

Brazil's policies condemn Amazonia to a second wave of COVID-19

To the Editor — As of 20 July 2020, Brazil ranked second in the world in both confirmed COVID-19 cases (2,074,860) and COVID-19 deaths (78,772)¹. The first case in Brazil's Amazon region was reported on 13 March in Amazonas state²; this region is particularly sensitive to COVID-19 due to the large number of indigenous peoples and their descendants, who are part of the COVID-19 risk group³. On 17 April, when the cumulative number of confirmed cases in Amazonas totaled 1,809 and confirmed deaths totaled 145 (ref. ²), we warned that strict social distancing in Manaus and the restriction of statewide and interstate passenger travel (road, air and river) would be necessary to prevent the causative coronavirus SARS-CoV-2 from spreading in the interior of the state³. None of these measures were taken, and between the date of the warning and 20 July, confirmed cases in Amazonas had increased by 4,951% (reaching 91,389), and confirmed deaths had increased by 2,069% to a total of 3,146, according to data from the state government's Health Surveillance Foundation². According to the mayor of Manaus, the health system collapsed in April, as did the city's mortuaries and cemeteries⁴. Almost all intensive care units in the state are located in Manaus. This means that the collapse of the health system in Manaus represents a collapse of the health system of the entire state of Amazonas, which is the largest in Brazil in terms of area and occupies roughly one third of the country's Amazon region.

On 6 May, the Legislative Assembly of the state of Amazonas approved a bill allowing the reopening of temples and churches⁴. Reopening of "non-essential" retail stores occurred on 1 June. Scientific information has been ignored by decision makers^{4,5}, who have relied on unpublished and unreviewed 'opinions' suggesting the ending of social isolation, and have thereby placed thousands of lives at risk⁶. Unscientific arguments have also supported new lawsuits brought by the Amazonas State Industry Center and the Federation of Industry of the State of Amazonas to prevent the declaration of a lockdown⁴. Brazil's State Public Prosecutor's Office in Manaus tried to establish a lockdown to contain the pandemic in the city, but a local judge denied the request, citing insufficient information⁷.

Studies have shown that COVID-19 can be significantly reduced by social-isolation measures⁸, and the ideal duration of such measures is longer than 2 months⁹. This was not the course followed in Manaus, contrary to recommendations made by specialists to the State Public Ministry^{4,5}. Private schools in Manaus reopened over the course of the first 2 weeks of July, and on 17 July, the teachers' union for public schools voted to go on strike if the state government carries out its plan for reopening public schools in August without a series of adaptations of school buildings, among other measures. Suspension of school activities and the closure of entertainment and other commercial establishments have been shown to be critical measures for slowing the advance of the pandemic⁸. Unfortunately, the general level of activity in the streets and commercial establishments of Manaus has returned to nearly normal despite the fact that the bulk of the population has no known immunity to the virus⁵.

Failure to take measures to avoid a new increase in cases and in the number of deaths is the responsibility of the federal, state and municipal governments. The rapid increase in case numbers in the interior of the state (including in indigenous communities) will put pressure on intensive care units in Manaus⁵. However, even under these conditions, the mayor of Manaus decided to close down field hospitals, which leaves the region vulnerable to a second wave of infections. On 8 July, President Bolsonaro vetoed measures to protect indigenous peoples from COVID-19, such as free distribution of hygiene and cleaning materials and the disinfection of villages, in addition to vetoing the provision of hospital beds, intensive care units, ventilators and blood-oxygenation equipment¹⁰. For traditional communities, such as those of indigenous peoples, the loss of a tribal chief (*Cacique*) or village elder could lead to the extinction of their cultures, because the traditions are passed on orally by the elders. Maintenance of the Amazon forest is linked to the maintenance of traditional and indigenous peoples, since indigenous lands protect one third of what remains of Brazil's Amazon forest. It is worrying that the number of cases officially confirmed by the state government is higher than

in the first half of April², which preceded the great peak of cases and deaths that collapsed the health system in April and May⁴. If a second wave of the pandemic in Amazonia is to be avoided, effective measures such as closing schools and non-essential services need to be implemented immediately. □

Lucas Ferrante ¹,
Wilhelm Alexander Steinmetz ²,
Alexandre Celestino Leite Almeida ³,
Jeremias Leão ⁴, Ruth Camargo Vassão⁵,
Unai Tupinambás ⁶, Philip Martin Fearnside¹
and Luiz Henrique Duczmal ⁷

¹Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil. ²Department of Mathematics, Universidade Federal do Amazonas, Manaus, Brazil. ³Universidade Federal de São João del-Rei - DEFIM, Ouro Branco, Brazil. ⁴Department of Statistics, Universidade Federal do Amazonas, Manaus, Brazil. ⁵São Paulo, Brazil. ⁶Department of Internal Medicine, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil. ⁷Department of Statistics, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil.

✉e-mail: lucasferrante@hotmail.com

Published online: 07 August 2020

<https://doi.org/10.1038/s41591-020-1026-x>

References

- World Health Organization. https://www.who.int/docs/default-source/coronavirus/situation-reports/20200720-covid-19-sitrep-182.pdf?sfvrsn=60aabc5c_2 (2020).
- Fundação de Vigilância em Saúde do Amazonas. http://www.fvs.am.gov.br/media/publicacao/20_07_20_BOLETIM_DI%20C3%81RIO_DE_CASOS_COVID-19.pdf (2020).
- Ferrante, L. & Fearnside, P.M. *Science* **368**, 251 (2020) <https://doi.org/10.1126/science.abc0073>.
- Ferrante, L. & Fearnside, P.M. *Amazônia Real* <https://amazoniareal.com.br/porque-precisa-de-lockdown-em-manaus/> (2020).
- Ferrante, L. et al. <https://www.mpam.mp.br/attachments/article/13077/NOTA%20T%20C3%89CNICA%20MPAM%20COVID-19.pdf> (Ministério Público em Amazonas, Manaus, Brazil, 2020).
- Filho, J. *The Intercept Brasil* https://theintercept.com/2020/05/10/coronavirus-estudo-samy-dana/?fbclid=IwAR1VagZ-fY3wqTlrzh7_n2MbU-qa-wczn0e3u0IQ1ux854BHKT3cMMt9wc (2020).
- Poder Judiciário do Estado do Amazonas. <https://diretoapontonews.com.br/wp-content/uploads/2020/05/document-10-1.pdf> (2020).
- Hsiang, S. et al. *Nature* <https://doi.org/10.1038/s41586-020-2404-8> (2020).
- López, L. & Rodó, X. *Nat. Hum. Behav.* **4**, 746–755 (2020).
- Ribeiro, L. *Terra* <https://www.terra.com.br/noticias/coronavirus/bolsonaro-veta-obrigatoriedade-de-leitos-para-indios,3abd72829dde67c4926f38ff0a55323nymo8r7k.html> (2020).

Competing interests

The authors declare no competing interests.