Fast expansion of dengue in Brazil

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The Lancet Regional Health - Americas 2022;12: 100274
Published online 29 May 2022
https://doi.org/10.1016/j.lana.2022.100274

We would like to bring attention to the spreading of Dengue towards higher latitudes as well as to less populated areas in Brazil which until recently were free of dengue transmission.[1] Considering two subsequent weeks with an effective reproduction number greater than one (Rt > 1) as a sign of community transmission, we computed the number of municipalities experiencing their first event of community transmission since 2000 in Brazil (Figure 1). The result is alarming. In the last 5 years, a total of 481 municipalities have detected community dengue transmission for the first time, accounting for 8,7 million new individuals at risk. In the first three months of 2022, there were 63 new municipalities with dengue transmission, half of them in the Southern region. Compared to previous periods, the main difference is observed in the South, particularly in the states of Santa Catarina and Rio Grande do Sul where the rate of new municipalities with dengue jumped from 1-2/year to 10 in 2022. Overall, three frontiers of dengue expansion are clearly defined in Brazil: the South, the North and the Northeast of the country, linked to climate change, urbanization and mobility.[1,2] Expansion in the Southern frontier suggests increased climate suitability for *Aedes* mosquitoes[3] and risk of vector-borne diseases co-circulating between Argentina-Paraguay-Brazil. The combination of a competent vector, susceptible human population, and favourable conditions associated with the influx of infectious humans can lead to seasonal outbreaks in currently disease-free areas, including neighbouring countries where imported dengue cases from Brazil already play an important role in sporadic outbreaks.[4] Of note, the COVID pandemic is expected to have affected the transmission of dengue, but the local mechanisms likely varied from place to place.[5]

Brazil has a solid experience in the surveillance and control of dengue in the majority of its territory. But this accumulated experience is not uniformly distributed across the country and areas without previous exposure to dengue are struggling with the sudden outburst of cases. The expansion of the dengue transmission area along the border with Argentina and eventually Uruguay is of concern due to the lack of integration between the national surveillance systems of these countries. Preemptive measures are necessary to prevent the introduction of dengue in new areas and the timely detection of its arrival. We argue for the development of new tools to monitor the dissemination of arboviruses, including the large-scale implementation of trap-based mosquito surveillance, sentinel surveillance of syndromic cases, prediction models, and adequate risk communication, including international cooperation. Such efforts are necessary to increase the precision of preventive and control actions, saving lives.[6]

Contributors

CTC, SSO, DFAC, TISR, LSB, RML, OGC, IFA and FCC contributed to the investigation, conceptualization, and writing of this comment. VG and FCC contributed to the formal analysis and the visualizations.

Declaration of interests

The authors declare no conflict of interest.

Editor note

The *Lancet* Group takes a neutral position with respect to territorial claims in published maps and institutional affiliations.

Acknowledgements

The authors thank the Brazilian Ministry of Health for the support of the Infodengue research group. The funding source had no role in the analysis, and interpretation of data; in the writing of the report; or in the decision to submit the comment for publication.

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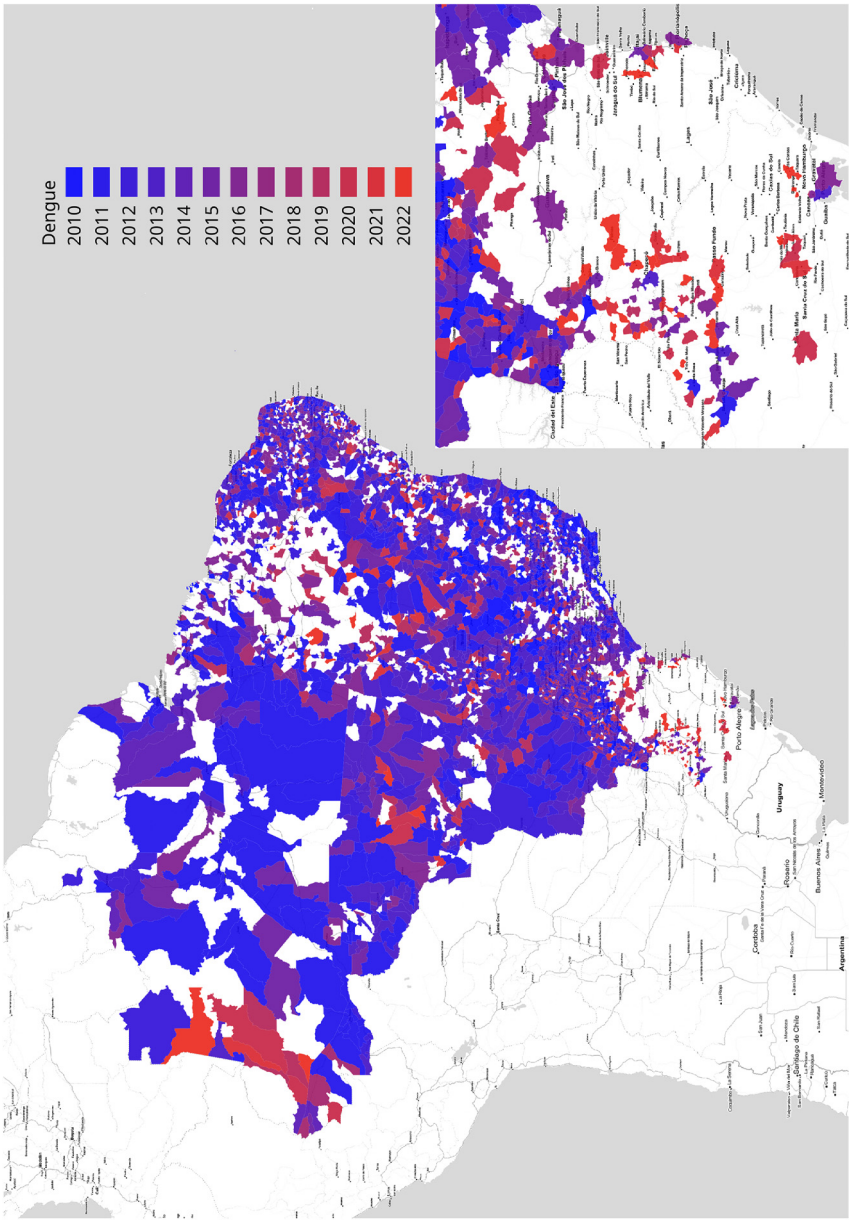

Figure 1. Map of Brazil showing the spread of dengue transmission into previously disease free regions (pre-2010 to March 2022). *Source*: Infodengue.

Funding

Brazilian Ministry of Health.

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