

**X ANNUAL EVALUATION MEETING  
XIX STEERING COMMITTEE MEETING  
PANAMA CITY, PANAMA, 22-24 2011**

**Epidemiological situación for 10 years and  
response**

**Guyana**

# Current Malaria Strategy

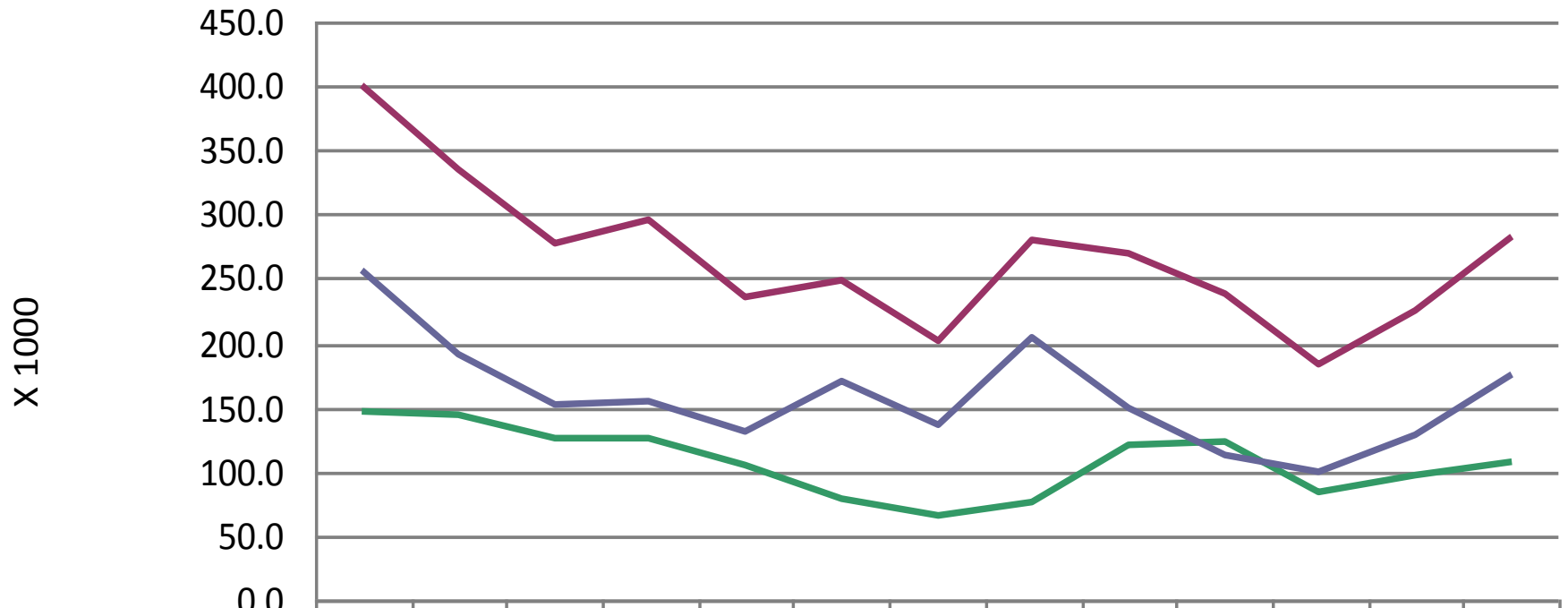
**The country strategy for malaria control in Guyana:**

- Case management for early diagnosis and prompt treatment
- Integrated Vector Control
- Malaria Surveillance,
- Decentralization and integration of Malaria program into the PHCS
- Develop and Implement an enhanced IEC strategy
- Establishment of special task force to combat malaria situation in the endemics regions

# Malaria Epidemiological data

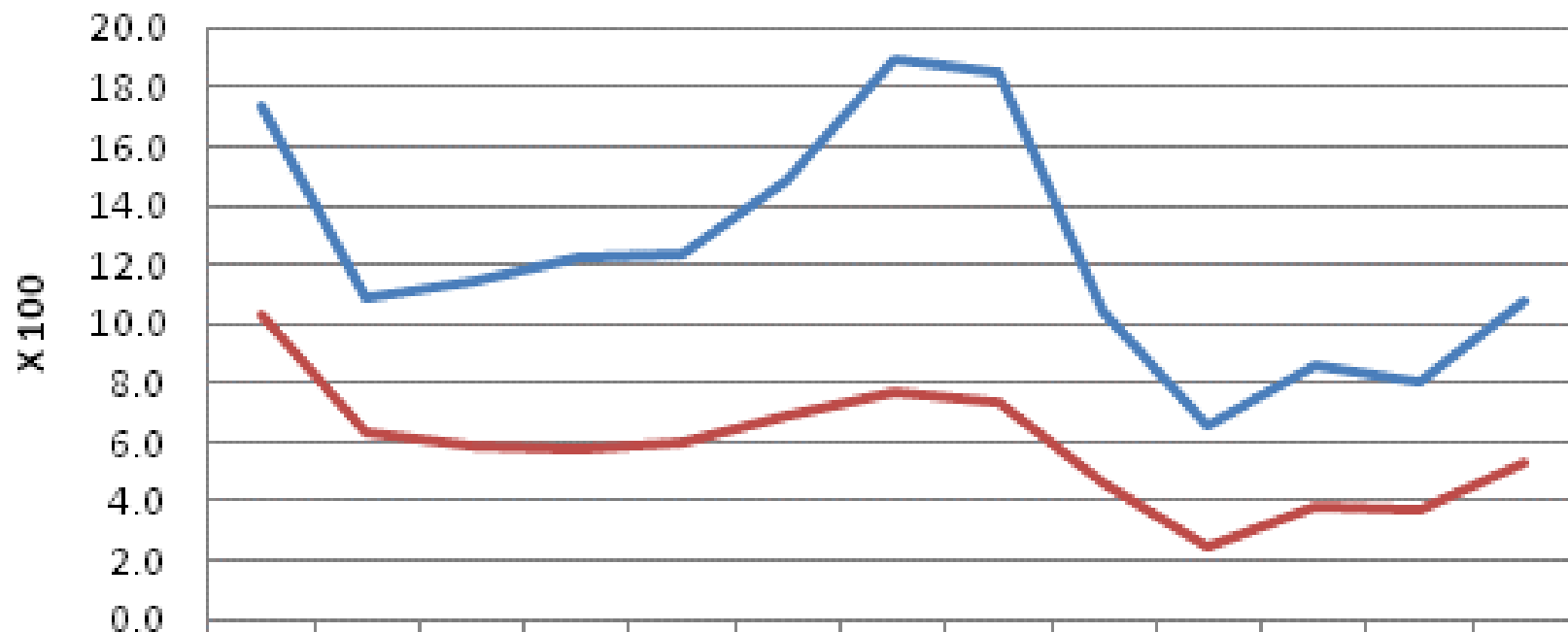
Detection Method	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Active	94,333	94,397	78,426	58,845	49,512	56,290	91,061	93,000	62,102	73,449	81039
Passive	114,864	116,824	97,540	127,032	102,426	154,139	111,627	85,005	75,145	95,860	131,824
Total Smears	209,197	221,221	175,966	185,877	151,938	210,429	202,688	178,005	137,247	169,309	212863
P. Falciparum	12,188	12,660	10,478	12,820	11,672	15,558	9258	4351	5,252	6,206	11244
P. Vivax	11,694	14,291	11,296	14,654	16,328	21,255	10,560	6712	5,927	6,029	8402
P. Malariae	0	0	0	3	470	1291	649	268	147	102	132
Mix Infections	136	171	121	150	396	880	597	326	489	1336	3157
Positives Total	24,018	27,122	21,872	27,627	28,866	38,984	21,064	11,657	11,815	13,673	22935
Totao P.f + MI	12,324	12,831	10,599	12,970	12,068	16,438	9,855	4,677	5,741	7,542	14,401

**Malariometrics Indicators 12 years, Guyana**



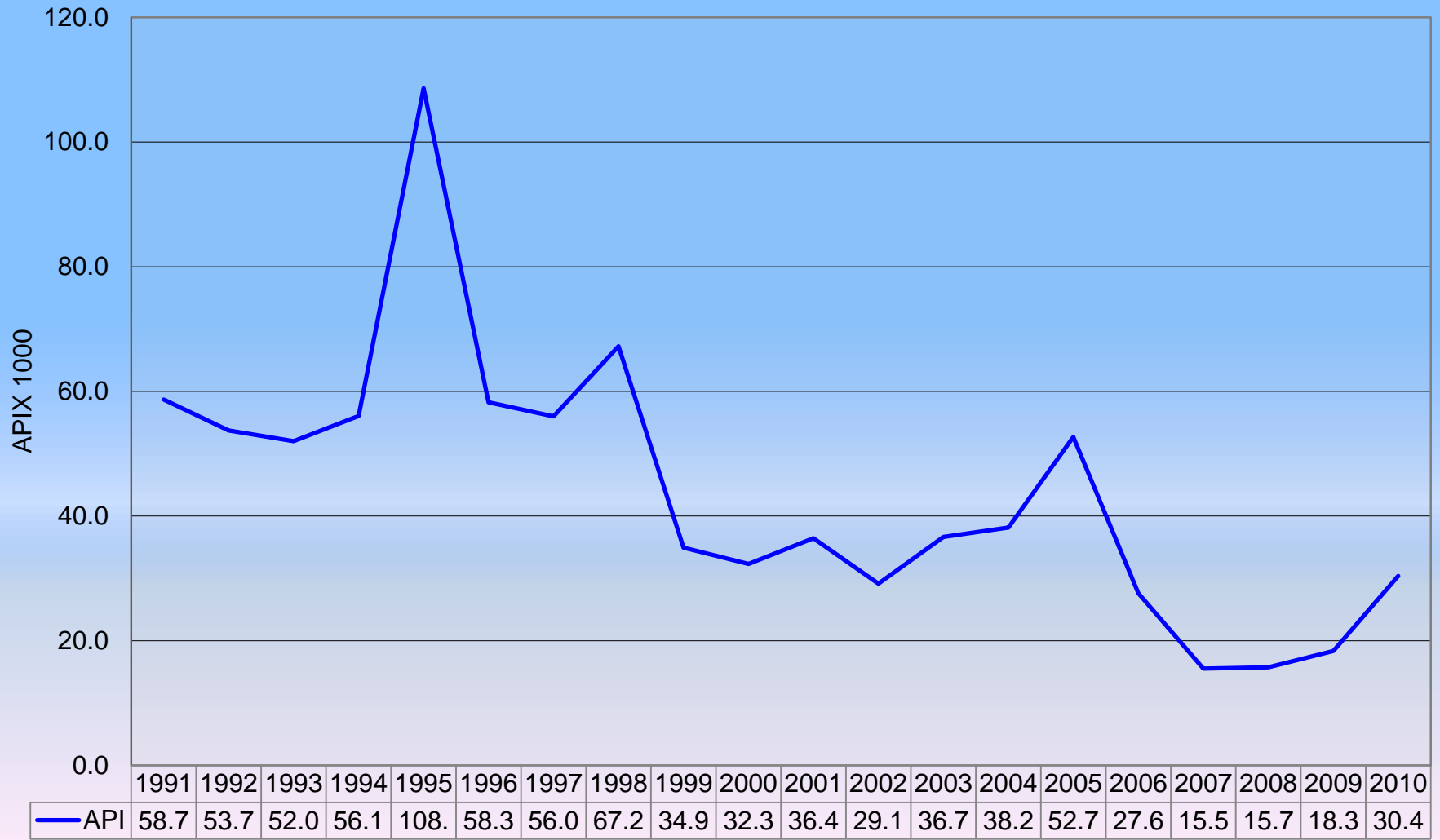
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
— ABER	401.5	333.9	278.5	294.5	234.2	247.4	202.3	280.1	269.8	237.0	182.7	225.4	282.8
— Active	146	143	126	126	104	78	66	75	121	124	83	98	108
— Passive	256	191	153	156	130	169	136	205	149	113	100	128	175

