Venezuela's health crisis: the resurgence of malaria, leishmaniasis, and Chagas disease.

Juan V. Hernández-Villena[1], Martin Llewellyn[2], María Eugenia Grillet[1]
juanv.hernandezv@gmail.com

[1]Instituto de Zoología y Ecología Tropical, Facultad de Ciencias, Universidad Central de Venezuela. Caracas, Venezuela.
[2] Institute of Biodiversity, Animal Health and Comparative Medicine, University of Glasgow, UK.

Background

Over the last 20 years, Venezuela's public health quality has been declining due to political and socioeconomic factors, causing an ongoing humanitarian crisis. With a decaying healthcare infrastructure, a mass departure of trained medical personnel, and the decline of all public health programs, including disease surveillance and reporting, Venezuela is experiencing a surge and expansion of vector-borne diseases.

Once recognized as a regional leader for public health and vector-control policies and programming, the country is facing a significant **increase in incidence** of **malaria, Chagas disease, and leishmaniasis**, among others.

Malaria

From **2000 to 2015** Venezuela has:
- Reported **365% increase** in cases
- Contributed with **53% (2017)** and **51% (2018)** of the almost 1 million per year of reported cases in the **Latin American region** (Fig. 1).

And **in 2017**:
- *Plasmodium vivax* accounted for the majority of reported cases (76%)
- *Plasmodium falciparum* (17.7%)
- Mixed *P. vivax/P. falciparum* infections (6%)
- *Plasmodium malariae* (<1%).

Since 2017:
- Increased mixed malaria infections
- Double and triple infections
- Rates higher than expected
- High malaria transmission, mainly in one persistent hotspot in the southeast region of southern Venezuela (Fig. 2); where malaria is associated with deforestation due to illegal gold mining activities.

Now, it has spread from here to northern areas, establishing new transmission foci not previously known to be endemic and with **increased population at-risk of around 50%** compared to the 34.4% back in 2010 (Figure 2).

The ongoing crisis in Venezuela is resulting in the surge and **expansion of vector-borne diseases**, being malaria the most concerning.

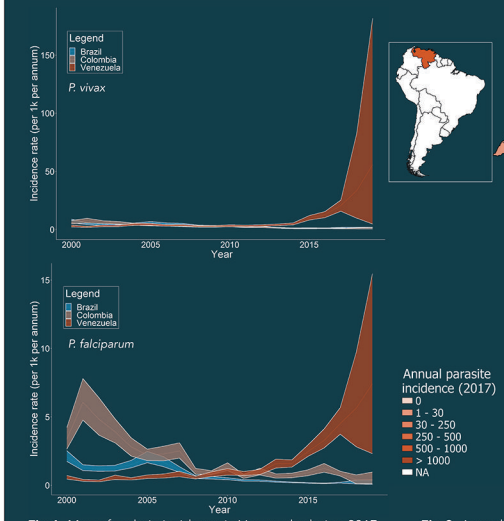

Fig 1. Map of malaria incidence in Venezuela during 2017 (API: Number of confirmed malaria cases by Municipality/at-risk population x 1,000 inhabitants). **Source**: PAHO

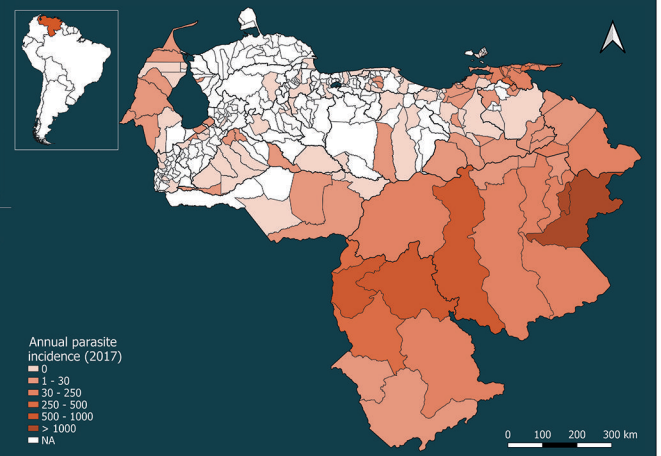

Fig 2. Annual parasite incidence for each municipality in Venezuela during 2017. **Source:** PAHO

