite was extracted and tabulated in simple form so as to easily compare the cases of malaria at a glance in the raining seasons of 2019 and 2020. This records is only to be used for academic purpose and patience confidentiality is given uttermost priority. Patient's data like name, address, e-mail, mobile number was not taken.

## RESULT AND DISCUSSION

# INCIDENCE OF MALARIA IN 2019

## June

| Gender | | Age | | | | | | Quantity | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| M | F | Non | 5≤ | 6-20 | 21-50 | ≥51 | Non | +  76 | ++ | +++ | Non | Total |
| 100 | 133 | 2 | 37 | 32 | 81 | 52 | 33 | | 111 | 1 | 47 | 235 |

## July

| Gender | | Age | | | | | | Quantity | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| M | F | Non | 5≤ | 6-20 | 21-50 | ≥51 | Non | +  99 | ++ | +++ | Non | Total |
| 137 | 209 | 10 | 61 | 52 | 130 | 75 | 38 | | 211 | 7 | 39 | 356 |

## August

| Gender | | Age | | | | | | Quantity | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| M | F | Non | 5≤ | 6-20 | 21-50 | ≥51 | Non | +  104 | ++ | +++ | Non | Total |
| 134 | 224 | 7 | 31 | 68 | 128 | 71 | 67 | | 192 | 9 | 60 | 365 |

## September

| Gender | | Age | | | | | | Quantity | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| M | F | Non | 5≤ | 6-20 | 21-50 | ≥51 | Non | +  104 | ++ | +++ | Non | Total |
| 98 | 146 | 165 | 20 | 28 | 44 | 15 | 302 | | 243 | 1 | 61 | 409 |

## October

| Gender | | Age | | | | | | Quantity | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| M | F | Non | 5≤ | 6-20 | 21-50 | ≥51 | Non | +  56 | ++ | +++ | Non | Total |
| 64 | 96 | 10 | 5 | 15 | 15 | 5 | 130 | | 94 | 0 | 20 | 170 |

Source: General Hospital Michika Laboratory Record.

# INCIDENCE OF MALARIA IN 2020

## June

| Gender | | Age | | | | | | Quantity | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| M | F | Non | 5≤ | 6-20 | 21-50 | ≥51 | Non | + | ++ | +++ | Non | Total |
| 111 | 204 | 13 | 20 | 45 | 110 | 63 | 90 | 84 | 186 | 2 | 56 | 328 |

## July

| Gender | | Age | | | | | Quantity | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | F | Non | 5≤ | 6-20 | 21-50 | ≥51 | Non | + | ++ | +++ | Non | Total |
| 107 | 146 | 8 | 17 | 37 | 62 | 40 | 105 | 63 | 127 | 1 | 70 | 261 |

## August

| Gender | | Age | | | | | Quantity | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | F | Non | 5≤ | 6-20 | 21-50 | ≥51 | Non | + | ++ | +++ | Non | Total |
| 94 | 132 | 4 | 25 | 30 | 81 | 33 | 61 | 9 | 26 | 1 | 194 | 230 |

## September

| Gender | | Age | | | | | Quantity | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | F | Non | 5≤ | 6-20 | 21-50 | ≥51 | Non | + | ++ | +++ | Non | Total |
| 130 | 174 | 40 | 14 | 19 | 70 | 36 | 205 | 44 | 252 | 2 | 46 | 344 |

## October

| Gender | | Age | | | | | Quantity | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | F | Non | 5≤ | 6-20 | 21-50 | ≥51 | Non | + | ++ | +++ | Non | Total |
| 93 | 158 | 11 | 15 | 32 | 60 | 55 | 100 | 80 | 176 | 2 | 4 | 262 |

Source: General Hospital Michika Laboratory Record

## INCIDENCE OF MALARIA IN 2019 AND 2010

| | Gender | | Age | | | | | | Parasite Density | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Male | Female | None | <5 | 6-20 | 21-50 | >51 | Unspecified | + | ++ | +++ | None | | |
| 2019 | 533 | 808 | 194 | 154 | 195 | 398 | 218 | 570 | 439 | 851 | 18 | 227 | | 1535 |
| 2020 | 535 | 814 | 76 | 91 | 163 | 383 | 227 | 561 | 280 | 767 | 8 | 370 | | 1425 |
| Total | 1068 | 1622 | 270 | 245 | 358 | 781 | 445 | 1131 | 719 | 1618 | 26 | 597 | | 2960 |