## Malariometrics Indicators 12 years, Guyana

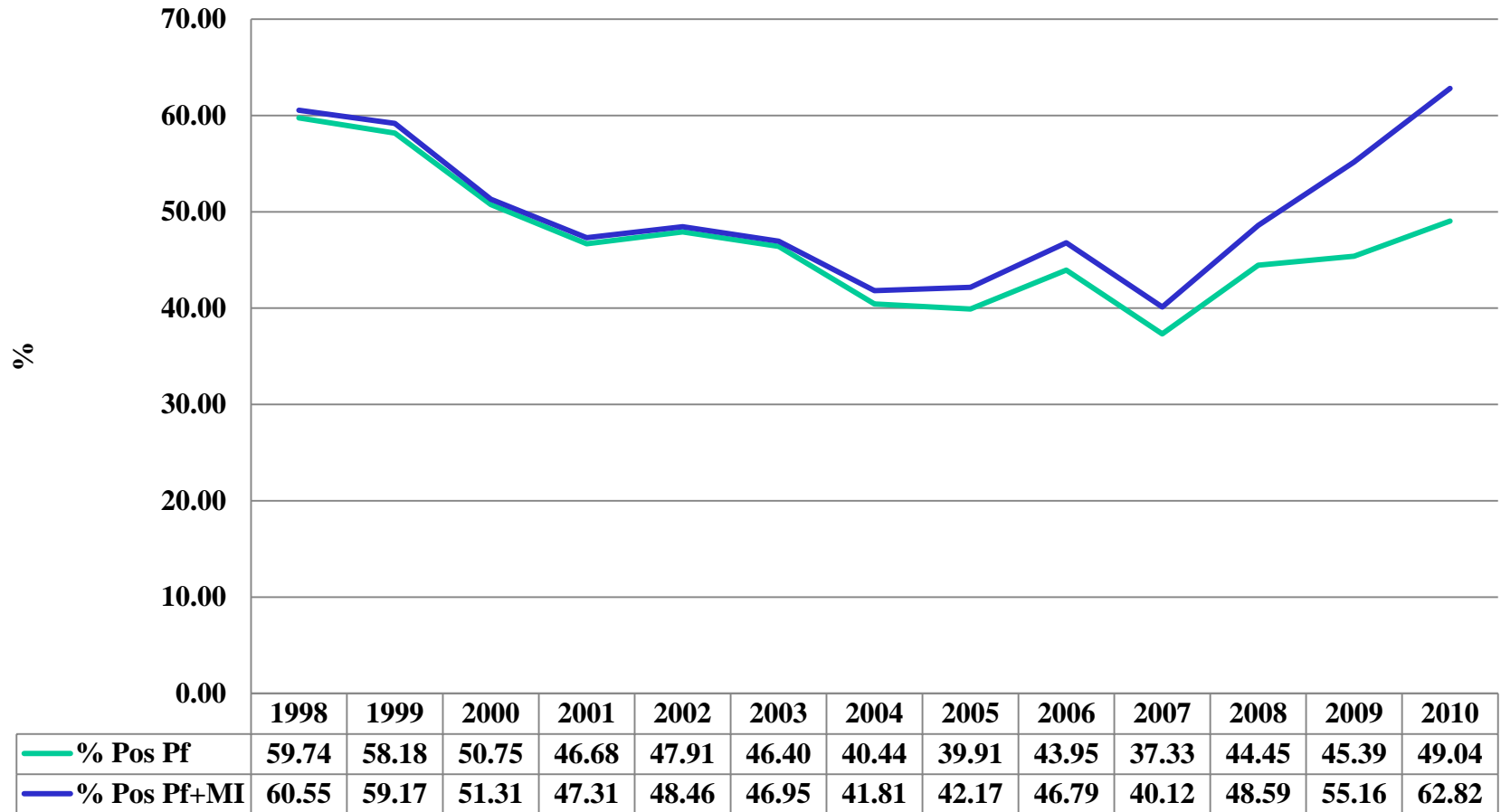


	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
— SPR	17.3	10.9	11.5	12.3	12.40	14.9	19.0	18.5	10.4	6.5	8.6	8.1	10.7
— Sfr	10.35	6.33	5.83	5.72	5.95	6.90	7.68	7.39	4.57	2.44	3.83	3.67	5.27

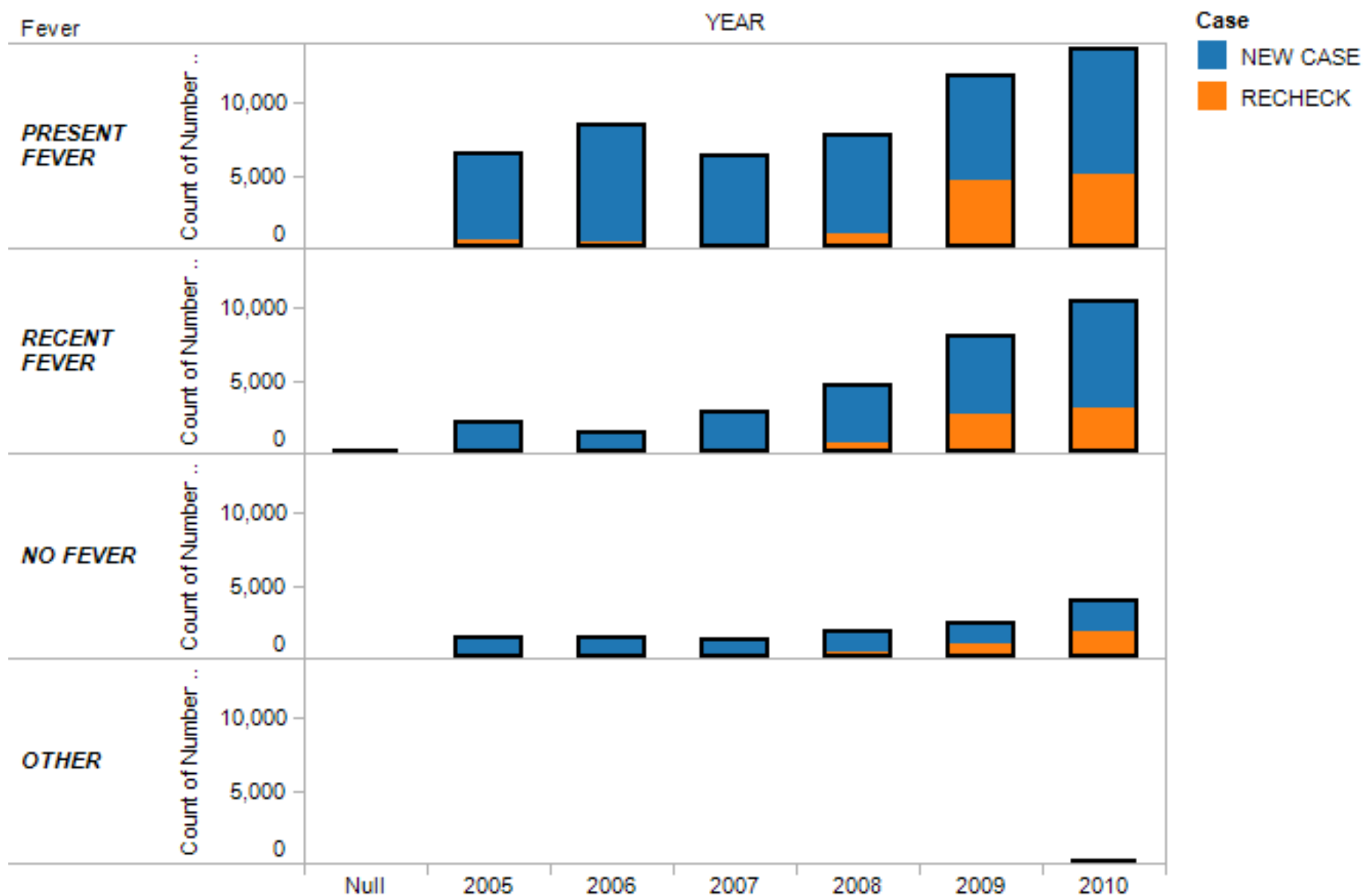
### Annual Parasite Index 1991-2010 Guyana



