

# ROTARIANS AGAINST MALARIA PAPUA NEW GUINEA

## RAMs Role In Malaria Control In PNG RAM Meeting

10 June 2020

Tim Freeman



## RAM/NDOH PROGRAMME

### RAM/NDOH PROGRAMME

- Net Distribution
- Health Facility Supervision Visits
- Drug Distribution
- HMM (2020)
- Management Of Finances For IMR and NDOH
- Chasing Malaria





## RAM PROGRAMME

### RAMs Funding

- Global Fund
  - 77.6% of funding
  - Nets over 1600 metres, drugs, HF supervision, IMR
- Against Malaria Foundation
  - 19.3% of funding
  - All nets under 1600 metres
- PNG Sustainable
  - 2.4% of funding
  - Western Province nets and drug distribution
- RAM (PNG and Australia)
  - 0.6% of funding
  - Chasing Malaria
- Exxon Mobil

# PNG – MALARIA PROGRAMME

## RAM PROGRAMME

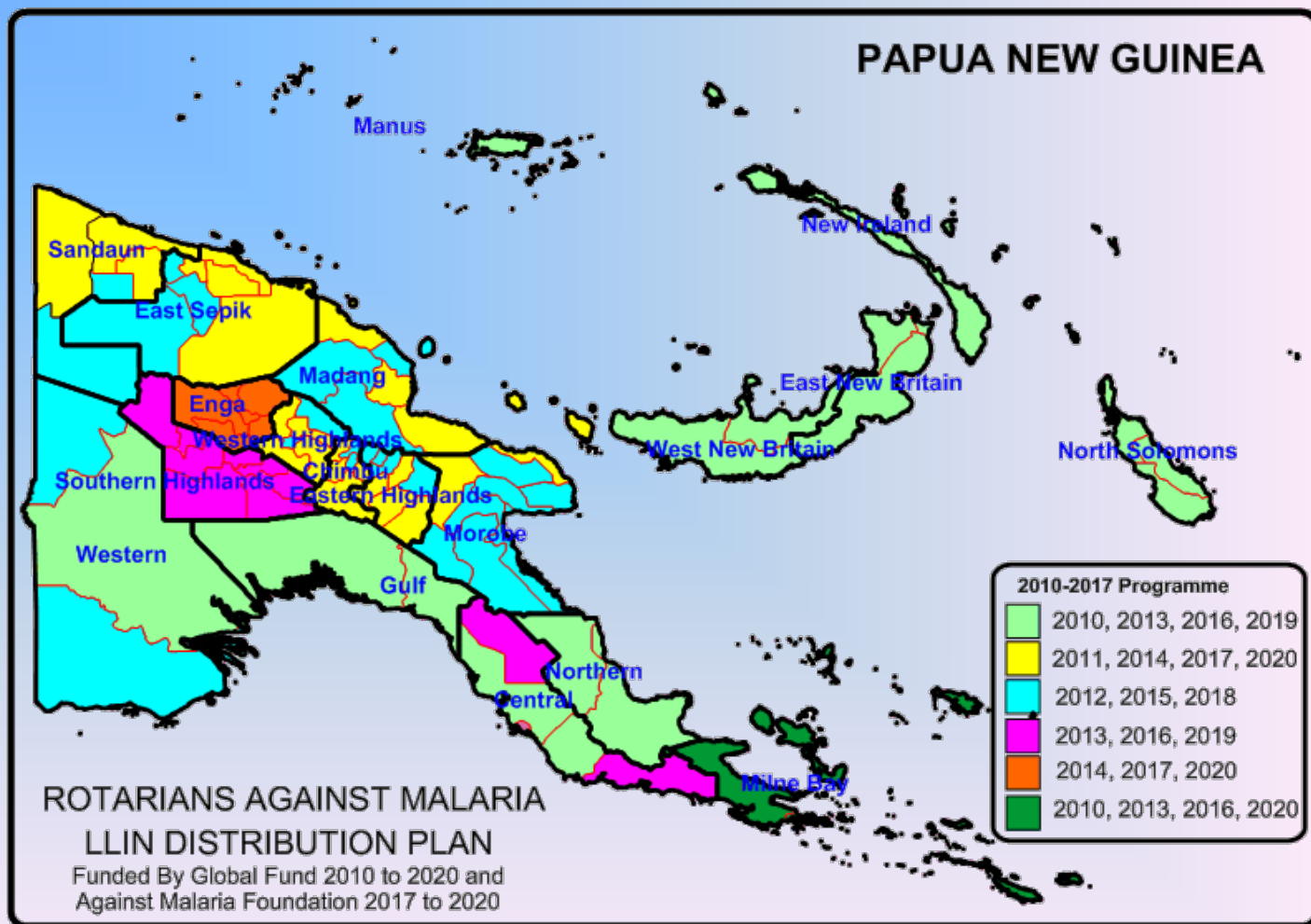
### Funding Sources And Amounts

Donor	2018	2019	2020	Total	%
Global Fund	7,045,632	9,013,004	12,651,962	28,710,597	77.6
AMF	1,947,414	2,078,858	3,118,600	7,144,872	19.3
PNG Sustainable	353,984	395,954	155,643	905,581	2.4
RAM Australia	70,000	70,000	70,000	210,000	0.6
Exxon Mobil	20,000		15,000	35,000	0.1
Total	9,437,030	11,557,816	16,011,205	37,006,050	100.0

It is expected that RAM will expend all funds budgeted before the end of 2020

# LLIN DISTRIBUTION

RAM  
Distributes  
LLINs On A  
Three Year  
Basis To All  
Areas Of  
PNG



Presently in Southern Highlands and Central Province and moving shortly to Gulf

# LLIN DISTRIBUTION

## Distribution Of LLINs To Household Level

Period	Dates	Districts	Provinces	Nets Delivered
Phase One (2010-2011)	Nov 09 - Oct 11	50 Districts	18 Provinces	1,890,448
Year 3 (2012)	Nov 11 - Sep 12	27 Districts	10 Provinces	832,671
Year 4 (2013)	Oct 12 - Sep 13	28 Districts	12 Provinces	1,210,391
Year 5 (2014)	Oct 13 - Sep 14	23 Districts	11 Provinces	1,374,791
Year 5 (2014) No Cost Extension	Oct 14 - Dec 14	Okapa, Lufa, Madang, Angoram, Maprik, Yangoru Saussi, Wewak, Aitape Lumi, Nuku and Vanimo Green	EHP, Madang, East Sepik and Sandaun	454,806
Year 6 (2015)	Jan - Dec 2015	29 Districts	11 Provinces	932,822
Year 7 (2016)	Jan - Dec 2016	27 Districts	13 Provinces	805,597
Year 8 (2017)	Jan - Dec 2017	36 Districts	13 Provinces	1,543,947
Year 9 (2018)	Jan - Dec 2018	27 Districts	11 Provinces	1,211,922
Year 10 (2019)	Jan - Dec 2019	26 Districts	12 Provinces	1,266,525
	Jan - Mar 2020	Pomio, Rabaul, Kokopo, Samuraimurua, Kiriwina Goodenough, Ess'ala, Alotau, Wabag	East New Britain, Milne Bay, Enga	296,227
	Apr - Jun 2020	Mul Bayer, Tambul Nebliyer, North Waghi, Anglimp South Waghi	Enga, Western Highlands, Jiwaka	356,781
New Funding Model (2015-2018)				6,413,821
Round Eight (2010 - 2014)				5,763,107
Overall Total Phase One and Phase Two And NFM				12,176,928