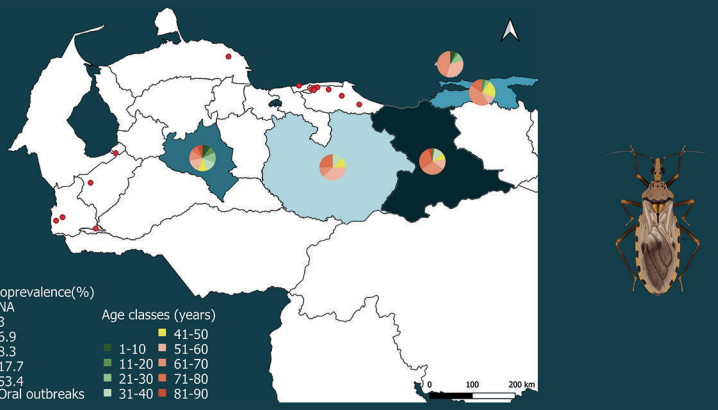

Fig 3. Distribution of Chagas disease human seroprevalence data and sites of oral outbreaks. States with available data are coulored by percentage overall seroprevalence. Pie charts indicate infection among different age classes.

More information? Take a picture!

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Illustrations: Kimberlyn Fonseca-Pérez
@kimbis_bio_illustrations

The uncontrolled **increase of malaria** in Venezuela, coupled with the **massive migration** of Venezuelans to neighboring countries due to the humanitarian crisis, is posing a **serious epidemiological threat to the region**.

Chagas disease

Since 2012 the surveillance and control of this infection in the country is abandoned. Recent focal seroprevalence estimates are **15.7%** (n=1446) indicating **resurgence**. Due to consumption of food and beverages contaminated, oral Chagas disease transmission has become an issue of great concern with **16 outbreaks (321 cases, 70.4% children) reported nationwide between 2007-2018**, half of them occurred in peri-urban and urban areas. Urbanization and deforestation of areas might be contributing, and a new vector –*Panstrongylus geniculatus*-, is now widespread in the slums of the metropolitan region (Fig. 3).

Leishmaniasis

Cutaneous (CL) and mucocutaneous leishmaniasis (MCL) is dispersed throughout the country and visceral leishmaniasis (LV) occurs in three foci. In spite of a report of almost **61,600 CL cases between 1990-2016** and the substantial expansion of its endemic areas, nothing in the available data suggests the clinical cases have been a consequence of the crisis (Fig. 4). However, **migratory trends contribute to the spread of the disease** from rural niches into peri-urban areas where vectors (as *Lutzomyia* spp.) are present, which could aid the installment of new foci. Last year, it was reported in Colombia two Venezuelan patients with multiple coinfections (*L. amazonensis/L. mexicana/L. infantum/L. braziliensis*).

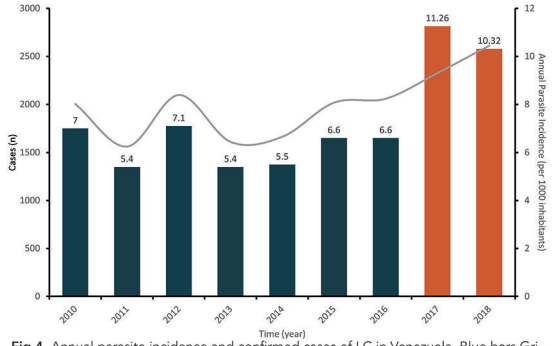

Fig 4. Annual parasite incidence and confirmed cases of LC in Venezuela. Blue bars Grillet (2019), orange bars PAHO (2020).

The rise of MBIDs in Venezuela is occurring in the context of a major and complex situation, which includes the COVID-19 pandemic which has created a disruption of access to healthcare-related burdens on the already affected health system, additional lack of health workers along decreased health demand due to physical distancing requirements. To effectively control epidemics and prevent future outbreaks, it is necessary to recover and strengthen the surveillance and control program in Venezuela. Many Venezuelan parasitologists have now left Venezuela, meanwhile, the diseases they study are rampant.

There is an urgent need to support and undertake research in Venezuela to support the regeneration of a destroyed healthcare and surveillance infrastructure.