### Malariometrics indicators 12 tears, Guyana



## Prescense of Fever in Malaria Cases 5 years Guyana

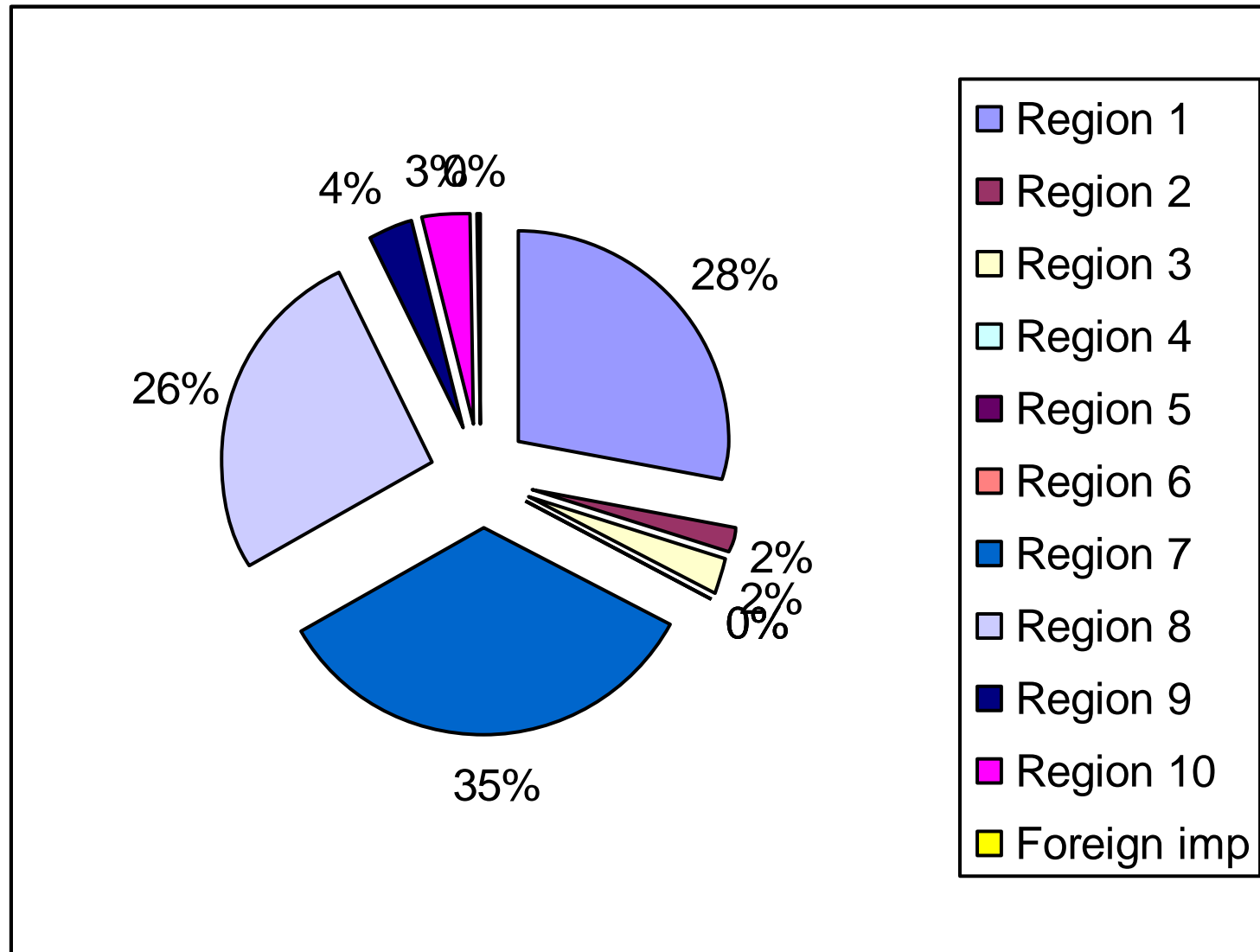




## Positive malaria cases infected by regions 2010

Region where infected	Total new cases	P.falciparum	P.vivax	P. malariae	Mix infection	%
1	6380	2641	3051	50	638	28
2	456	136	302	0	18	2
3	568	281	157	1	129	3
4	22	5	8	0	9	0
5	1	1	0	0	0	0
6	20	6	7	0	7	0
7	7833	4666	1745	51	1371	34
8	5992	2982	2147	24	839	26
9	823	126	670	0	27	4
10	745	389	235	5	116	3
<b>Total</b>	<b>22,840</b>	<b>11,233</b>	<b>8322</b>	<b>131</b>	<b>3154</b>	
<b>Foreign Imported</b>						
Venezuela	48	6	40	1	1	
Brazil	44	4	40	0	0	
Cayanne	1	0	0	0	1	
St. Martin	1	1	0	0	0	
West Africa	1	0	0	0	1	
	95	11	80	1	3	
	22,935	11,244	8402	132	3157	

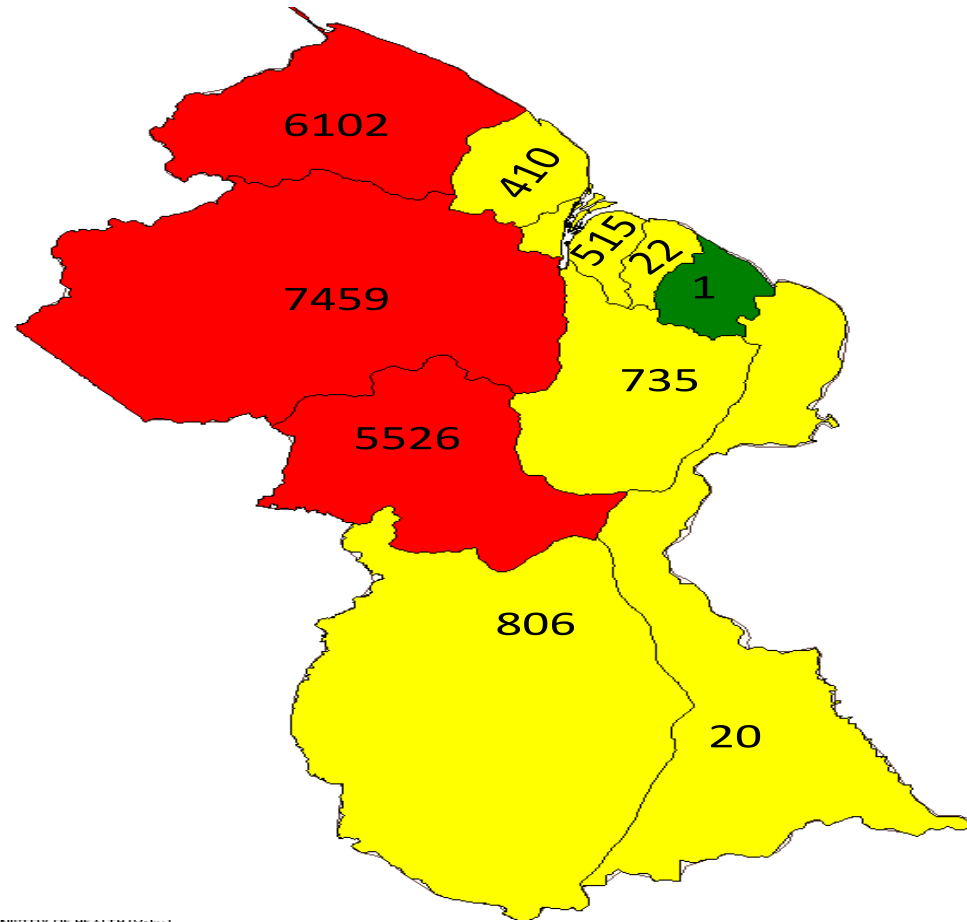
# Graph showing positive malaria



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# Malaria Risk area

## Guyana up to Epidemiological week 1 - 52



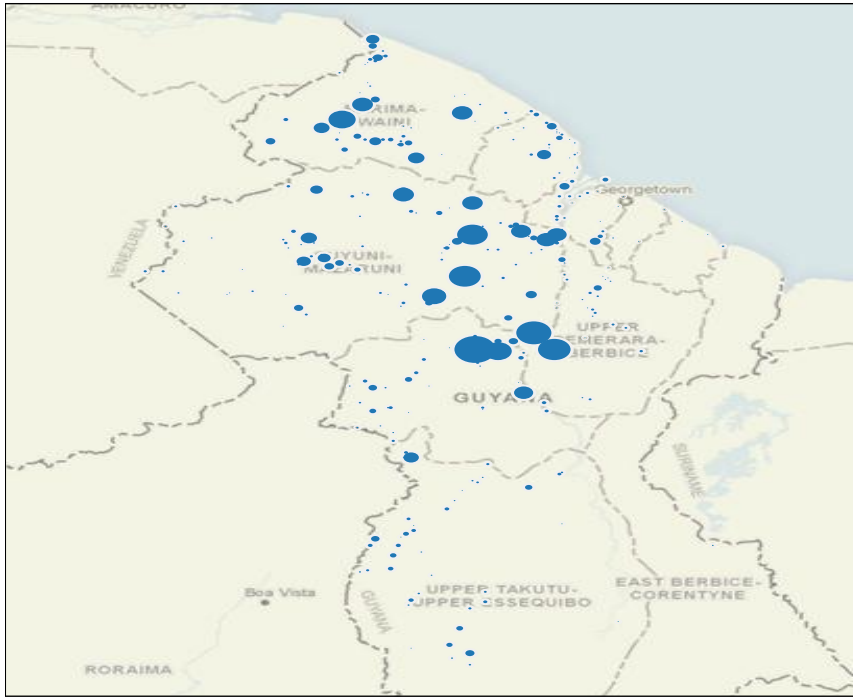
SOURCE: MINISTRY OF HEALTH (Value)