**103% of target achieved for 2019 and 97.2% for first six months of 2020**

# LLIN DISTRIBUTION

## Distribution Of LLINs To Vulnerable Groups

Totals	Antenatal	Schools	Prisons	Others	Totals
Phase One	208,602	43,242	4,656	5,158	261,658
Phase Two	444,603	83,229	4,253	10,084	542,169
Total NFM	440,021	17,466	2,047	473	460,007
Total 2018	134,274	0	140	302	134,716
Total 2019	65,468	630	0	200	66,298
Jan-Mar 20 (Q9 GFNP)	4,052	0	0	0	4,052
Apr-Jun 20 (Q10 GFNP)	3,100	0	0	0	3,100
TOTAL GFNP	206,894	630	140	502	208,166
Total Prog	1,300,120	144,567	11,096	16,217	1,472,000
Percentage	88.3%	9.8%	0.8%	1.1%	100.0%
Perecentage GFNP	99.4	0.3	0.1	0.2	100.0

**No Targets For Antenatal Nets As No Nets Supplied By GF In 2018 and 2019**



# LLIN DISTRIBUTION











## LLIN DISTRIBUTION

- CONSTRAINTS
  - Tribal Fights
    - Unable to do one complete district (Dei in Western Highlands) and several other areas.
    - Had to evacuate a RAM team from one fly in area in Enga due to disputes between local health staff and communities.
  - Covid 19 – has delayed operations in some places with flights not available when you need them and quarantine in Enga Province.



## HEALTH CENTRE SUPERVISION

- RAM programme now employs eleven Regional Malaria Coordinators (RMCs) and seven Provincial Malaria Supervisors (PMS)
- RMCs visit all accessible health facilities (not Aid Posts) on a quarterly basis. At each health facility the RMCs carry out the following:
  - Supply RDTs, ACTs and Antenatal LLINs to a predetermined level.
  - Ensure that RDTs, ACTS are fully accounted for.
  - Monitor testing and treatment of malaria and train where necessary.
  - Ensure that all cases of malaria are recorded and data submitted to the NHIS on time.

## HEALTH CENTRE ISSUES

- Reporting to the National Health Information System (NHIS) is very slow.
- Communication with remote health centres extremely difficult and supplying commodities to these locations problematic.
- However, an electronic National Health Information System (ENHIS) will be installed in all health centres in the coming year and hopefully this will allow health data to be available more quickly.
- RAM will work with ENHIS to ensure that it is used properly.

## HEALTH CENTRE ISSUES

- Estimated that 40-50% cases of malaria are not recorded. This has made quantification of ACTs and RDTs very difficult. It is estimated that
  - Negative cases are often not recorded.
  - Clinically diagnosed malaria cases often not recorded.
  - Treatment from AID posts not included in many cases but Aid Post Kit Drugs also not included in the above

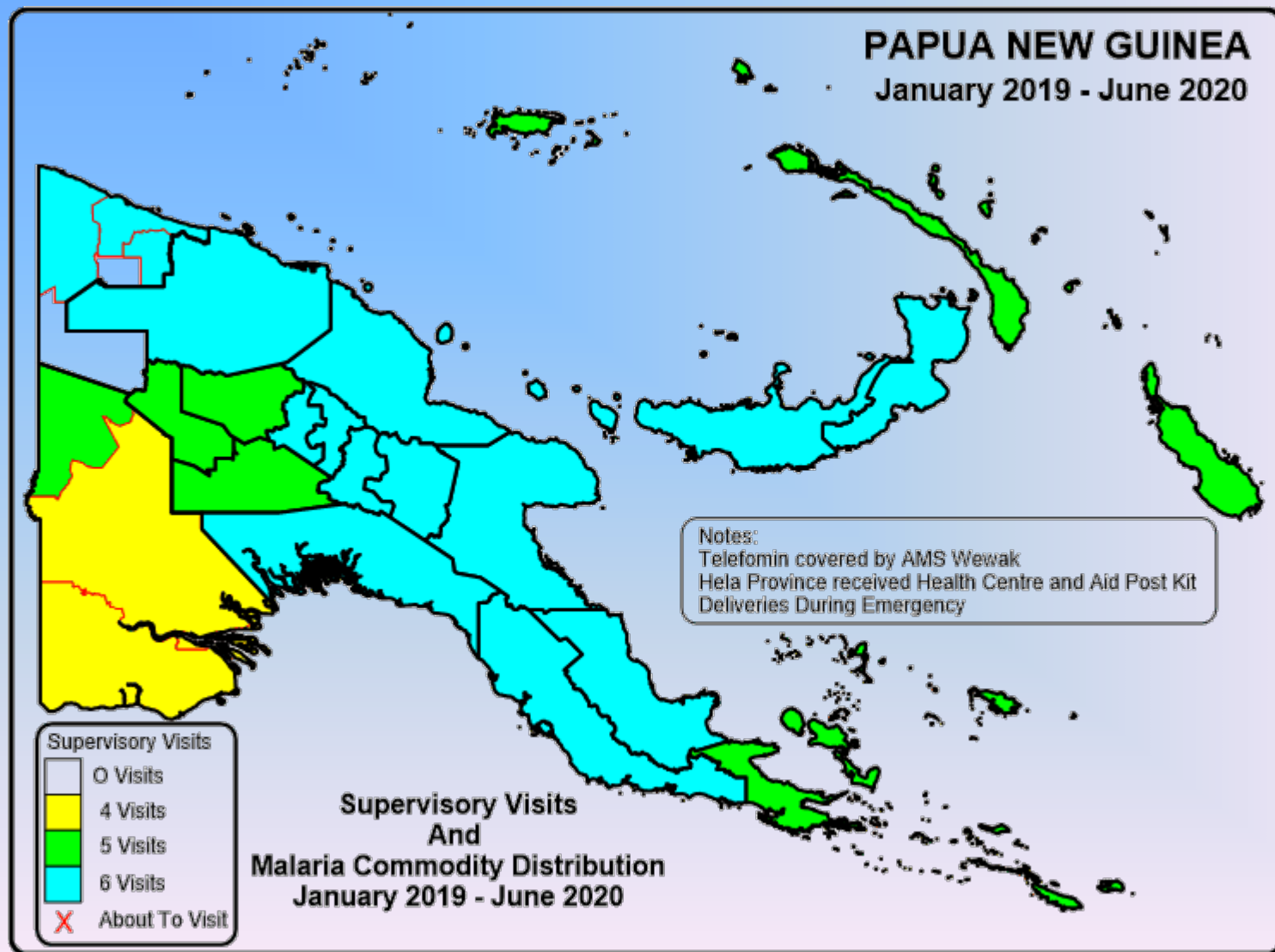
2019	RDTs	ACTs
Total Treatments Distributed	2,632,586	1,713,840
Cases Recorded	1,212,337	823,342
% Recorded As Treated	46.05	48.04



## DRUG DISTRIBUTION

- Since January 2019, RMCs have visited all provinces at least four times.
- 14 out of 22 provinces already visited six times.
- RAM is working very closely with the National Department of Health Supply Division. RAM is filling in stock shortages of ACTs and RDTs throughout PNG and has distributed both RDTs and ACTs from Global Fund and from government of PNG in a combined distribution.

