Exceptional situation in Venezuela and response

Background Document for Session 8

REGIONAL MALARIA PROGRAM
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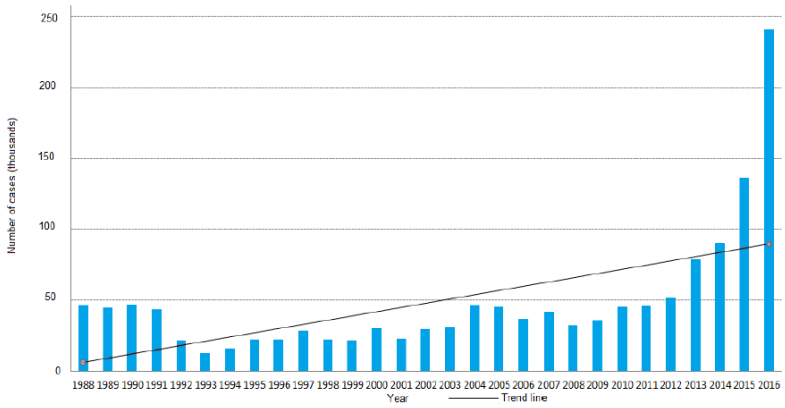
1 BACKGROUND

Venezuela is one of the countries in the Americas which report an increase in cases since the year 2000.[1] Of late the situation in the country has been critical with more cases being reported in the country than ever in the last 50 years.[2-3] PAHO/WHO has raised an alarm about the evolving situation in the country and continues to be concerned about the scale of the response.[4]

Figure 2. Reported malaria cases. Venezuela, 1988-2016



Source: Reported by the Venezuela IHR NFP and reproduced by PAHO/WHO.

1.1 Current Situation

The current increase in malaria is focalized to the state of Bolivar, especially the municipality of Sifontes. This municipality is divided into four demarcations as smaller administrative areas one of which includes part of neighbouring municipalities. Of these the demarcation San Isidro has the highest burden of malaria with more than 1000 cases being reported every week, not including cases which are cases considered to be relapses. (See Annex) Most of these cases are in miners working in illegal mining setting albeit in sites known and accessible by health personnel. Miners are known to be living in precarious conditions – temporary huts with no walls and exposed to vector throughout the night. Owing to shortage of antimalarial medicines in previous months, there is a burgeoning illegal market for sale of antimalarial medicines with patients cutting short their treatment when they feel OK to use them for the next episode or to sell them.

Almost all local health staff is currently dedicated to the task of detection and treatment of cases. Even when the burden of diagnosing cases is exceptionally high, access to diagnosis and treatment is prompt in many of these areas with high burden. More than 80% cases were diagnosed and treated within 3 days of start of symptoms in San Isidro demarcation in week 11 of 2017 with more than 1500

[1] PAHO. Report on the situation of Malaria in the Americas, 2014. Regional Malaria Program, Pan American Health Organization. January, 2017. Accessed May 25, 2017. http://iris.paho.org/xmlui/handle/123456789/31450?locale-attribute=en

[2] Jaffe, Klaus. "Venezuela: violence, human rights, and health-care realities." The Lancet 383, no. 9933 (2014): 1970.

[3] Rodríguez-Morales, Alfonso J., and Alberto E. Paniz-Mondolfi. "Venezuela's failure in malaria control." The Lancet 384, no. 9944 (2014): 663-664.

[4] PAHO. Epidemiological Alert- Increase in cases of Malaria. Detection, Verification & Risk Assessment, Pan American Health Organization. February 15, 2017. Accessed May 25, 2017.
http://www.paho.org/hq/index.php?option=com_content&view=article&id=12868&Itemid=42233&lang=en.

cases reported in that week. Active case detection is being conducted in a regular manner in areas reporting most cases and those hard to access through passive case detection network. Gaps in access to diagnosis and treatment are still present in many areas. Vector control has been limited in previous occasions to fumigation of flora around the mining sites with limited to no impact. Dwellings in mining sites are not such that can be sprayed and LLINs are not available to be distributed. In-situ visits to these places by PAHO technical staff showed that all individual cases are notified promptly from diagnostic posts to the epidemiological unit at the demarcation and then to state level weekly and without delay.