- Less than 2
- 2 - 3,910
- 3,911 and More

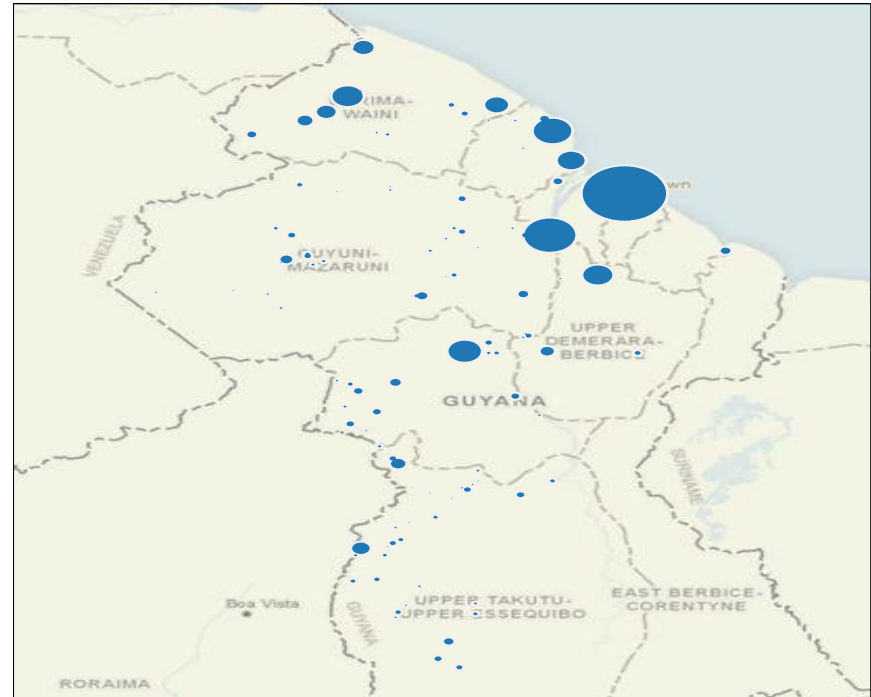
COUNTRY



Cases by place of infection



Cases by place of diagnosis (locality)



Count of Number of Records



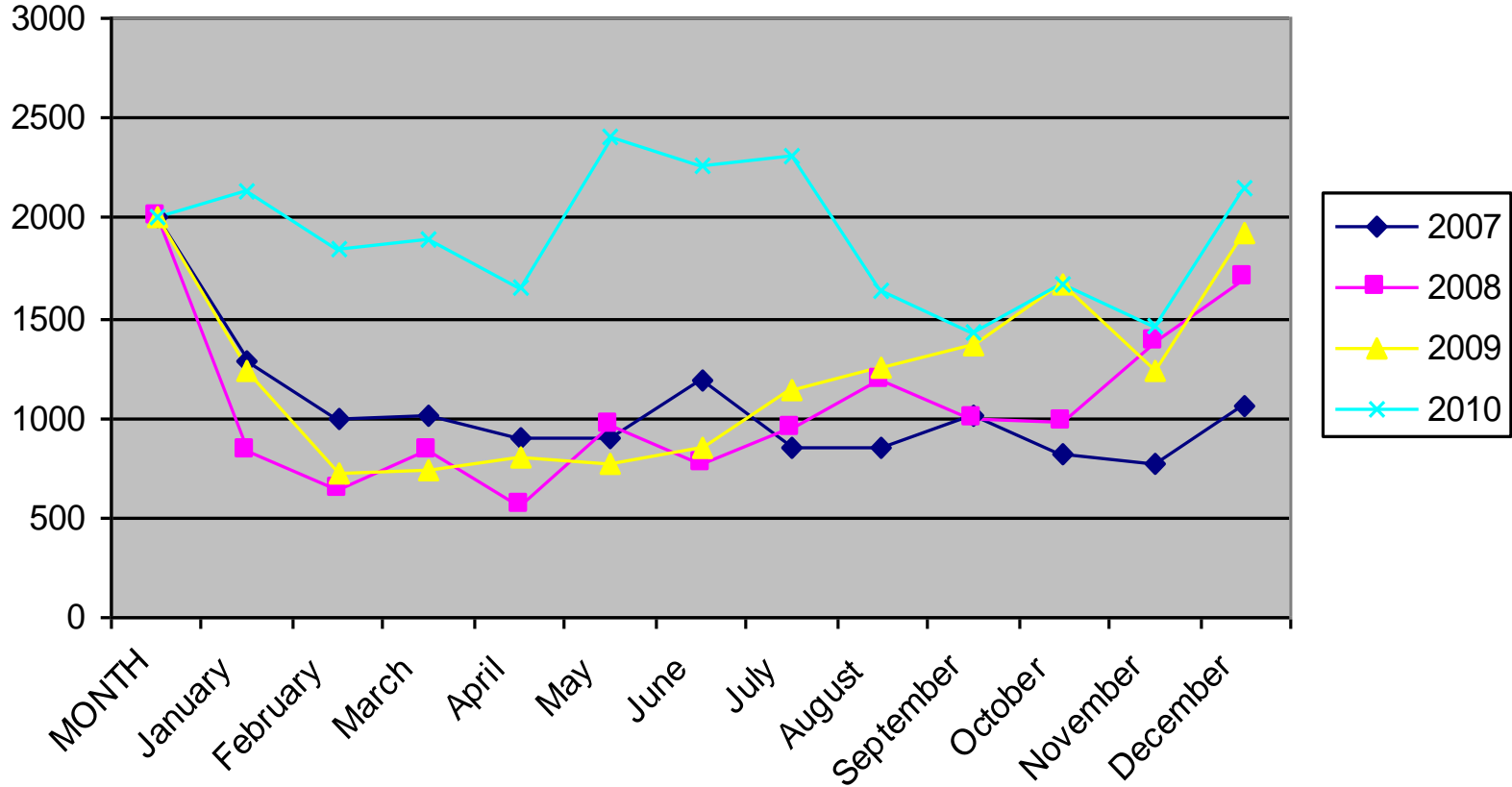
locality (origin) top 30

WhereInfectED	RegionWhereE	Count
Mahdia	8	1,185
Omai	7	865
Mabura Hill	0	748
Puruni River	7	711
Arimu Mine	7	650
Konawaruk	8	526
Arakaka	1	505
Issano	7	409
Aranka River	7	308
Port Kaituma	1	299
Barama River	1	293
Cuyuni River	7	292
Quartzstone Landing	7	291
OKO RIVER	7	279
Mazaruni River	7	268
Siparuni River	8	258
Big Hope River	1	195
Tamakay	7	185
KARAWAB	2	177
Tipuru 9	9	163
Kurupung	7	142
Tiger Creek	7	141
Matthews Ridge	1	128
Waini River	1	127
Serenamu River	7	118
Honey Camp	7	109
Takutu River	7	109
Janna River	1	101

locality (dx) top 30

Locality	Count
Georgetown	4,811
Bartica Village District	1,792
Charity	998
Mahdia	714
Port Kaituma	620
One Mile	590
Suddie	500
Kumaka 1	353
Mabaruma	278
Arakaka	235
Lethem	228
KARAWAB	219
Pakera	149
Tipuru 9	142
Linden	131
Mabura Hill	117
Kurupung	109
Chenapau	78
Issano	77
MICOBIE VILLAGE	70
Buck Fall	68
New Amsterdam	65
Bartica - Potaro Road	63
Aishalton Amer. Vil.	61
Wauna Hill	59
Baramita	56
Friendship	54
Maikwak	49
Issanaru	47