Source: General Hospital Michika Laboratory Record

A Line graph showing the monthly incidence of Malaria
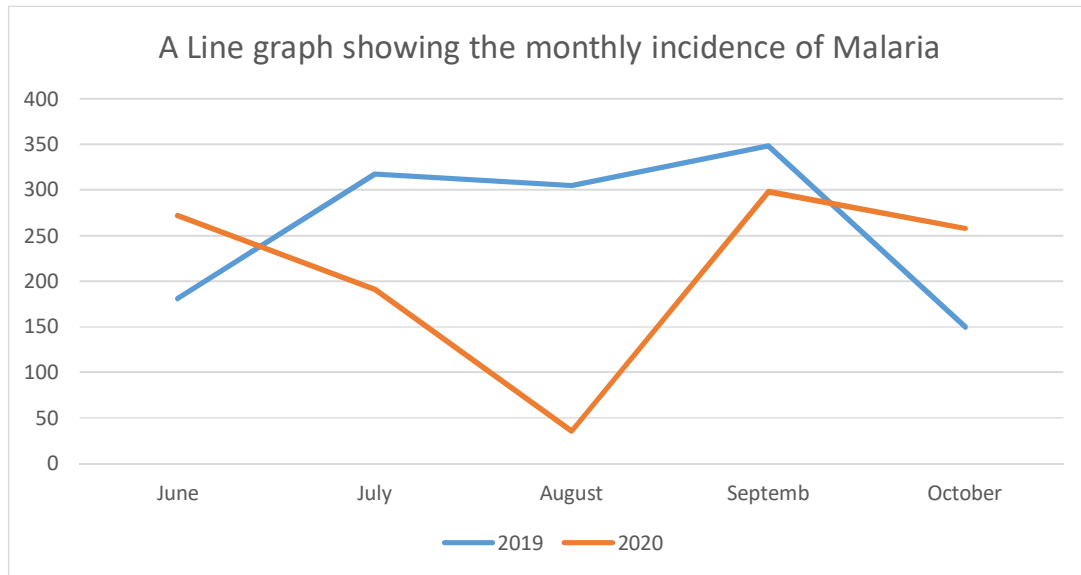


From the graph, it can easily be seen that in both 2019 and 2020, the highest number of malaria case was recorded in the month of September while the lowest was in August. There is a general decline after this peak. Nglass *at al* (2019) report a step rise in the cases of malaria from July to November while Kibret *et al* (2016) shows increase in malaria cases in the presence of water.

A Bar chart Showing the Incidence of Malaria base on Gender
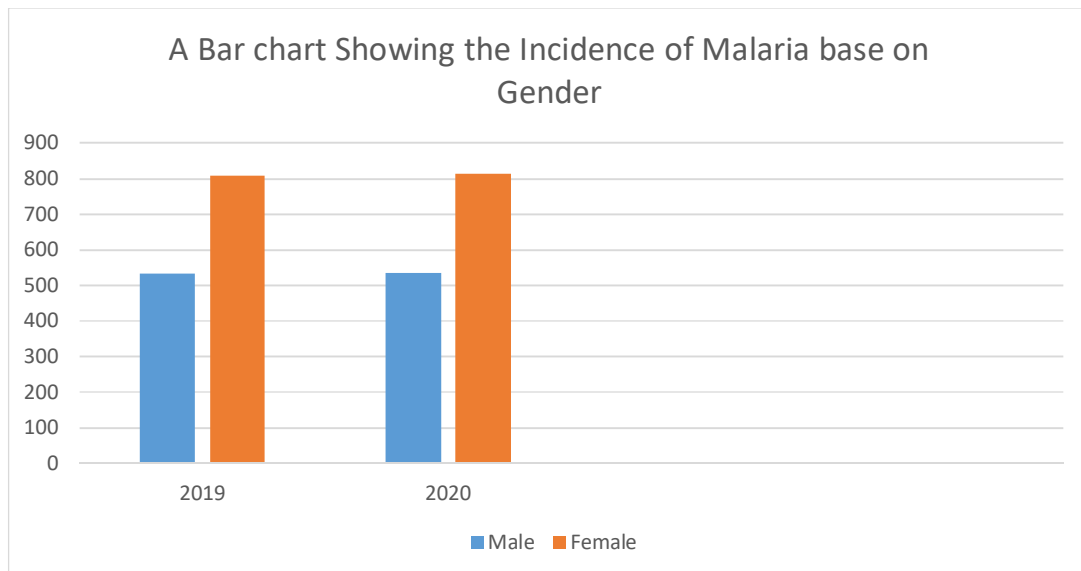


The above chart shows that females were infected with malaria more than the males in both 2019 and 2020. This is in agreement with the work of Nglass *et al* (2019) and Pakka (2020) but in contrast to Napthali, Babylon, Musa and Atinga (2017) that reported higher incidence of malaria among males.

