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## Letter to the editor

# Concerns about COVID-19 and arboviral (chikungunya, dengue, zika) concurrent outbreaks

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### To the editor,

A novel betacoronavirus that causes severe pneumonia was first described in December 2019, in Wuhan, the capital city of Hubei province, in China.<sup>1</sup> Denominated SARS-CoV-2, and the etiologic agent of Coronavirus Disease 2019 (COVID-19), this virus has since spread around the world. The outbreak achieved pandemic status on March 12, 2020.<sup>2</sup> As of July 28, 2020, a total of 16,341,920 cases and 650,805 deaths were confirmed worldwide,<sup>3</sup> while in Brazil there were 2,483,191 cases and 88,539 deaths.<sup>4</sup>

In addition to concerns surrounding the COVID-19 pandemic, there has also been an upsurge in other viral epidemics in Brazil: the arboviral diseases chikungunya, dengue and zika. A recent epidemiological bulletin from the Brazilian Ministry of Health (July 2020) reported a rising incidence of dengue (874,093), chikungunya (48,316) and zika (4666) cases from January to July 2020.<sup>5</sup> In Bahia, a state located in northeastern Brazil, an even more expressive rise was seen: a total of 28,293 cases of chikungunya, 82,251 cases of dengue and 3721 cases of zika in this same period. Compared with the same period in 2019, the number of chikungunya cases has risen by 383.2%.<sup>6</sup>

As fever, fatigue, chills, myalgia are symptoms shared by both COVID-19 disease and arboviral infection syndromes, the concomitant occurrence of both outbreaks may lead to misdiagnosis by healthcare professionals.<sup>1,7</sup>

Social distancing and isolation have been shown to be effective measures for preventing the spread of COVID-19 in populations, mitigating the collapse of health systems.<sup>8</sup> However, in impoverished areas, access to basic sanitation services, such as piped water delivery systems, remains scarce. As an alternative, poorer populations opt to store water for basic hygiene needs, which can lead to increased vectors proliferation, such as *Aedes aegypti*, and, consequently, more arbovirus infections.<sup>9</sup>

Arboviral infections can also have life-threatening presentations, such as severe dengue and dengue shock syndrome, which accounted for 415 deaths and 8729 hospitalizations from January to July 2020 in the country.<sup>5</sup> Neurological complications arising from chikungunya and zika infections, including Guillain-Barré syndrome (GBS), encephalitis, myelitis and others, can be present during both acute and convalescent phases of the disease.<sup>7</sup>

During the 2015 zika outbreak in Brazil, the appearance of several cases of GBS raised concerns with regard to severity, as most cases required hospitalization in intensive care unit (ICU) facilities due to acute progressive muscle weakness, respiratory failure and severe dysautonomia.<sup>10,11</sup>

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Approximately 15% of COVID-19 patients will evolve to severe pulmonary disease (severe acute respiratory syndrome — SARS), necessitating support in an ICU. The overall mortality rate associated with this disease has been reported to be around 5%.<sup>8</sup>

Recent increases in the incidence of arboviral infections, potentially increasing the number of GBS cases, as well as severe dengue and dengue shock syndrome, raise the possibility of a lack of ICU beds to accommodate these patients in face of a health care system potentially overwhelmed by SARS-Cov-2.<sup>12</sup> It is extremely important that health care professionals and governmental health authorities be aware of the risks associated with the concomitant occurrence of the aforementioned diseases, and implement plans to conduct epidemiological surveillance and take the necessary actions to mitigate pressure on health care units.

### Conflicts of interest

The authors declare no conflicts of interest.

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