

# Should we be concerned about Venezuelan hemorrhagic fever? – A reflection on its current situation in Venezuela and potential impact in Latin America amid the migration crisis

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## Abstract

Venezuelan Haemorrhagic Fever is an endemic zoonosis exhibiting a high lethality. Discovered decades ago, it is still causing seasonal hemorrhagic fever outbreaks. With the ongoing migration crisis, transmission and spreading to other

countries in Latin America remains a latent threat that should be monitored, particularly in light of recent cases.

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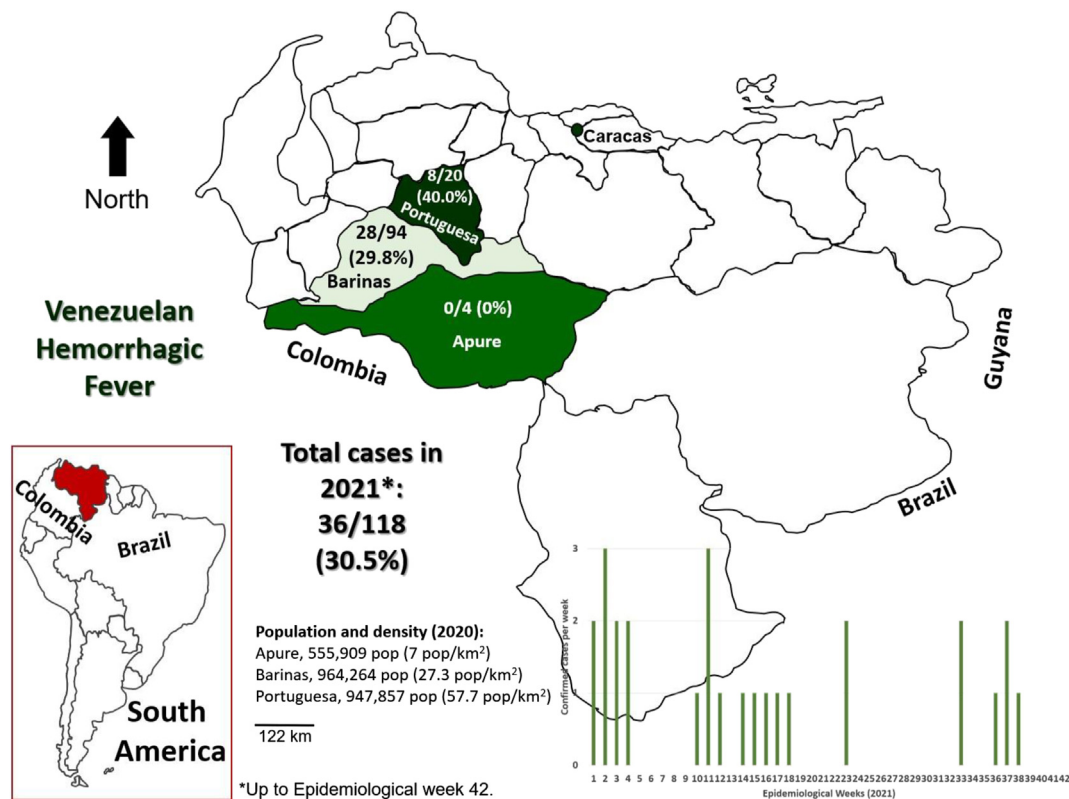
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Tropical diseases have reemerged in Venezuela as a consequence of an unprecedented humanitarian crisis [1,2], coinciding with a complex growing migration crisis from Venezuela to other Latin American countries. Although malaria, HIV, tuberculosis, and more recently yellow fever [1–4], have been highlighted through publications, and alerts by PAHO; other infections such as Venezuelan Hemorrhagic Fever (VHF) [5], continue to be overlooked. We discuss the current epidemiological situation of this Mammarenavirus and its potential implications in view of the current migratory situation.

VHF is a viral haemorrhagic zoonosis with a high fatality rate (~30%). The disease is caused by the Guanarito Mammarenavirus (species of the Mammarenavirus genus), which includes 40 species of the family Arenaviridae (order Bunyavirales) [6,7]. Like other family members, the Guanarito virus is known to spread through endemic rodents [8–10]. In VHF-Venezuelan endemic areas, some of them also serve as reservoirs for other viruses of the Bunyavirales order, Orthohantaviruses, such as Caño Delgado.

Although VHF human-to-human transmission has not been reported, other Mammarenavirus in Latin America, like the Chapare virus, is known to spread through human-to-human transmission [7]. The seasonal emergence of the Guanarito virus, poses a latent risk for the spread of imported cases to the region; 118 suspected cases have been investigated in Venezuela, in states in close proximity to the Colombian border. Of them, 36 have been confirmed (30.5%) (Fig. 1). In Venezuela, the icteric haemorrhagic febrile syndrome occurs more often in adult males



**FIG. 1.** Geographic distribution of Venezuelan Haemorrhagic Fever cases in Venezuela, 2021 (up to the Epidemiological Week 42); cases were confirmed by RT-PCR at Virology Reference Laboratory in Caracas. Apure, Barinas and Portuguesa are endemic for *Zygodontomys brevicauda*, *Sigmodon alstoni* and *S. hispidus*, who serve as natural reservoirs of the virus. Source: Dirección de Vigilancia Epidemiológica, Ministerio del Poder Popular para la Salud (Ministry of Health of Venezuela).

exerting agricultural activities. Because of overlapping areas of endemism with other icterohaemorrhagic pathogens, the differential diagnosis in the country includes other clinically relevant conditions such leptospirosis, dengue and yellow fever, among others that, although not currently under surveillance, should also be considered (e.g. rickettsiosis).

The most recent 2021 yellow fever outbreak has underscored the potential implications and relevance for disease surveillance in Venezuela [3], despite the availability of an effective vaccine. In contrast, no vaccines nor effective treatments are currently available for VHF, although ribavirin has shown slight clinical improvement for some cases. Despite its seasonality, the recent emergence of VHF cases should not be underestimated and should be considered a public health concern, not only for Venezuela but for the region. Further, by performing a search in PubMed, it becomes evident that there has been a significant lack of published studies on VHF over the last years. VHF tends to exhibit cyclic haemorrhagic fever peaking every 5-to-7 years. So far, the PAHO has yet not issued an alert regarding VHF.

Mammarenaviruses, such as VHF in Venezuela and other endemic countries, have important implications for public health [7]. Although imported cases have not been reported to date, cases of other Mammarenaviruses in returning travellers from other endemic countries have been described in the USA, Canada and Europe [8]. There is a pressing need to fill in the gap of knowledge on the diverse ecological and epidemiological aspects of Mammarenaviruses in Latin America, especially in Venezuela, where a complex humanitarian and migratory crisis continues to evolve, carrying the potential menace for disease importation through exodus given that the risk of exposure amongst domestic and international travellers and people living in rodent-disease endemic areas exists. Therefore, a differential diagnostic approach of viral haemorrhagic fevers is helpful, particularly among travellers returning from areas like rural Venezuela, where the Guanarito virus is endemic. Like for most viral haemorrhagic fevers, early diagnosis of cases is a key feature for outbreak responses and disease contention.

## Transparency declaration

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None.

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