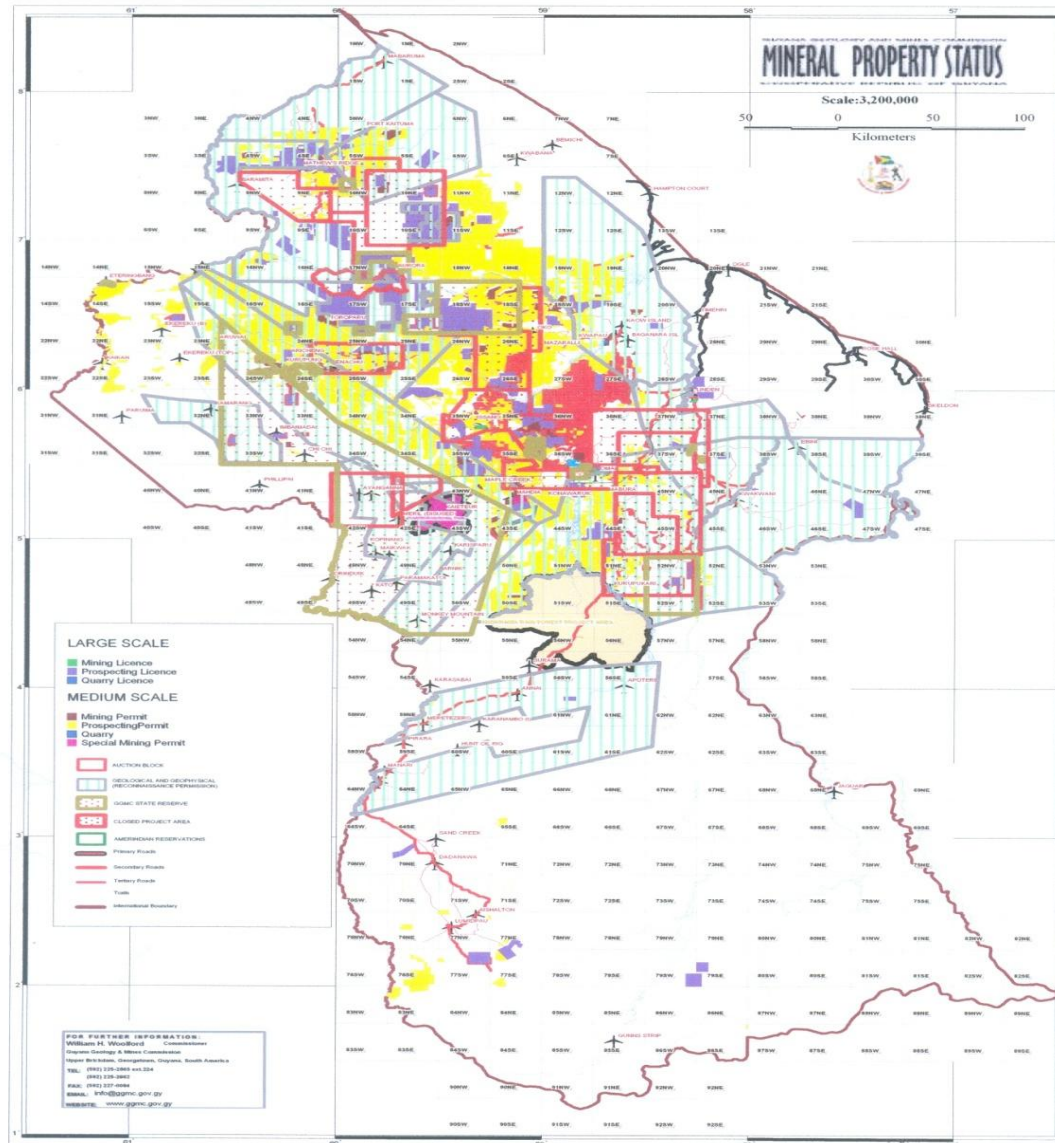
# Malaria Cases by months



## Causative factors for current increase

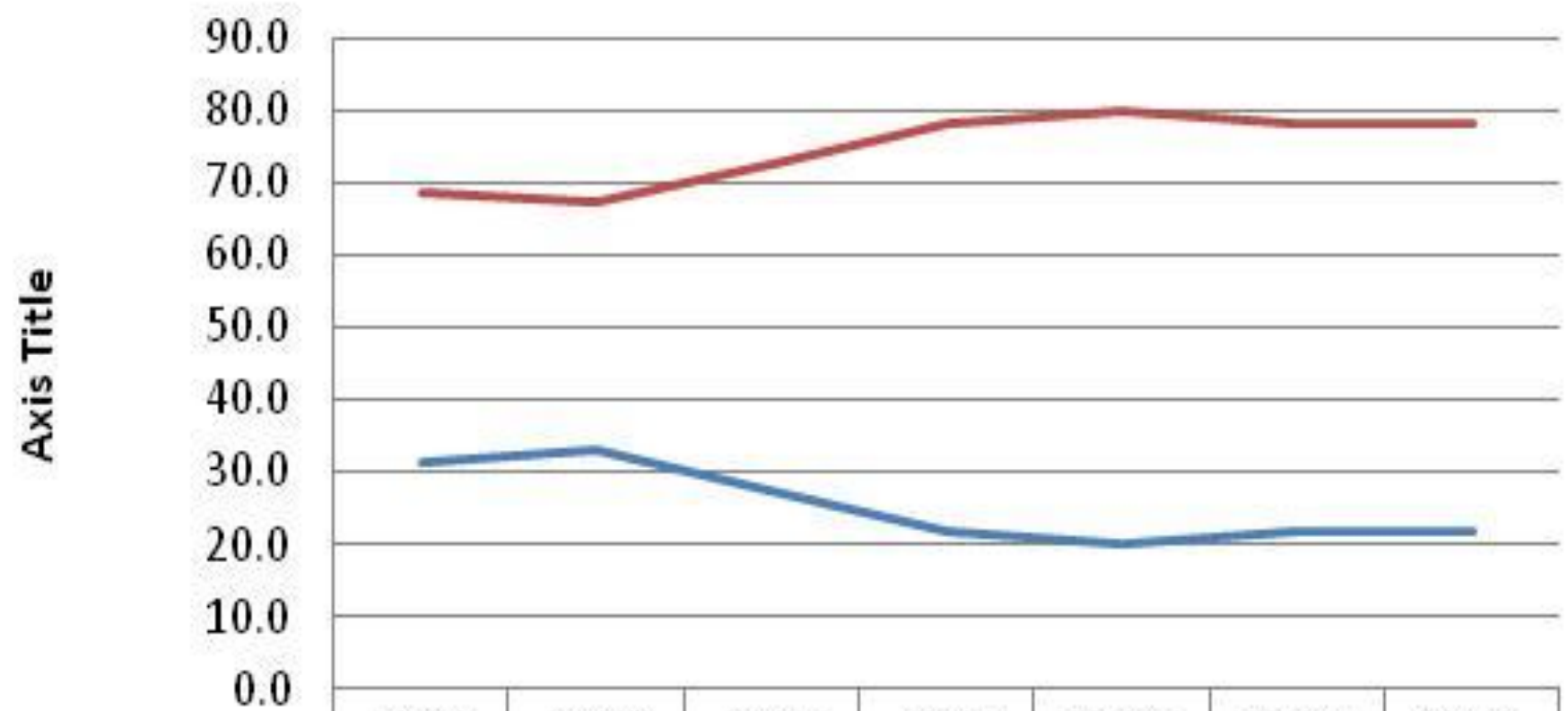
- Mining is a high investment that generates important foreign exchange earnings for the Guyanese Economy
- The gold production continues to increase in 2009, Small and medium Scale miners continue to be strong in 2010 the production of Gold surpassing from 260,000 in 2008 to 305,000 oz. in 2009, & 2010.
- Mobile population from region to region
- Accessibility and logistic problems for early diagnosis and prompt treatment.
- Illegal circulation of antimalarials used as monotherapy.
- Treatment compliance
- Follow rechecks
- Limitation of leadership at the regional level for the decentralization.
- Limited human resources

# Mining and Logging activities in the endemics regions, Guyana



Increase of mining and logging operation between 25 – 30 %

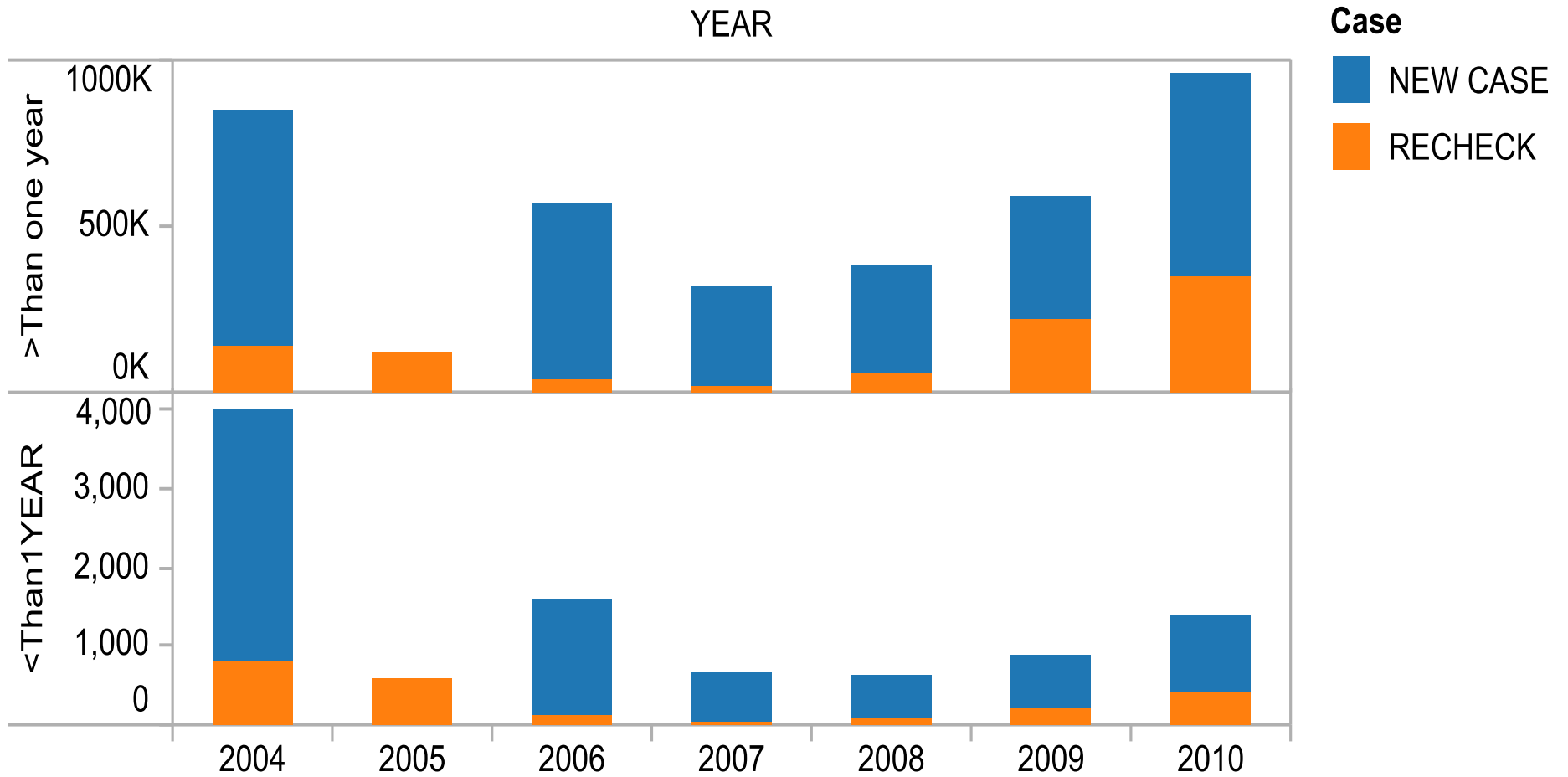
### Trend Malaria New cases 6 years



— % Female	31.5	32.8	27.6	21.8	20.1	21.7	21.7
— % Male	68.5	67.2	72.4	78.2	79.9	78.3	78.3