The country has had problems with availability of foreign exchange, limiting its ability to procure necessary materials like anti-malarials and rapid diagnostic tests. Venezuela, being a middle income group country, is not eligible to apply for Global Fund grants. Other major donors are also limited in supporting the country due to various other reasons.

1.2 PAHO mission and recommendations

During march 2017 the regional malaria team carried out a three-week mission to the Bolivar state during which it was possible to evaluate jointly with the Ministry of Health of Venezuela the epidemiological situation and the response. The regional team characterized the situation as "an epidemic which requires a response at a scale much higher than the current one". The following gaps were identified:

Limited access to early diagnosis and prompt treatment

- Insufficiency and stock out of antimalarials
- RDTs not available
- Human resources for diagnosis/treatment, surveillance and vector control massively overburdened
- Malaria diagnosis and treatment not included in general health services
- Logistical gaps for providing diagnosis and treatment (infrastructure, microscopes, reagents, motorcycles, boats, etc.)

Massively insufficient response

- Vector control intervention insufficient
- Bed nets and insecticides for IRS not available
- Limited investigation and follow up of cases

Potential risk identified during the PAHO mission.

Dissemination of malaria to other states and municipalities of Venezuela leading to malaria epidemics due to weak response capacity
Increase in malaria related mortality
Dissemination of malaria to malaria-free territories in the Caribbean
Possible increase in malaria in border areas of neighbouring countries
Dissemination of *P. falciparum* malaria resistant to chloroquine (already established in South America) to the Caribbean and Mesoamerican countries
Response to the epidemic is overburdening the health system
Risk of resistance to antimalarials (ACT)

PAHO recommendation during the mission stressed the necessity of a **massive increase in scale of response, pointing the following aspects:**

1. Prompt access to diagnosis and treatment through passive case detection – involvement of laboratory personnel other than those from malaria for malaria diagnosis in response
2. Improved access to diagnosis and treatment through forward posts in mining areas – use of RDTs in these posts already established
3. Prevention of malaria transmission: massive distribution of bednets (LLINs) especially in mining areas
4. Prevention of malaria transmission in other areas: use of IRS / LLINs in other areas surrounding mining areas or where miners sleep (when outside the mining site).

According to the information available to PAHO the situation remains critical in terms of the number of cases and the operational gaps of the response. Even in a scenario where the political and economic situation allows an organized response under the recommended parameters, the regional malaria team propose that a complementary MDA intervention in selected high burden areas should be considered due to the urgent need to reduce the burden of malaria cases to allow the saturated health system to be able to recuperate and respond to other needs for malaria control. Should it be subsequently determined that the conditions for the implementation of such intervention exists

+, this action should be proposed to the national authorities as a recommended intervention only under ideal operational conditions.

1.3 Strategy proposed

Given this exceptional situation, following interventions are being proposed as a strategy to focus on high burden areas as a response to the epidemic:

1.3.1 Strategies where guidance is needed:

1. Mass Drug Administration: with the objective of reducing burden of malaria and due to the following reasons:
   1.1. Malaria burden is extremely high and saturating the present health system.
   1.2. Health system, in normal situations, is adequate to the needs of the area.
   1.3. A strong health system with prompt surveillance system is already in place.
   1.4. Access to mining sites and hospitals is good with paved roads in most areas.
   1.5. Case detection and treatment has reached a limit with regards to both coverage and access in some high burden settings, where given the current situation, further improvement by health system is limited.
   1.6. Options are limited presently and not intervening is only likely to worsen the public health crisis further.
2. Use of anti-malarials even when taking alcohol: with the objective of improving adherence among miners and due to following reasons:
   2.1. Miners are most at risk and anecdotal evidence demonstrates that they don't complete treatment
   2.2. Conception that taking anti malarials with alcohol should not be taken
   2.3. Prefer a swig of drink than medicine when feeling better owing to the arduous nature of work.