## DRUG DISTRIBUTION



## DRUG DISTRIBUTION 2019

- Logistics Team and RMC distribute malaria commodities from both Global Fund and NDoH.
- Drugs procured through Global Fund.
- Distribution in coordination with RMCs and AMSs.

AMS	RDT	AL6	AL12	AL18	AL24	Total ACT	PQ
Badili	168,900	62,760	55,050	19,650	57,840	195,300	4,089,700
Hagen	101,375	3,000	25,950	11,010	31,890	71,850	1,774,000
Lae	572,625	97,410	135,630	109,350	139,680	482,070	4,574,200
Kokopo	247,425	32,250	23,640	46,560	57,210	159,660	1,184,000
Wewak	223,375	58,410	81,930	66,450	37,980	244,770	2,294,700
<b>NDoH Total</b>	<b>1,313,700</b>	<b>253,830</b>	<b>322,200</b>	<b>253,020</b>	<b>324,600</b>	<b>1,153,650</b>	<b>13,916,600</b>
<b>NDoH Distributed by RAM</b>	1,185,005	128,995	191,513	121,358	172,405	614,271	-
<b>Distributed by NDoH</b>	128,695	124,835	130,687	131,662	152,195	539,379	-
<b>RAM/GF/PNGSDP</b>	<b>1,318,886</b>	<b>61,890</b>	<b>153,180</b>	<b>88,620</b>	<b>256,500</b>	<b>560,190</b>	<b>639,100</b>
<b>Grand Total</b>	<b>2,632,586</b>	<b>315,720</b>	<b>475,380</b>	<b>341,640</b>	<b>581,100</b>	<b>1,713,840</b>	<b>14,555,700</b>
<b>% Of Drugs Distributed By RAM</b>	95.1	60.5	72.5	61.5	73.8	68.5	4.4



## DRUG DISTRIBUTION



## INSTITUTE OF MEDICAL RESEARCH

RAM is managing finances of IMR in three studies being supported by the Global Fund.

- Stratification of malaria in PNG in 2018.
- Insecticide Resistance in 2018 and 2020.
- Malaria Indicator Survey in 2019 – 2020.

## INSTITUTE OF MEDICAL RESEARCH

# STRATIFICATION

It is presently assumed that the stratification of malaria in PNG is as follows:

- 0-1200m Malaria is endemic
- 1200-1600m Malaria is epidemic
- 1600-2000m Only *P. vivax* is transmitted
- 2000m and over No malaria transmission.

This study is to determine if these limits are still good in the environment of Global Warming



## INSTITUTE OF MEDICAL RESEARCH

### Malaria Indicator Survey

This is a national malaria survey which covers all provinces. It looks primarily at three things,

- LLIN Coverage and Usage
- Treatment seeking practices
- National Prevalence

(Note LLIN Coverage has remained consistent for seven years)

## NATIONAL DEPARTMENT OF HEALTH

Working Closely Alongside the National Malaria Control Program (MCP) Including

- 1) Coordination of all malaria activities in the country
- 2) Therapeutic Efficacy Studies of Anti Malaria Drugs carried out by MCP
- 3) Community Based Malaria Programs including Home Management of Malaria

## HOME MANAGEMENT OF MALARIA

- Program involved training Community Volunteers in remote areas in the testing and treatment of malaria.
- Home Management of Malaria (HMM) previously carried out in Sandaun (PSI), East Sepik (Save the Children) and East New Britain (Burnet Institute) from 2015 to 2017.
- Program abandoned in 2017 due to high cost. However continued in Sandaun by PHA which RAM supports.
- PHA HMM program like the one in Sandaun now being rolled out in 2020 Morobe, Madang, East Sepik, New Ireland, Central and Milne Bay.
- Training already carried out in East Sepik (3), Madang (2), Morobe (3) and Central (3), Milne Bay (2).

## CHASING MALARIA PROGRAM

Working closely alongside the NCD, Gulf and Central PHAs. Activities include:

- 1) Giving out nets to all malaria positive patients.
- 2) Map all positive cases.
- 3) Work with schools and communities for malaria education and create school clubs to destroy mosquito breeding sites.
- 4) Training school teachers in test and treating malaria and keeping them supplied with drugs
- 5) Support World Malaria Day
- 6) School malaria prevalence surveys