# Malaria New Cases by age –groups Guyana 2004-2010



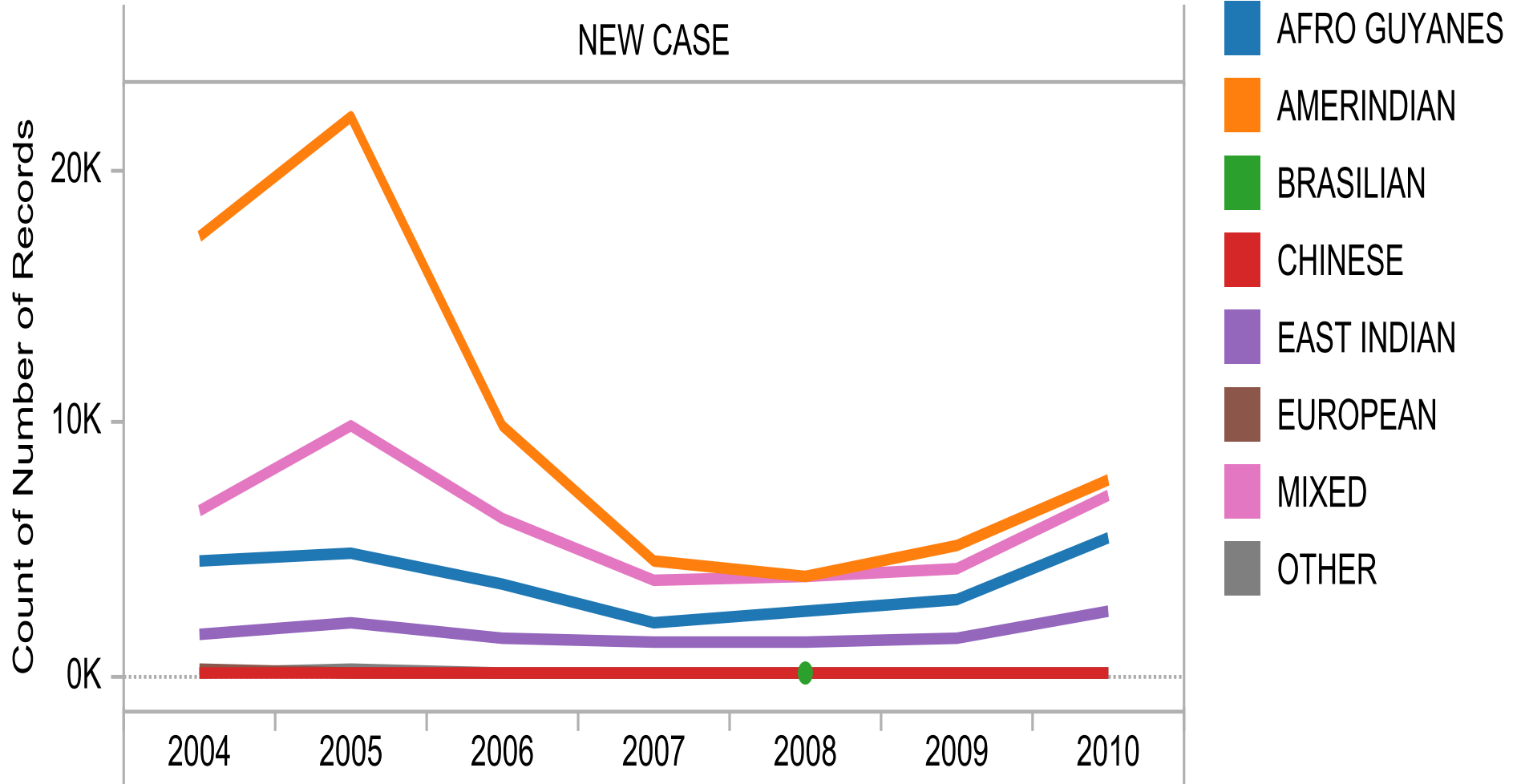
## Pregnancy

<b>YEAR</b>	<b>NC Frequency</b>	<b>Percent</b>	<b>RC Frequency</b>	<b>Percent</b>
<b>2003</b>	0	0.0%	0	0.0%
<b>2004</b>	7	1.1%	2	0.5%
<b>2005</b>	22	3.5%	0	0.0%
<b>2006</b>	14	2.2%	4	0.9%
<b>2007</b>	59	9.3%	16	3.7%
<b>2008</b>	128	20.1%	34	7.9%
<b>2009</b>	143	22.4%	124	28.8%
<b>2010</b>	260	40.8%	247	57.4%

# Cases by Ethnic groups

Case / DateSmearTAKEN

NEW CASE





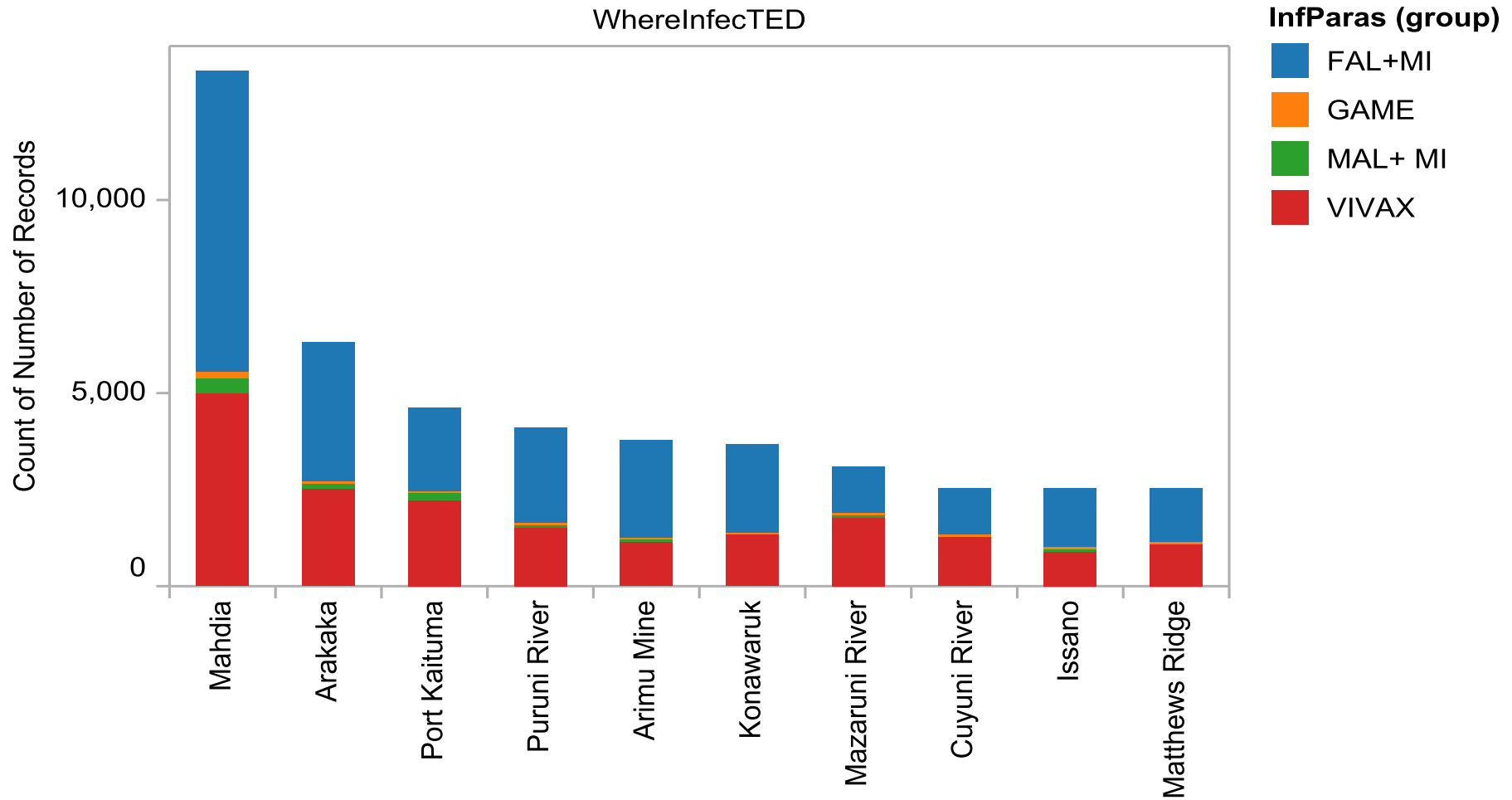
**Malaria inpatient cases (including confirmed cases) 2008-2009**

Región	Sub-district	Number Cases		Number Deaths	
		2008	2009	2008	2009
1	Mabaruma	7	66	4	1
	Moruca	6		0	0
2	Charity	56	41	0	1
	Suddie	51	14	0	0
4	Georgetown	67	400	3	7
6			4	0	0
7	Bartica	14	20	1	1
8	Mahdia	25	26	?	0
9	Lethem	11	15	0	0
10	Linden	111	13	2	1
<b>Total</b>		<b>348</b>	<b>599</b>	<b>10</b>	<b>11</b>