1.3.2 Details about MDA:

Under ideal circumstances: Three rounds of MDA using Dihydroartemisinin-Piperaquine targeting miners living will be carried out in a San Isidro and El Callo demarcations of Sifontes. Artemether-Lumefantrine plus single dose Primaquine is currently being used as the first line of medication for *P. falciparuim* while chloroquine plus Primaquine for 14 days is used for *P. vivax.* This will be complimented by use of RDTs in health posts in mining sites to further improve access to diagnosis and treatment while simultaneously decreasing the burden on microscopists. Additionally, bednets will be distributed among miners living in mining areas, adjoining areas and other at-risk areas in that order and priority.

Possible deviations: Given the limited availability of Dihydroartemisinin-Piperaquine in the market, it is unlikely that it might be procured in a short span of time for its use in this urgent situation. Other artemisinin derivatives like AS+SP and AS+AM can't be used owing to the underlying resistance profile of the circulating *P. falciparum* parasite strains. AS+MQ is also not available for immediate procurement while AL is already being used as a first line treatment. Use of chloroquine as a drug of choice for MDA can be considered because of the following factors:

1. Around 70% of the cases are due to *P. vivax*. Circulating strains of this parasite are considered to be sensitive to chloroquine.
2. A proportion of *P. falciparum* cases when treated with chloroquine could give the desired treatment objective.
3. Chloroquine is easy to administer and possible side-effects are minimal.
4. It requires only a single dose to be given in a day unlike some other antimalarials.
5. Chloroquine can be procured in short interval.
6. It is already available within in the health system locally and would require minimal adjustments to supply chain and logistics
7. Local health staff are aware of MDA treatment schemes using chloroquine.

1.3.3 Potential risks

However there are potential problems with aforementioned strategy:

1. Use of only MDA without bednets, impact of MDA will not be sustained.
2. In the absence of RDTs, reduction of burden of microscopists specifically and that of health staff will not be achieved.
3. Procurement of artemisinin derivatives could be limited owing to paucity of funds.
4. Number of personnel required for MDA at a scale necessary might not be available only within the MOH. Other people recruited for MDA might not get secure access to mining sites.
5. Execution of the strategy is contingent upon political will and social stability. Without addressing the underlying problems, interventions will have a short-lived impact.
6. Use of chloroquine only for MDA would not decrease *P. falciparum* transmission.
7. MDA strategy could be extremely effective, leading to possible abuse in future by local personnel with its use as a routine programmatic intervention than a once time-bound intervention.
8. MDA with artemisinin when not used under correct parameters could lead to selection of strains with decreased sensitivity to them.
9. If CQ is the option to be used, there will be constrains related with it efficacy and thus possible impact.

Annex

Figure 1: Situation of Malaria in Week 11 in San Isidro Demarcation of Sifontes Municipality, 2017

Casos Nuevos	1,036	68%
Recaidas	478	32%
Total	1,514	100%

Demarcación: San Isidro, Sifontes, Bolivar

Duplicados 17

Formula Parasitaria

Parasito	os Nue	%
P.V.	733	71%
P.F.	235	23%
P.M.	0	0%
I.M.	68	7%
Total	1036	100%

Clasificación de casos

Tipo	%
Autoctono	100%
Importado	0%
Importado1	0%
Introducido	0%
Inducido	0%
Total	