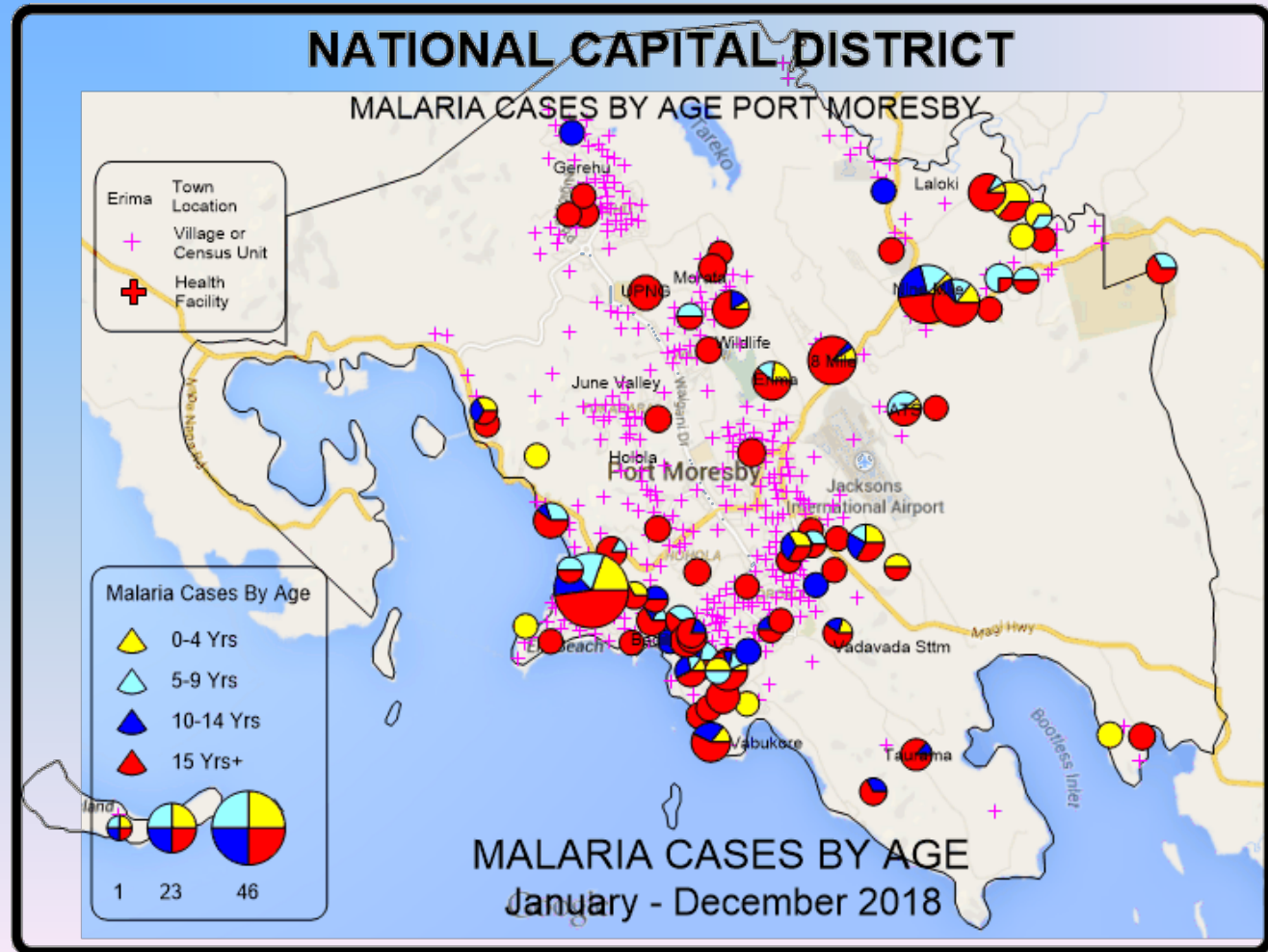
## CHASING MALARIA

LLINs Given Out For Positive Cases Of Malaria In  
Central, NCD and Gulf Provinces

Province	2014	2015	2016	2017	2018	2019	Total
Central	325	3,276	1,888	1,932	2,130	2,356	11,907
NCD	167	925	592	619	823	3,621	6,747
Gulf	0	214	972	1,876	622	2,818	6,502
Total	492	4,415	3,452	4,427	3,575	8,795	25,156

## CHASING MALARIA MAPPING IN NCD

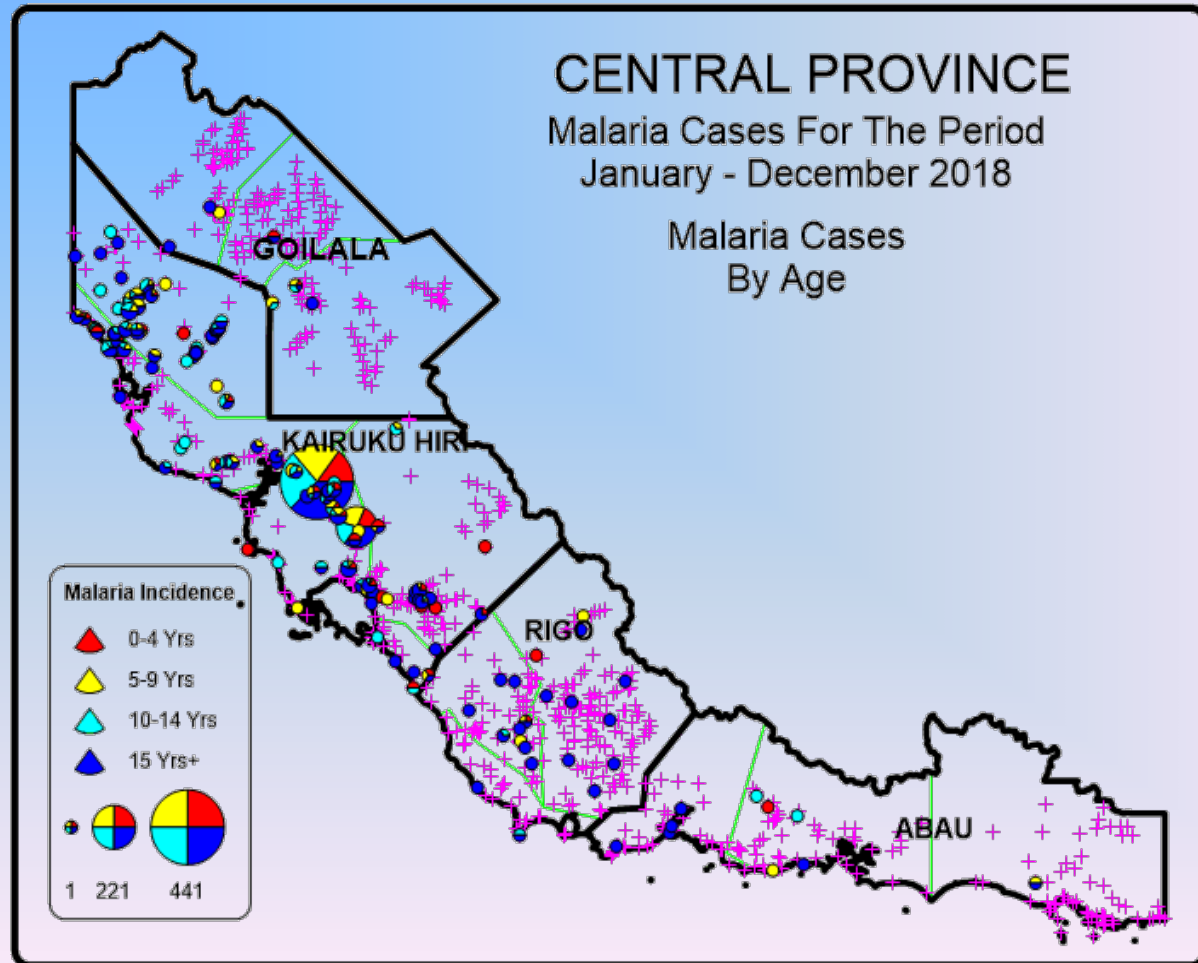
This map shows malaria cases in children in NCD. This suggests that malaria is still being transmitted in Kaugere.



## CHASING MALARIA

### MAPPING IN CENTRAL PROVINCE

Based on this map, Chasing Malaria has concentrated its activities in the Waima and Bereina areas of Kairuku



## SCHOOL PROGRAM

- RAM PNG started the first Chasing Malaria Programme in 2012 in Central Province with a Community Malaria Programme.
- Program was well accepted but did not survive as the area chosen for RAM to work in by the Central Province Authorities has practically no malaria.
- This was the reason why in late 2014, RAM has been giving nets away for all RDT positive cases so we could identify areas of high malaria.
- This has encouraged people to get tested while allowing health staff to collect data on malaria cases throughout the two provinces.
- We also collect data on the travel history of the patients so we know if the case are local or imported.



## SCHOOL PROGRAM

- When starting to plot malaria in 2015, the worst malaria cases were coming from an area known as Waima. This initiated a Community Based Malaria Project in this area starting in 2016.
- The objective was to involve communities and school children in malaria control activities. Community and school response was very good when RAM teams were around but tended to drop off when RAM staff were not there. Despite this, generally malaria in this area has reduced in the last two years.
- Following World Malaria Day 2018 and a school survey carried out, RAM teams moved to Kuriva.

