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Letter to the Editor

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Omicron Variant in Mexico: the Fourth COVID-19 Wave

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Just when several countries around the world were leaving behind the wave caused by the Delta variant of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS CoV-2), the Omicron variant emerged causing millions of infections worldwide.[1,2] This new variant of SARS CoV-2 is characterized by having 32 mutations in the spike protein. It is noteworthy that the Delta variant has only 5 mutations in its protein, which is the main antigenic target of antibodies produced by both infections and vaccination.[3] Furthermore, the Omicron variant is up to 2.8 times more transmissible than the Delta variant, which was more transmissible than the Alpha variant.[3,4]

In early November 2021, Mexico had already left behind the third wave of coronavirus disease 2019 (COVID-19) triggered by the Delta variant.[5] However, at the end of 2021, the Omicron variant was increasing its presence, which at the same time caused the fourth wave of COVID-19, characterized by the high number of COVID-19 cases in the country ($r = 0.5299$, $P < 0.00001$).[2,6] Thus, in less than 2 weeks, this fourth wave had already reached the maximum number of cases registered during the third wave caused by the Delta variant, and 2 weeks later the cases increased by more than 200%; with which, this fourth wave of COVID-19 reached its peak (Figure 1). On the other hand, although there was no correlation between the presence of the Omicron variant and daily new deaths, these also increased during this fourth wave of COVID-19 ($r = 0.1154$, $P = 0.3638$).[2,6] Nevertheless, the deaths observed through this fourth wave were lower in comparison with those reported during the third wave triggered by the Delta variant, which also had fewer deaths when compared to the second wave. Thus, although the number of daily new cases has increased with each new wave, the number of deaths has also decreased at the same time (Figure 1). It is worth noting that, during the second wave of COVID-19 in January 2021, the percentage of vaccinated people started to increase in Mexico, but only 0.5% of the population received the vaccine. During the third wave, people who had received at least one dose of the vaccine represented 45% of the population, while in the fourth COVID-19 wave, this percentage increased to 65% (Figure 1).[2,7]

Although some studies have suggested that vaccines cannot prevent new infections, the risk of severe disease, hospitalization, and death decreases in vaccinated people.[8,9] Therefore, it is important to increase vaccination coverage and booster doses to strengthen the immune response against this virus.

However, we must consider that if the virus remains highly transmissible, the risk of contagion is present and increases when people are in close contact with others. This in turn increases the possibility that the virus could mutate again, and a new variant could emerge, thus provoking a new wave of infections, and repeating the vicious circle.[10,11] Unfortunately, we have seen this vicious circle repeating itself. Now the Omicron variant has new sub lineages, one of them is the variant BA.2, which emerged in China in early March, 2022. This new Omicron variant was responsible for thousands of infections which had not been seen in this country since the beginning of this pandemic.[2,12] Therefore, we must maintain strict measures such as social distancing and the use of face masks until the end of this public health emergency of international concern.

We can apply all the knowledge acquired through this pandemic to take care of ourselves, prevent new waves of infections and be prepared for another pandemic in the future.

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Author contributions. Sergio Isaac De La Cruz-Hernández wrote the manuscript, analyzed the epidemiological data along with the proportion of vaccinated people, and the reported sequences of the Omicron variant of SARS-CoV-2 and finally, he assisted in designing the figures.

Ana Karen Álvarez-Contreras obtained and analyzed all the data from Johns Hopkins University & Medicine, Coronavirus Resource Center, along with other sources such as Our World in Data, and CoVariants, enabled by data from GISAID. She also assisted in designing the figures.

Conflict of interest. The authors declare that there are no conflicts of interest.

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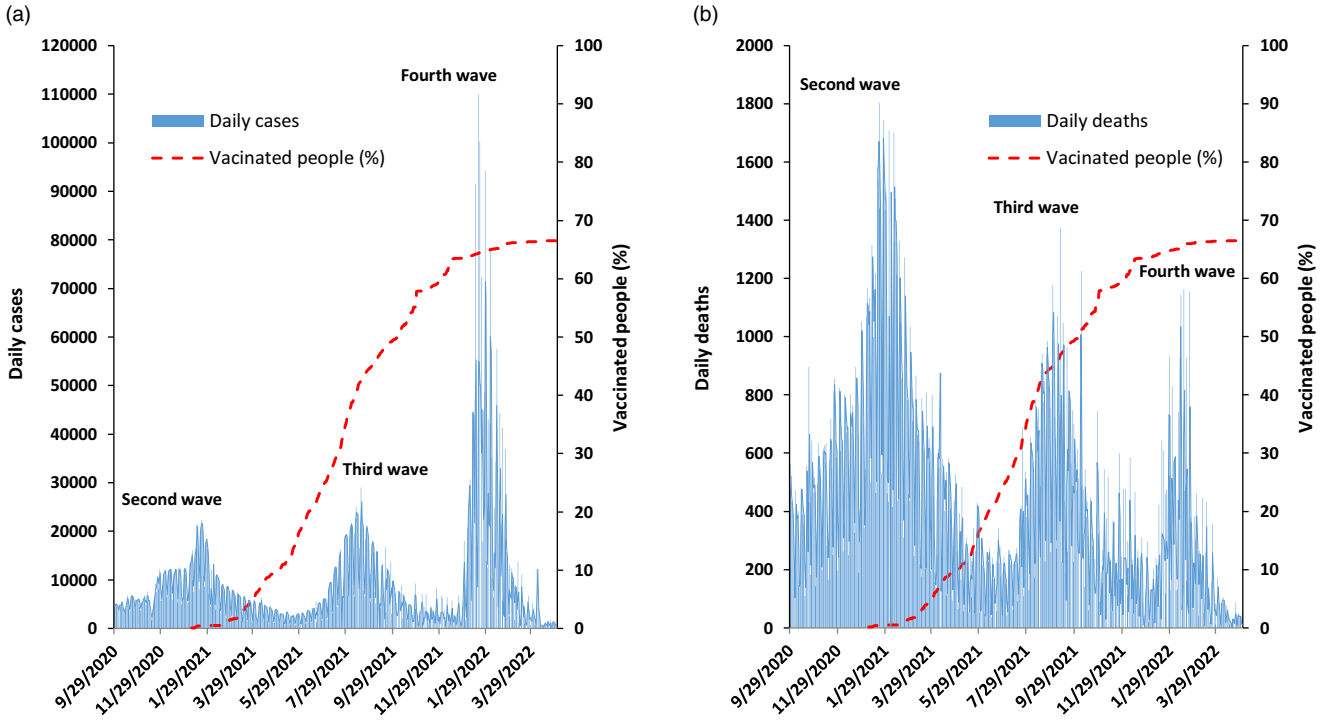


Figure 1. Daily new cases and deaths, and the percentage of vaccinated people during the last COVID-19 waves in Mexico.
Reports of daily new cases (a) and deaths (b) were obtained from Johns Hopkins University & Medicine Coronavirus Resource Center.[2] Proportions of vaccinated people (indicated by dashed lines) were obtained from Our World in Data.[7]
Only in the text we show the Pearson´s correlation coefficient to test the association between the proportion of reported sequences of the Omicron variant with daily new cases and daily new deaths, from the beginning to the peak of the fourth COVID-19 wave. The proportions of sequences (not cases) of the Omicron variant (BA.1) from Mexico were obtained from CoVariants, Enabled by data from GISAID.[6]

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