Número de casos por localidades

LOCALIDADES	Casos Nuevos			Recaidas			Total
	P.V.	P.F.	I.M.	P.V.	P.F.	I.M.	
KM 88	14	4	0	17	1	0	36
SALAZAR	69	15	5	45	0	0	134
SANTO DOMINGO	51	9	6	12	0	0	78
CIUDAD DORADA	44	18	5	16	0	0	83
MEZONES	71	5	9	56	2	0	143
PALO FLOREADO	13	4	3	13	0	0	33
SINAI	22	8	2	11	1	0	44
DRAGA LA	37	4	2	32	0	0	75
CIUDAD DORADA	0	0	0	0	0	0	0
	412	168	36	266	6	0	888
H	733	235	68	468	10	0	1514

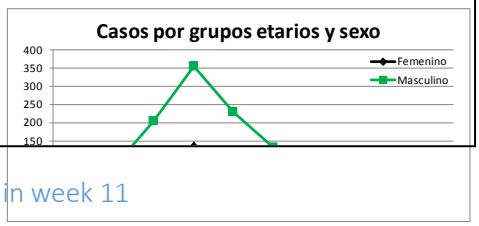


Figure 2: Slides taken and cases diagnosed by diagnostic posts in week 11 in San Isidro Demarcation of Sifontes Municipality, 2017

Número de casos por puesto de diagnóstico

Microscopista	CoDigoDeVS		LAMINAS	Casos nuevos			Recaidas			ILP
				P.V.	P.F.	I.M.	P.V.	P.F.	I.M.	
SANTO DOMINGO (2)	CD120	SANTO DOMINGO	1760	40	18	1	333	8	0	23%
	VS173	JOSE ESPAÑA	0	0	0	0	0	0	0	
	Sub-Total		1760	40	18	1	333	8	0	23%
SALAZAR (1)	CD122	SALAZAR	309	58	2	6	28	0	0	30%
	VS163	NESTOR ROMERO	125	10	5	2	6	0	0	18%
	VS165	ALI LEON	57	8	3	0	3	0	0	25%
	VS166	DEGNI TOMEDEZ	66	6	2	0	3	0	0	17%
	Sub-Total		557	82	12	8	40	0	0	25%
GUARIMBA (1)	CD121	GUARIMBA	49	6	1	0	1	1	0	18%
	VS174	AMALIO MEDINA	62	3	2	0	1	0	0	10%
	VS164	ALBEY JIMENEZ	51	0	0	0	0	0	0	0%
	Sub-Total		162	9	3	0	2	1	0	9%
MANACAL (1)	CD129	MANACAL	100	11	7	1	6	0	0	25%
	VS161	EGUIN GARCIA	66	16	3	0	7	1	0	41%
	VS162	JONATHAN GONZA	63	7	3	1	0	0	0	17%
	Sub-Total		229	34	13	2	13	1	0	28%
Mesones (1)	CD123	MESONES	135	29	5	1	16	0	0	38%
	VS170	JOSE VILLAMEDIAN	78	9	0	0	7	0	0	21%
	VS167	FLOIRAN RIOBUEN	112	12	2	0	10	0	0	21%
	VS168	ANDRES CONTRER	54	12	0	0	0	0	0	22%
	VS178		0	0	0	0	0	0	0	
	VS169	CARLOS SANCHEZ	63	8	0	0	0	0	0	13%
	VS171	RENE GONZALEZ	88	12	20	0	5	0	0	42%
	Sub-Total		530	82	27	1	38	0	0	28%
RIO (1)	CD131	RIO CUYUNI	0	0	0	0	0	0	0	

Figure 3: Access to diagnosis and treatment in week 11 in San Isidro Demarcation of Sifontes Municipality, 2017

Tiempo entre inicio de fiebre y toma

numero de dias	n casos	%
<2	571	38%
2	454	30%
3	296	20%
4	118	8%
5	60	4%
6	9	1%
>6	6	0%
	1514	

Tiempo entre toma y examen

N° de dias	N° casos	%
0	1476	100%
1	0	0%
2	0	0%
3	0	0%
4	0	0%
5	0	0%
>5	0	0%
	1476	

Figure 4: Malaria cases and occupation in week 11 in
San Isidro Demarcation of Sifontes Municipality, 2017