## SCHOOL PROGRAM

- Involves training teachers and school children in malaria and its control.
- School Malaria Clubs are created and children in the clubs are expected to go out once a week and look for mosquito breeding sites.
- Once the mosquito breeding sites are identified, mosquito breeding sites should be destroyed or controlled.
- Presently working with eleven schools
- Supporting Home Management Of Malaria HMM to train community members and teachers in other parts of the province.
- Problems include
  - Schools tend to relax when RAM team is not there
  - Snakes so buying gum boots





## CHASING MALARIA Community Involvement



# PNG - MALARIA LLIN PROGRAMME

## CHASING MALARIA

### School Program

## TRAINING PRIMARY SCHOOL TEACHERS IN KURIVA CENTRAL PROVINCE IN APRIL 2019

- April 2019 - 13 teachers trained in testing and treating malaria.
- Teachers came from six schools plus one village volunteer trained at Kuriva Primary School.
- Teachers now all testing and treating malaria





# CHASING MALARIA

## School Program

**TRAINING PRIMARYSCHOOL TEACHERS IN  
KURIVA CENTRAL PROVINCE IN APRIL 2019**





## CHASING MALARIA – SCHOOL SUPPORT

### RESEARCH BY INSTITUTE OF MEDICAL RESEARCH (IMR)

To try and understand malaria in the area, the IMR was invited to come to Kuriva in Central Province in November 2018

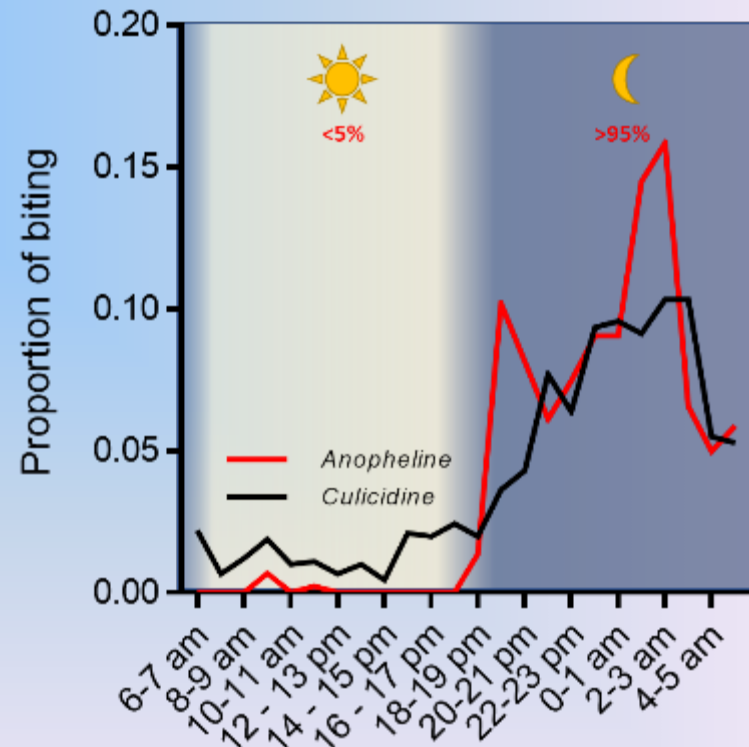


## IMR RESEARCH

### Findings (2)

Most biting occurring at night but significant biting early hours of the evening before people go to bed.

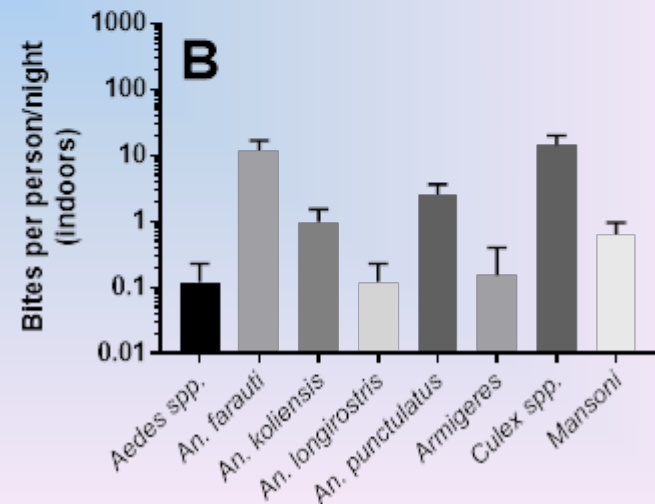
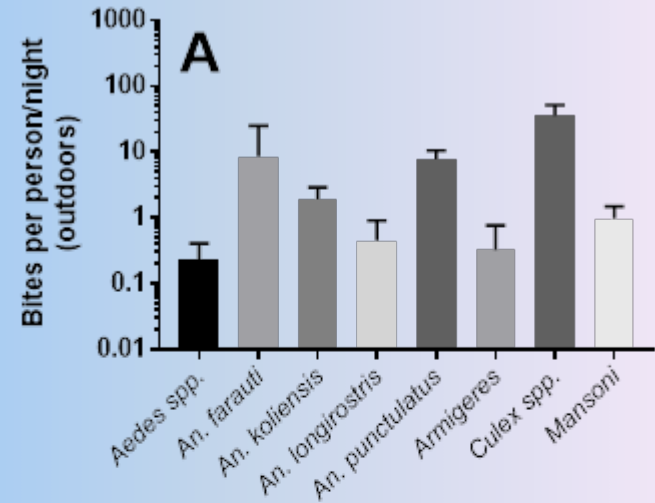
Good news is that mosquitoes are still biting late at night so likely to come into contact with LLIN



## IMR RESEARCH

### Findings

Many species of anophelines biting both inside and outside





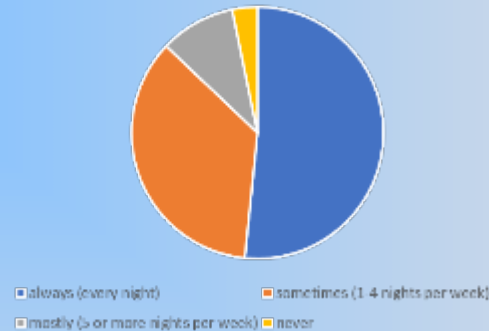
## IMR RESEARCH

### Findings (3)

Many people still not sleeping under mosquito nets and spending a lot of time outside. Most windows have not protection against mosquitoes.

