



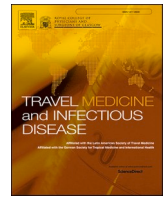
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COVID-19 and Influenza coinfection: The rise of Ômicron and H3N2 in Brazil – 2022

Dear Editor,

Health organizations worldwide are putting all the efforts into COVID-19 pandemics, which is still the main global health concern, due to the low vaccine coverage in different countries, allied to the emergence of new variants that undermine the public health efforts of the nations. This situation of over-mobilization to contain COVID-19 has weakened the local health systems, enabling the opportunistic and neglected diseases to silently spread [1].

Current outbreaks of Influenza, with attention to the strain A/H3N2 in Brazil, a respiratory infectious disease, that have a seasonal patterns which most of cases occurred in autumn and winter, however we are observing a complete different scenario emerging in the end of spring and beginning of summer season in the country [2].

Influenza is a negative sense segmented RNA enveloped virus that belongs to the *Orthomyxoviridae* family. Importantly, *Alphainfluenzavirus* and *Betaïnfluenzavirus* are known to infect humans. They present two main proteins in their envelope, Hemagglutinin (HA) and Neuraminidase (NA). These proteins commonly mutate by two major events known as antigenic drifts and shifts, these are the main cause of outbreaks worldwide [3]. Annually, the strain that is circulating are used to pro-

duce the vaccines, current version that are produced in Brazil does not include the strain that have circulated in the northern hemisphere, this might be one of the reasons for the outbreak in Brazil.

Another reason that probably has aided the fast transmission is the low vaccine coverage in the last two years in the country, with 71.2% of the target group in 2021, 82% in 2020 with 55.7 million people, while in 2019 it reached 91% (54.4 million people).

The high vaccination rates for SARS-CoV2 in many Brazilian states [4], including Rio de Janeiro and Bahia has led to the reduction in the use of non-pharmacological preventive measures as face-masks, mass gathering restrictions, among others. The population of these localities tend to become more flexible and even neglectful for the non-pharmacological preventive measures due to the long period of restrictions and social-economic conditions [5].

These factors may have been the main reason that have accelerated the pace of outbreaks and even the epidemic situation of Influenza in some Brazilian states and regions (Table 1), requiring actions and mass vaccination campaigns for Influenza to avoid the collapse of the public health systems that are recovering from efforts against to COVID-19.

The Ômicron variant of SARS-CoV2, which is considered to be more transmissible, combined with low vaccine coverage for Influenza, whose H3N2 strain is not yet part of the current vaccine, represent conditions for the emergence and growth of coinfection cases in several states.

Due to the resuming of international travels, and the fewest hygiene restrictions for international travellers in Brazil, the conditions are favourable to receive more tourists. Therefore travellers that come to the country should be vaccinated against SARS-CoV2 and Influenza to avoid the importation of these infectious diseases and the use of non-pharmacological preventive measures may aid in the reduction of these outbreaks.

Table 1

Influenza outbreaks and coinfection with SARS-CoV2 - Brazil - 2021/2022.

Brazilian State	Positive Cases (Nov to Dec/18/2021)	Coinfeccion SARS-CoV2 and Influenza
Rio de Janeiro	4.752	2
São Paulo	205	110
Bahia	185	11
Amazonas	494	0
Rondônia	485	1
Rio Grande do Sul	24	1
Mato Grosso do Sul	328	6
Ceará	437	3
Rio Grande do Norte	93	1
Distrito Federal	5805	89
Mato Grosso	67	1
Goiás	61	1
Alagoas	21	3
Sergipe	46	1
Minas Gerais	67	3
Pernambuco	179	31
Paraná	375	0

Source: infogripe/Fiocruz.

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