# Top ten localities for 2010

## Top ten

WhereInfected

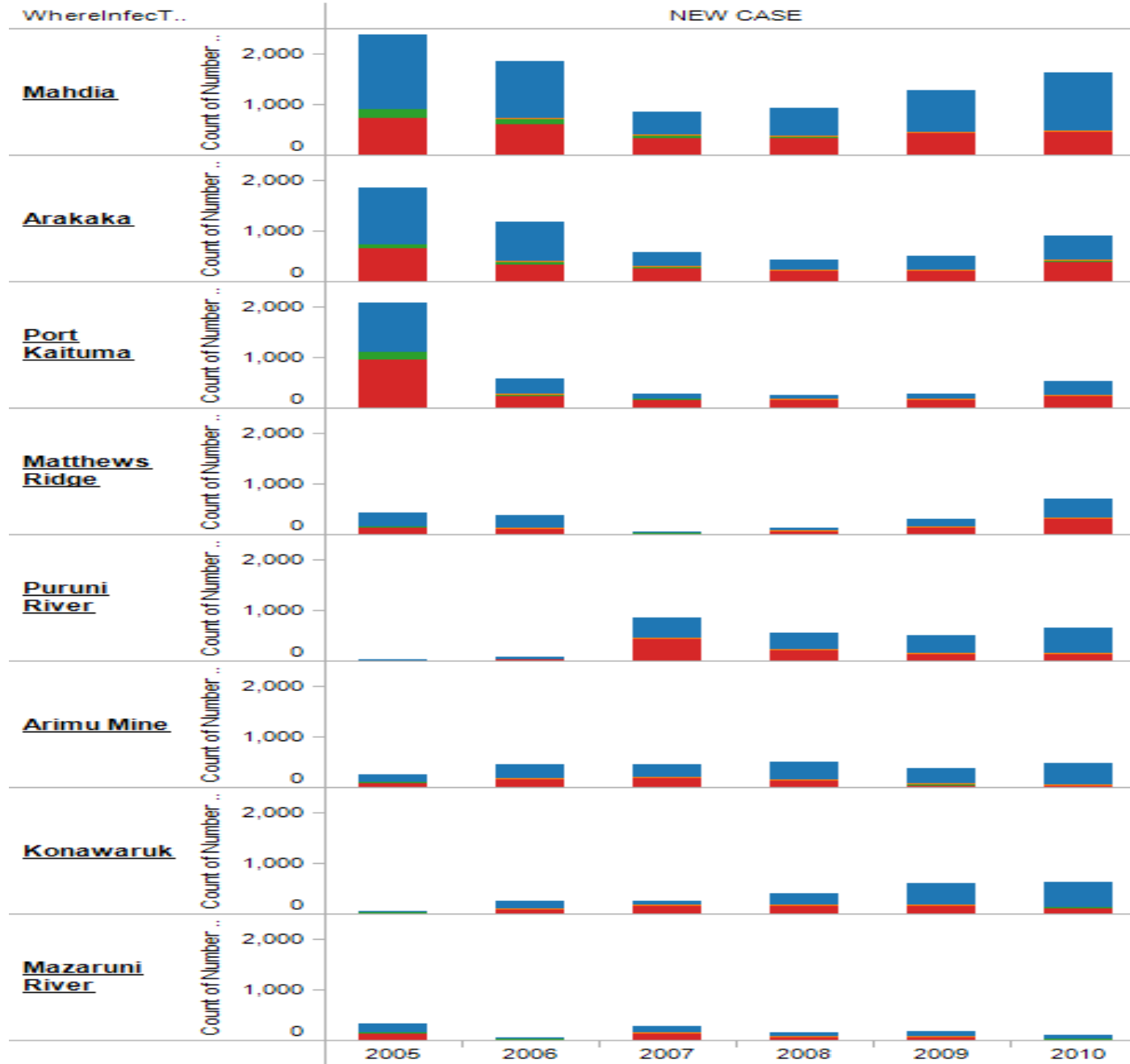


# Top 10 5 years Malaria New cases, Guyana

Case / YEAR  
NEW CASE

## InfParas (group)

- FAL+MI
- GAME
- MAL+ MI
- VIVAX



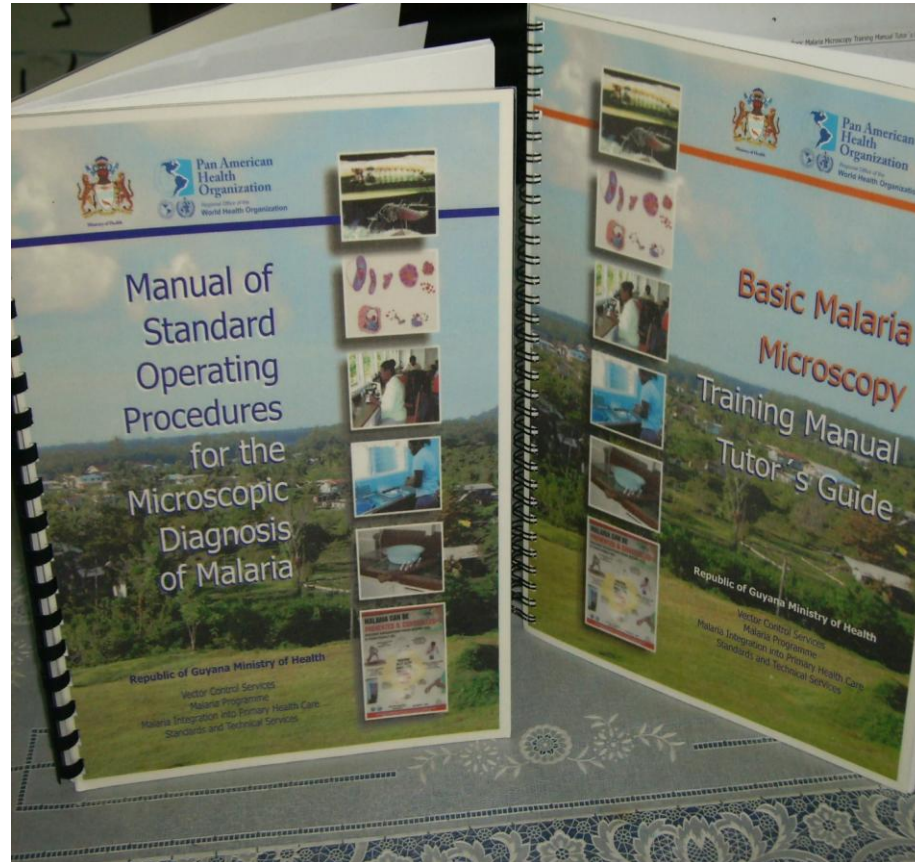
# Response

## **1. Case management for early diagnosis and prompt treatment**

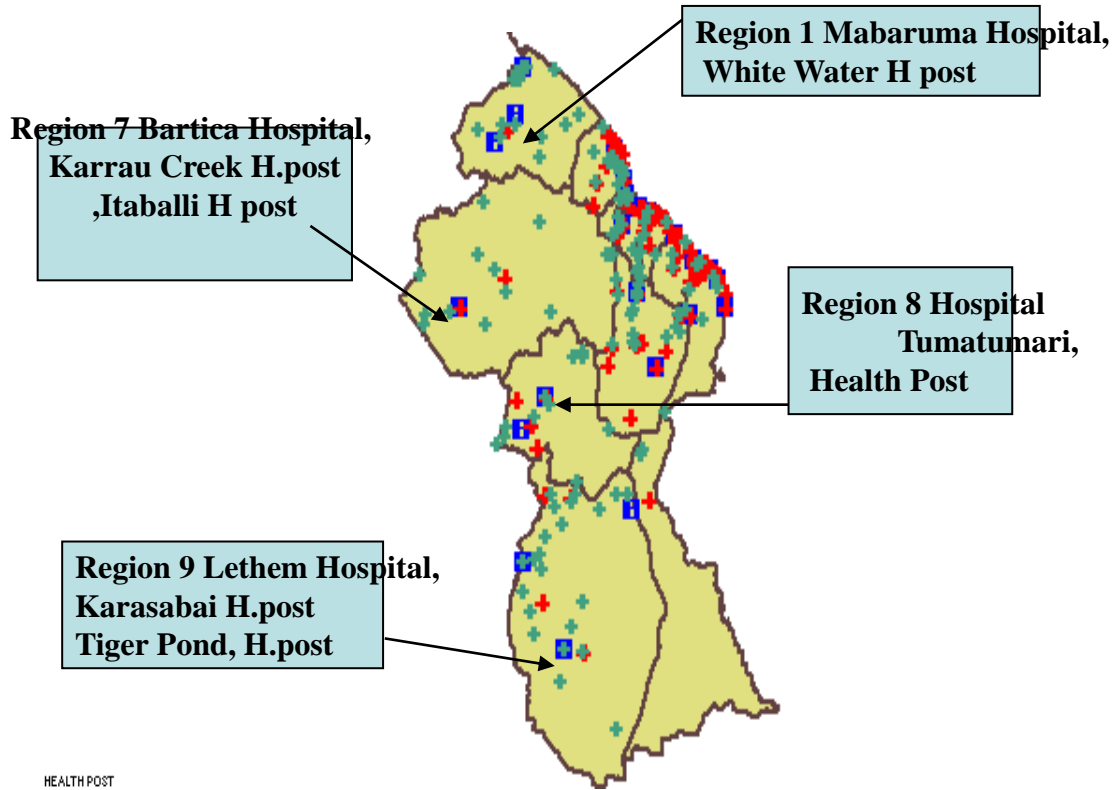
- **Active and passive case detection, fever case survey**
- **Guidelines for diagnosis.**
- **Microscopist training program**
- **Delivery drugs and supply chain management**
- **Quality assurance of anti-malarial drugs**
- **Monitoring therapeutic response**
  - **In vivo study**
  - **Surveillance of quality of drugs**
    - **Mini-labs, collect the samples**
    - **Analysis the samples collected**
    - **Support the training of personnel in charge of minilab 2 sentinel site**



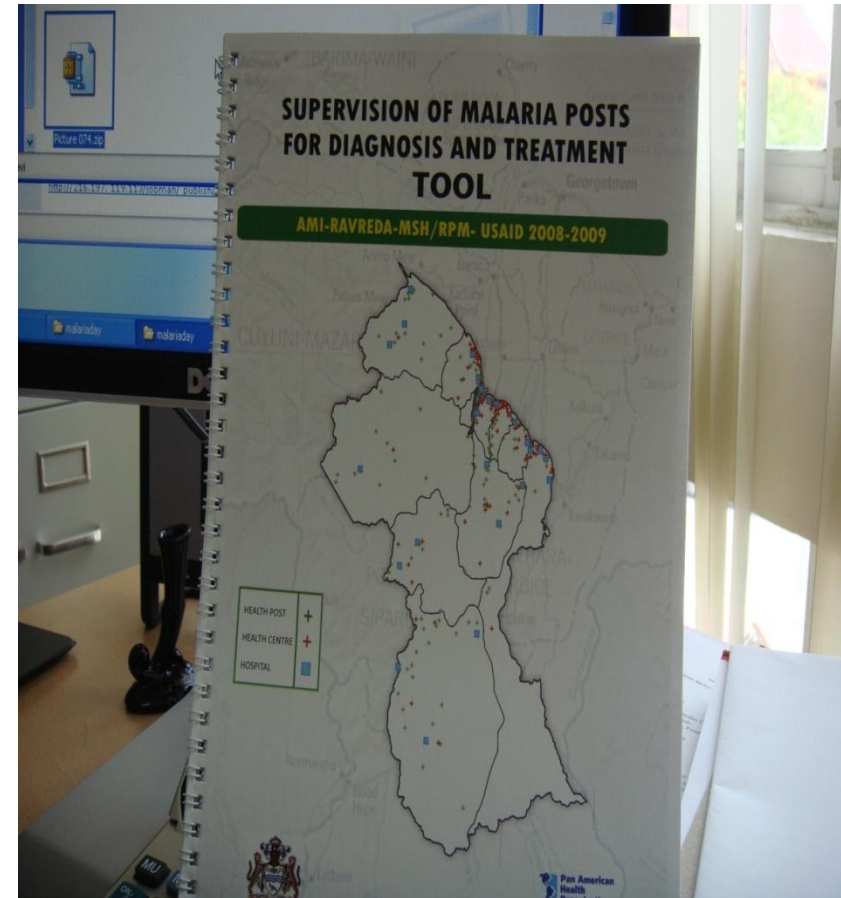
# Strengthen of malaria Quality diagnosis in the regions



# Supervision Tool



- HEALTH POST +
- HEALTH CENTRE \*
- HOSPITAL [H]
- ADMINI [A]



# Response on Vector Control

## Training on Integrated Vector Control Management

- To continue to build the capacity for vector control activities, and to improve the establishment of the Entomology Unit
  - Health personnel from the MOH were trained in first phase in Basic Entomology .
  - Distributions of bed nets 2007-2010
  - Work with the Filaria, Dengue and other mosquito-borne disease programs to optimize the use of vector control as another tool to fight against malaria within IVCN strategy in 2010.