**A**

Bednet usage (overall)



**B**

Did you sleep under a bednet last night



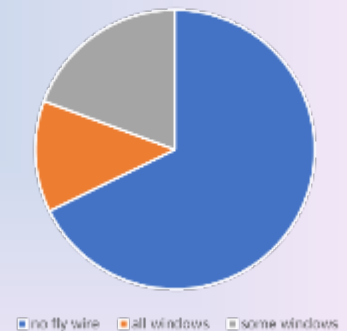
**C**

After sunset, where do you spend most time



**D**

Fly Wire





# PNG - MALARIA PROGRAMME

## WORLD MALARIA DAY

Working now in collaboration with WHO, NDoH Malaria Programme, CPHL and Central Province PHA



World Malaria Day 2018

Kuriva Central Province



World Malaria Day 2019 –

NCD – Ron Seddon (Chairman of RAM together with Minister of Health giving prizes)

## CHASING MALARIA

As a result of World Malaria Day it was decided to carry out malaria prevalence surveys in primary schools through out the country



## WORLD MALARIA DAY PREVALENCE SURVEYS

School Prevalence Surveys Initiated On  
World Malaria Day in Kuriva in 2018 Central  
Province showed very high prevalence rates

Row Labels	Neg	Pf	Non Pf	Mixed	Tested	Positivity
Berere	14	9	8	8	39	64.1
Brown River	77	17	26	24	144	46.5
Doromoku	33	4	6	3	46	28.3
Kerea	83	20	10	10	123	32.5
Vanapa	74	16	20	22	132	43.9
<b>Grand Total</b>	<b>281</b>	<b>66</b>	<b>70</b>	<b>67</b>	<b>484</b>	<b>41.9</b>



## ELEMENTARY SCHOOL PREVALENCE SURVEYS

- School Prevalence Surveys Now carried out throughout PNG in Elementary Schools.
- Results have shown very high prevalence rates in many parts of the country.
- The area big differences between provinces but also within the same province.
- Results from Central Province at least show reductions of malaria in 2019 from 2018.

Primary School	Date	Negative	Pf	Non Pf	Mixed	Total RDTs Tested	Total Positive	% Positive	Pf %
<b>DISTRICT</b>	<b>HIRI DISTRICT</b>								
Kuriva	Apr 19	139	12	24	12	187	48	25.7	6.4
Vanapa	Apr 19	95	5	14	2	116	21	18.1	4.3
Kerea	Apr 19	74	1	19	2	96	22	22.9	1.0
Brown River	Apr 19	144	12	6	25	187	43	23.0	6.4
<b>TOTAL RDTs</b>		<b>452</b>	<b>30</b>	<b>63</b>	<b>41</b>	<b>586</b>	<b>134</b>	<b>22.9</b>	<b>5.1</b>