A Bar chart Showing the incidence of Malaria with Various Age Groups.
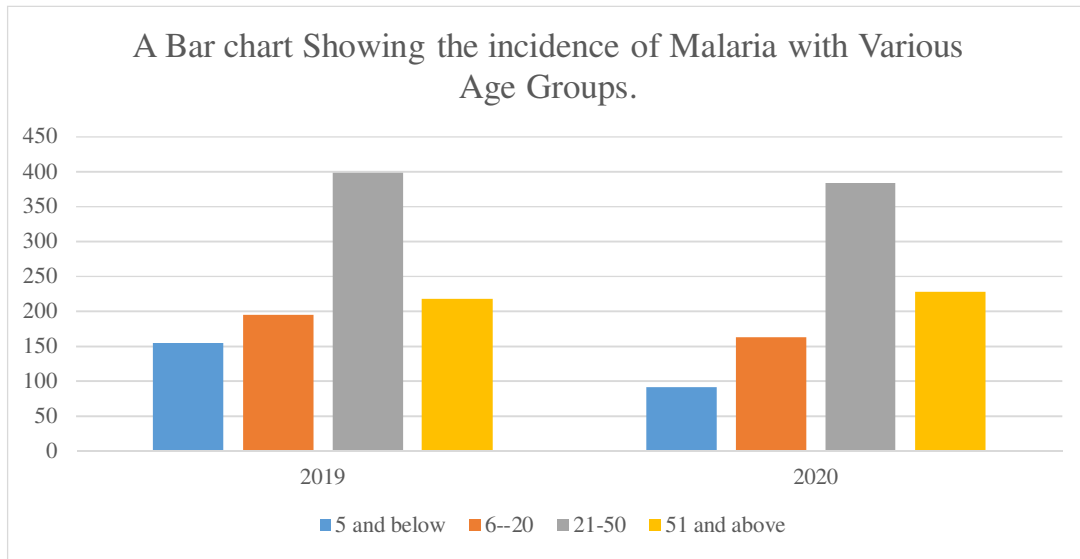


The record shows that people that falls within the age bracket of 21 to 50 years of age forms the must infected by Malaria. This is in disagreement with established report by WHO which shows that children under five (5) and pregnant women are the most vulnerable. A reason for the discrepancy might be because more people from that age category was diagnosed for malaria at the hospital.

A Bar Chart Showing the Incidence of Malaria with Parasite Desnsity
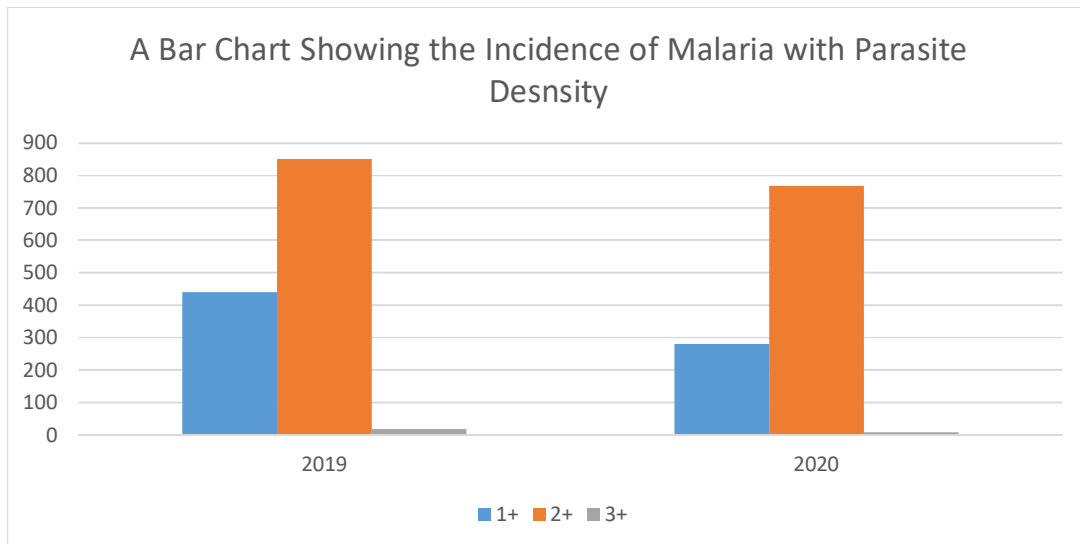


The records in both 2019 and 2020 shows that by far, most of the people diagnosed for malaria had a parasitic density of 2 positive. This is in affirmation with the findings of Pakka (2020) and perhaps because Malaria is a common illness in the area.

## CONCLUSION AND SUGGESTION

Malaria is still a very serious health challenge and all effort from individuals, cooperate bodies and government should not be spared in its management and control. Individuals should take the necessary actions by providing environment that will not support the growth of mosquito and by sleep sleeping under an insecticide treated net or the use of insect repellants and insecticides. Governments should provide hospitals with needed gears and medicines to ensure quality diagnosis and the treated of the disease. There should be training and retraining of laboratory staff on the malaria disease and patients data should be recorded as soon as possible to avoid incomplete data.

## ACKNOWLEDGMENT

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