# **Guyana Demographic Health Survey 2005 – 2009 (DHS survey)**

**Background : Demographic Health Survey (DHS) for 2005: Explains that 87% of the population had Mosquito net, but only 5%, were treated; 85 % of pregnant mothers slept under mosquito nets, the night before the survey.**

- Global Fund had distributed LLINs since 2005 .**
- LLINs were also acquired through the RAVREDA funds, focusing on vulnerable groups such as pregnant mothers, children under five years, miners and loggers in high risk areas. This was distributed according to the epidemiological stratification.**

**•**

**In 2009 survey, the DHS also indicated that 89% of the population had mosquito nets , but only 26%, had LLINs. 81% of children under five , and 78% pregnant mothers slept under mosquito net the night before the survey, but only 25% of children under five and 30% of pregnant mothers slept under ITN**









E.A  
2006

KNOW YOUR HIV STATUS  
Get tested TODAY!



# Surveillance

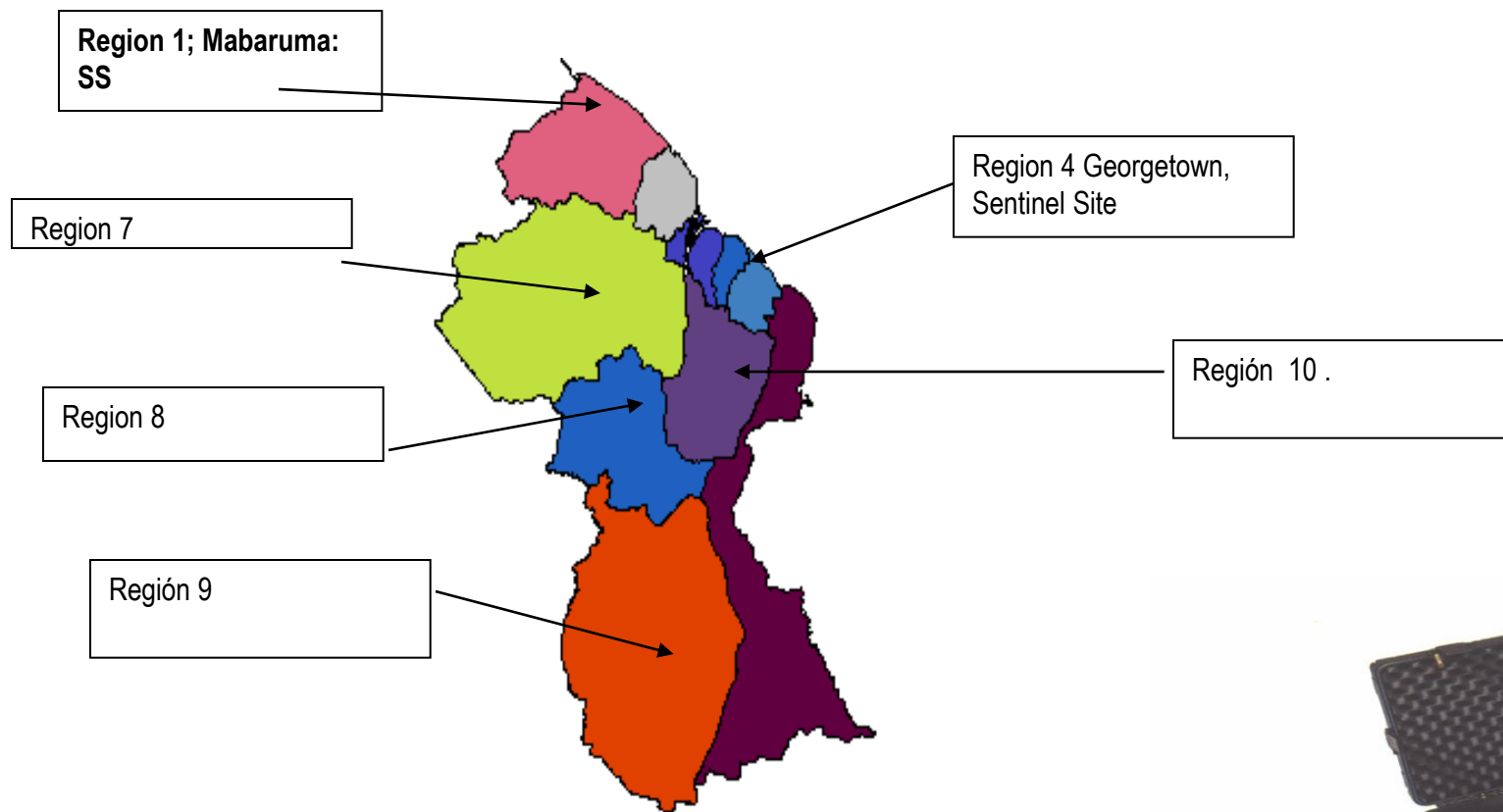
- Improvement in the malaria information system network
- Report weekly and to analyse information so as to identify early trends of malaria prevalent and incidence.
- Improvement in the stratification for decision making, and implementation of control interventions

# **Decentralization and integration of Malaria program into the PHCS**

- Malaria Information system,
- Decentralization and integration of Malaria program into the Primary Health Care services (PHCS)
- New weekly report
- Build capacity of the Regional Health Department (Local Government) to respond to malaria
- ( local management of malaria control)



# ENSURING ANTIMALARIA DRUG QUALITY THROUGH GPHF-MINILAB BASIC TESTING SURVEYS IN GUYANA



S.S. means a Sentinel site is located within the region



# Develop and Implement an enhanced IEC strategy

## Launching Malaria day Guyana



## TREATMENT

Seeking treatment is the sure way to break the cycle of transmission in mining / logging camps.

Treatment begins with a blood smear to identify the type of malaria.



Tablets are given according to the type of malaria:

- Vivax - 14 days
- Falciparum - 3 days
- Malariae - 3 days

If you stop using the tablets after a day or two because you feel better, you will become ill again with malaria and continue to spread the disease.



**ALL TABLETS prescribed must be taken, so all the malaria parasites can be killed for a complete cure.**



### BEWARE OF COUNTERFEIT DRUGS!

Genuine drugs are assured only through:

- ➔ In registered mining camps across Guyana by trained microscopists
- ➔ ALL community health facilities
- ➔ Regional Hospitals and Malaria Clinic, Georgetown

## PREVENTION

Here are steps for malaria prevention and control in mining / logging camps:

- ✓ Always use mosquito bed or hammock nets to prevent mosquitoes from biting. Nets that are treated with insecticide are the best. .
- ✓ Mend holes in the mosquito nets right away.
- ✓ Put mosquito (fine) mesh or mosquito netting over windows and window spaces where possible.
- ✓ Burn mosquito coils.
- ✓ Wear protective clothing - long sleeved shirts, long pants and socks will help to prevent bites and use insect repellent especially at night and when outdoors.
- ✓ Kill adult mosquitoes by spraying with insecticides.
- ✓ Eliminate mosquito breeding sites around the mining camps by filling in areas that contain trapped, stagnant water.
- ✓ Clean up the camp grounds and surroundings to destroy other breeding sites for mosquitoes, for example: plastics, containers, old tyres, fallen trees etc.

*Note: You know that mosquitoes are breeding when you see mosquito larvae (mosquito worms) in ponds or containers (buckets / drums).*

# WHAT YOU SHOULD KNOW ABOUT MALARIA



## WHAT IS MALARIA?

MALARIA is a disease caused by the presence of very small parasites in the blood. It is spread by the 'anopheles' mosquito. However, malaria is both preventable and curable.

### IN GUYANA THERE ARE 3 TYPES OF MALARIA:

1. FALCIPARUM
2. VIVAX
3. MALARIAE

**AND MIXED INFECTIONS**  
ANY COMBINATION OF THE THREE TYPES

MALARIA exists in mining / logging camps because the mosquitoes that transmit the disease are present in the forests, swamps and mining & logging camps where there are water logged areas, water-filled holes and excavations that have not been filled in.



# A MALÁRIA PODE SER PREVENIDA

## O segredo é espantar os mosquitos e prevenir picadas de mosquitos

AÇÃO PARA PREVENÇÃO DE MALÁRIA E CONTROLE NOS GARIMPOS / CAMPOS DE MADEIREIRAS:



Sempre usa cama ou rede com mosquiteiro para prevenir picadas de mosquitos. Os mosquiteiros tratados com repelente são os melhores.

Conserte buracos nas redes de mosquitos imediatamente.



Coloca redes fina ou mosquiteiros / nas janelas e nos espaços das janelas onde for possível.

Use roupas protegidas - camisas de mangas longas, calças longas e meias.



Use repelente de insetos principalmente a noite e quando está ao ar livre para ajudar a prevenir picadas.

Coloca o lixo nos lixeiros tampados.



Elimine os lugares de criação de mosquitos, aos redores dos campos de mineração e os campos de madeira na forma de encher as áreas que tem água suja e podre.

Limpe o chão dos campos e redores para destruir outros lugares de criação para os mosquitos. exemplo: plástico, containers, peneus velhos, árvores que caem etc.



Note: você sabe que os mosquitos estão produzindo quando você ver a larva do mosquito (minhoca de mosquito) nos lagoas ou containers (baudes / cilindros).

## A MALÁRIA PODE SER PREVENIDA E CURADA

# Challenges

- **Limited supervision at regional level after the completion of training of Microscopists in the new SOP for Malaria microscopy quality control, which is a responsibility by the regions.**
- **The training in the supervision tool was started since 2009 and continued in 2010, however the commitment and responsibility at regional level was limited.**
- **The MOH needs to re-establish the Entomology unit**
- **The lack of adequate human resources at central and regional level creates limitations for implementation of activities.**
- **Difficulties for managing the program at regional level.**

# Future Perspectives

1. To strengthen the entomology unit with qualified staff with proper training
2. To have a good strategy to increase the involvement of civil society and scale up IEC for the prevention , control, and treatment of malaria.
3. To continue to build the strong harmonized international partnerships, especially with references to malaria cases originating from our neighboring border countries.
4. Decrease the number of malaria cases according with MDG objective
5. To review the strategy to deal with the mobile population in the malaria endemic regions.









Thank you  
Gracias