## CHASING MALARIA SCHOOL PREVALENCE SURVEYS



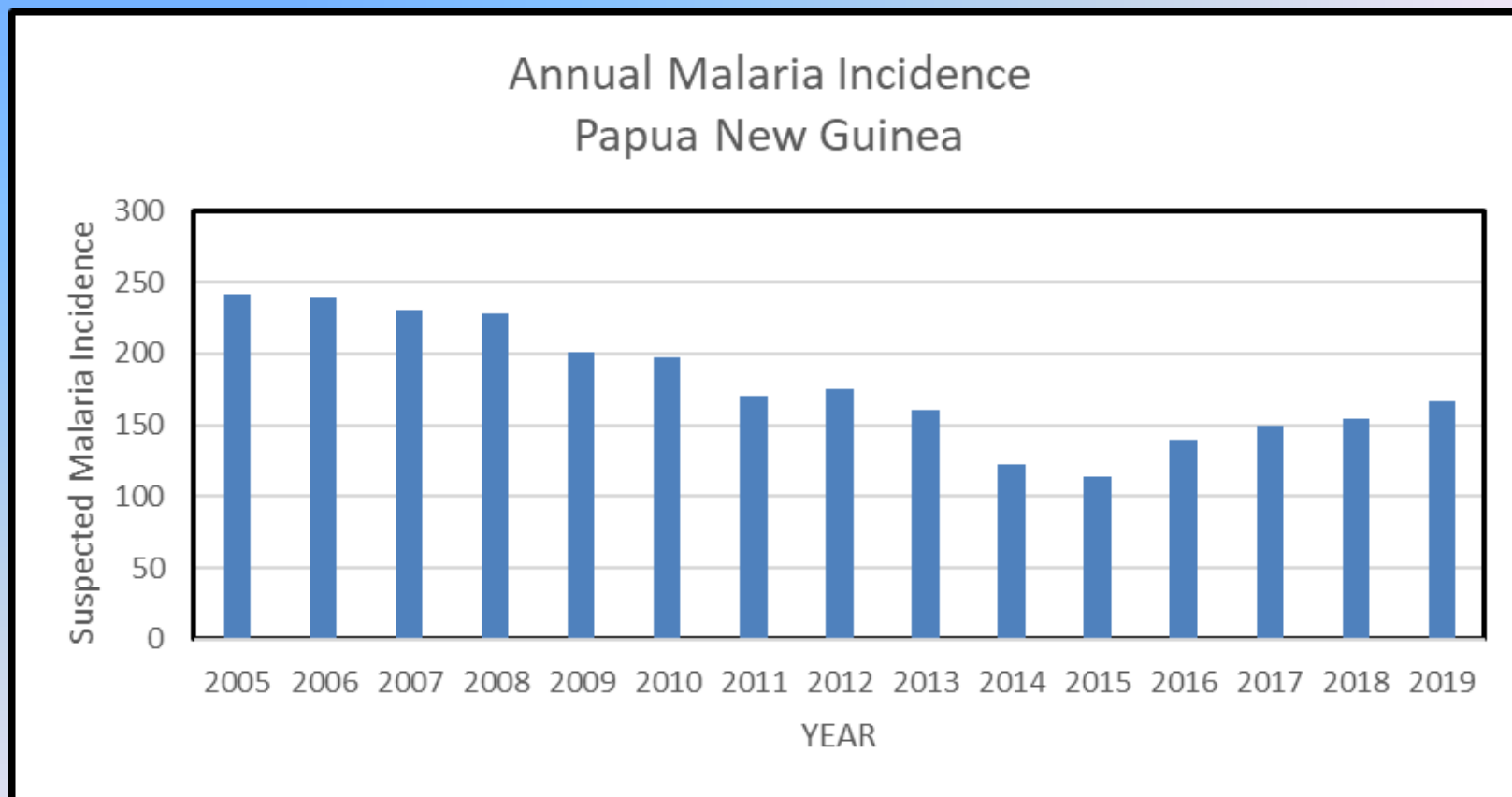
School Prevalence Survey In Brown River

## CHASING MALARIA

Nets were given to RDT Positive Cases through the Chasing Malaria Programme

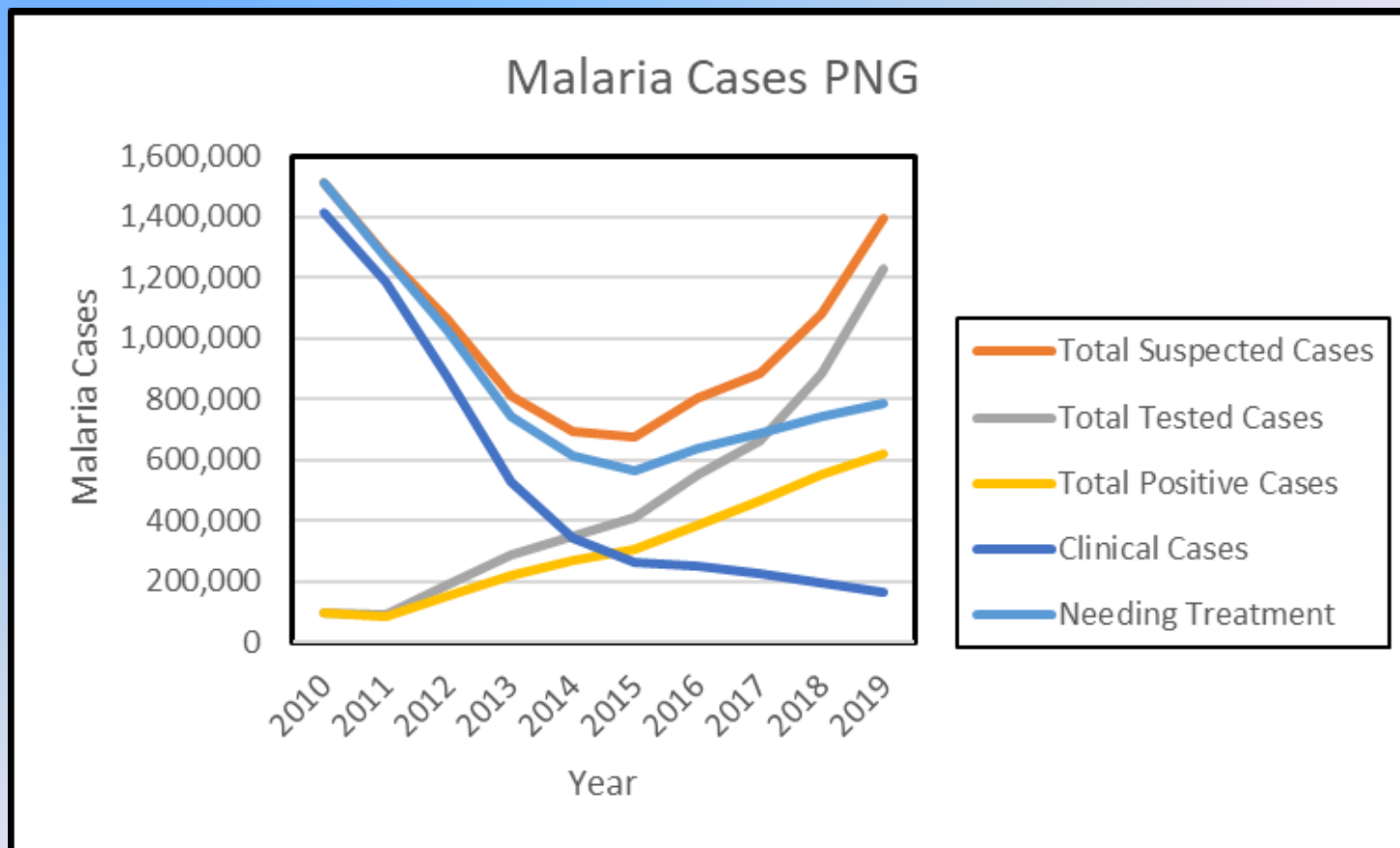


## Malaria Epidemiology 2019



Annual Malaria Incidence Of Suspected Malaria – Cases Clinical  
Diagnosed And Those Tested

## Malaria Epidemiology 2019

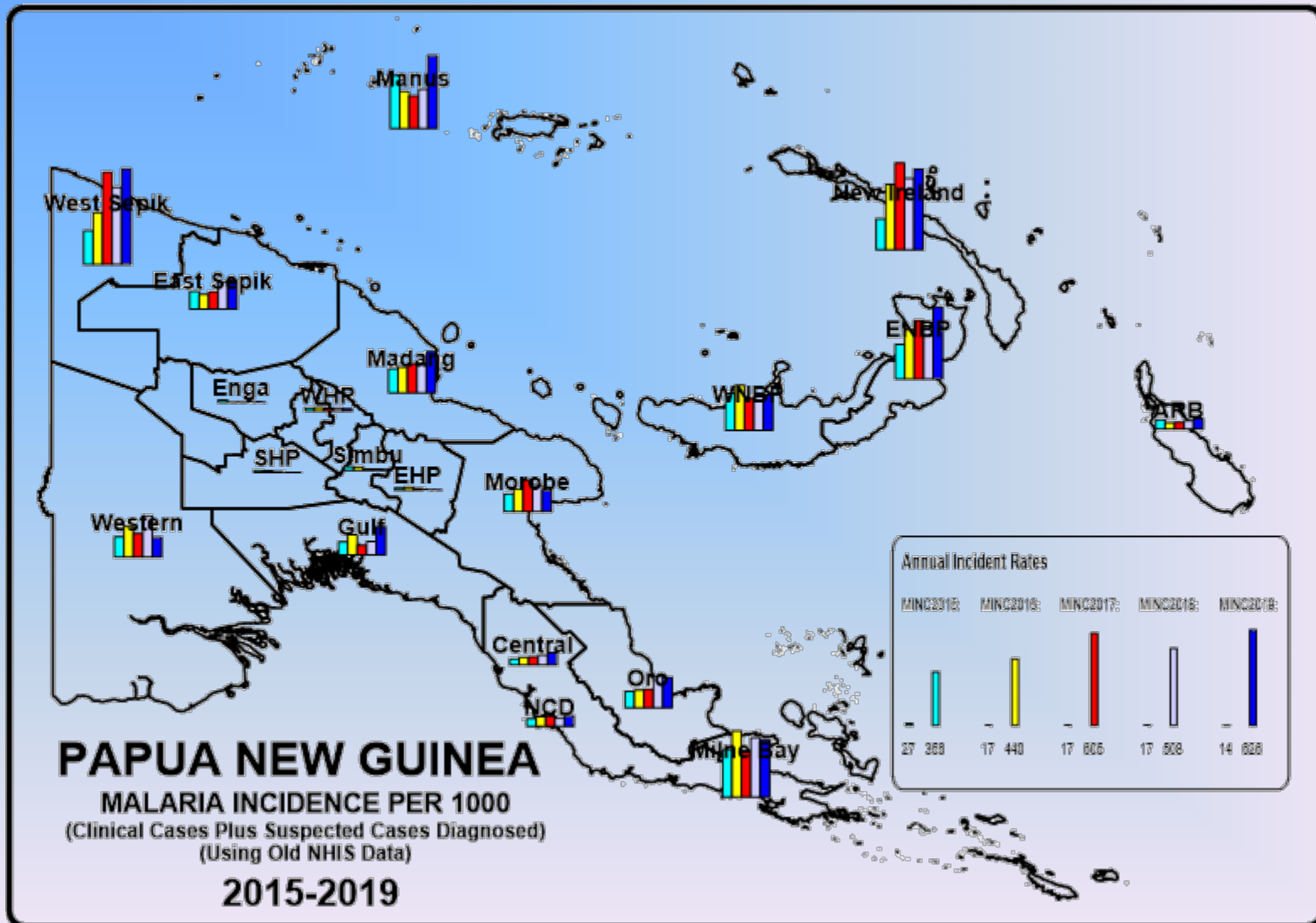


Suspected Malaria – Cases Clinical Diagnosed And Those Tested



# PNG - MALARIA PROGRAMME

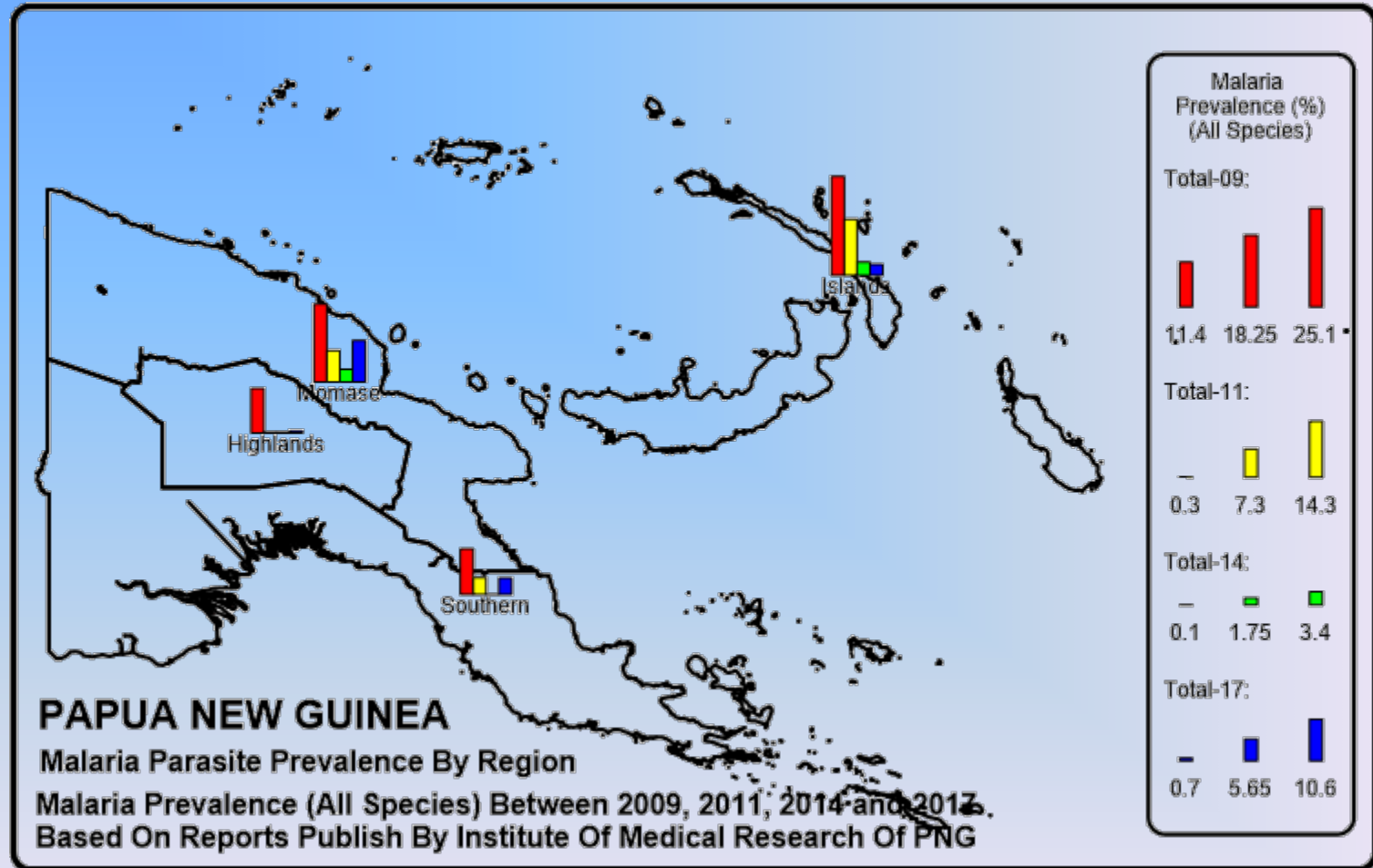
## MALARIA INCIDENCE



Malaria increasing in some parts of PNG but not in all areas

# PNG - MALARIA PROGRAMME

## MALARIA PREVALENCE



Malaria Prevalence Reduced From 2009 To 2014 By More Than 90% In Highlands And Southern Region and 80% In Momase And Niugini Islands. However, malaria increase greatly in 2017 in many places

# POSSIBLE PROBLEMS

## POSSIBLE REASONS FOR INCREASES IN MALARIA

- Treatment failure
  - Drugs resistance
  - Substandard medicine
  - Non compliance of taking full course or sub optimal doses
  - Expired drugs
  - Health Staff giving wrong doses
  - Diagnostic Test (RDTs) problems
  - Treatment seeking behaviour
  - Health Staff behaviour
- Shortage of antimalaria commodities



## POSSIBLE PROBLEMS

### POSSIBLE REASONS FOR INCREASES IN MALARIA

- People not going for treatment due to access (Kuriva Population spread out)
- Human behaviour
  - Not sleeping under nets, not repairing nets
- Mosquitoes biting earlier so increasing contact with mosquitoes.
- People staying up late e.g. watching village cinema
- LLINs no longer working
  - not treated properly.
  - Insecticide resistance
  - Nets not being repaired

## CHASING MALARIA

### Manual On Malaria Control

- RAM has printed a practical guide to malaria control at national and community level.
- 5000 copies in A5 size to be distributed to all health centres and schools in the country.
- Written by RAM in collaboration with WHO staff and NDoH.

#### Handbook On Malaria Control In Papua New Guinea



2017

Produced By Rotarians Against Malaria For The National Malaria  
Control Programme Of Papua New Guinea



## CHASING MALARIA

### Private Sector Sale Of Nets

- RAM had engaged a salesman in 2014 and 2015 to sell nets around Port Moresby.
- Revenue from his sales supported his salary.
- Salesman left and as nets in supply chain were few this project was abandoned.
- It is hoped that this will now be resurrected. We would like to have a target of LLINs being sold in every district capital in PNG so that people can replace their nets when they wear out early.
- New nets arriving shortly in PNG



## OTHER ACTIVITIES

### Intervention Failure



Net barrier had no measurable impact on malaria and was continually destroyed by pigs

## 2020

### LLIN

#### Nets Distribution In Highlands and Morobe **Health Centre Supervision**

- Supply all malaria drugs to PNG for 2020
- Visit all accessible health facilities on a quarterly basis and try and reach the unreachable at least once a year.
- Continue with drug distribution and improving diagnosis, treatment and NHIS.

#### **NDOH and IMR**

- TES by NDoH
- Household Survey and Entomology
- Expand HMM in seven provinces in PNG

**Chasing Malaria** – have officer in NCD to verify malaria transmission in the city.



02/11/2011

**The Realities Of Distributing Nets In PMG**



## RAM TEAM



2019





# PNG - MALARIA LLIN PROGRAMME

Thank You Very Much  
Tenk Yu Tru  
Tanikiu Bada Herea