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Letter to the Editor

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The Delta Variant Triggers the Third Wave of COVID-19 in Mexico

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During 2021, the Delta variant of the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS CoV-2) was responsible for new waves of the coronavirus disease 2019 (COVID-19) contagion in several countries around the world. This was due to its high transmissibility as compared to the Alpha variant.[1] Part of this transmissibility could be caused by high viral loads during acute infections in which up to 6 times more viral copies can be generated in comparison with those infected with the Alpha variant.[2] Thus, in 2021, the Delta variant increased not only the risk of hospital admission for COVID-19, but also the risk of death in unvaccinated patients.[3]

In Mexico, in mid-January 2021, the second wave of COVID-19 reached its peak by registering 22339 positive cases in a single day, following which this epidemic curve began to decline during the first 4 months of 2021. However, at the end of May 2021, the presence of the Delta variant was increasing and triggering a third wave of COVID-19. The number of cases and deaths increased rapidly during June, 2021. In August 2021, this new wave reached its peak by registering 28953 new cases in a single day, and then, began to decrease in the following months (Figure 1).[4,5] Despite the high number of new daily cases being reported during this new wave, which had not been seen before in Mexico, the number of new daily deaths was lower in comparison with the second wave of COVID-19. Thus, when Mexico reached the peak of this second wave, 1803 deaths had been registered despite having only 0.5% of its population vaccinated. In contrast, while at the peak of this third wave caused by the Delta variant, the number of reported deaths was 940 and the percentage of vaccinated people had increased to 45%.[4,6] It is worth noting that there is evidence to suggest that the protection provided by the vaccines was less when patients were infected with the Delta variant in comparison with those patients infected with the Alpha variant. Nevertheless, the vaccines were able to reduce the risk of hospitalization and death from Delta variant infection.[7–9]

It should be considered that, the administration of vaccines alone without following strict measures such as the use of facemasks and maintaining social distancing is not enough to prevent the appearance and spread of new variants.[9] An important factor to determine whether a new variant can establish and spread in the population is when individuals are in constant contact with other people This increases the probability of becoming infected and transmitting the variant to others.[10]

During this pandemic, after thousands of infections, several mutations have occurred in the SARS-CoV-2 genome from which new variants have emerged that have caused thousands of new infections. This presents an unpredictable vicious circle.[11] An example of this is the emergence of Omicron, the new variant of SARS-CoV-2, which appeared at the end of 2021 and caused millions of cases worldwide, although the number of deaths was lower in comparison with those caused by the Delta variant.[4,5]

Despite the fact that vaccination coverage has been increasing during the last months of 2021,[6] the last waves caused by the new variants of SARS-CoV-2 have left us with important lessons such as not relaxing the strict measures mentioned above. We could take into account the experience gained in the course of this COVID-19 pandemic to prevent another wave of infections or be prepared for the next pandemic.

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Author contributions. Sergio Isaac De La Cruz-Hernández wrote the manuscript, analyzed the epidemiological data along with the proportion of reported sequences of the Delta variant of SARS-CoV-2, and made the figure. Gisela Barrera-Badillo analyzed the association between the increases in number of COVID-19 cases with the presence of the Delta variant of SARS-CoV-2.

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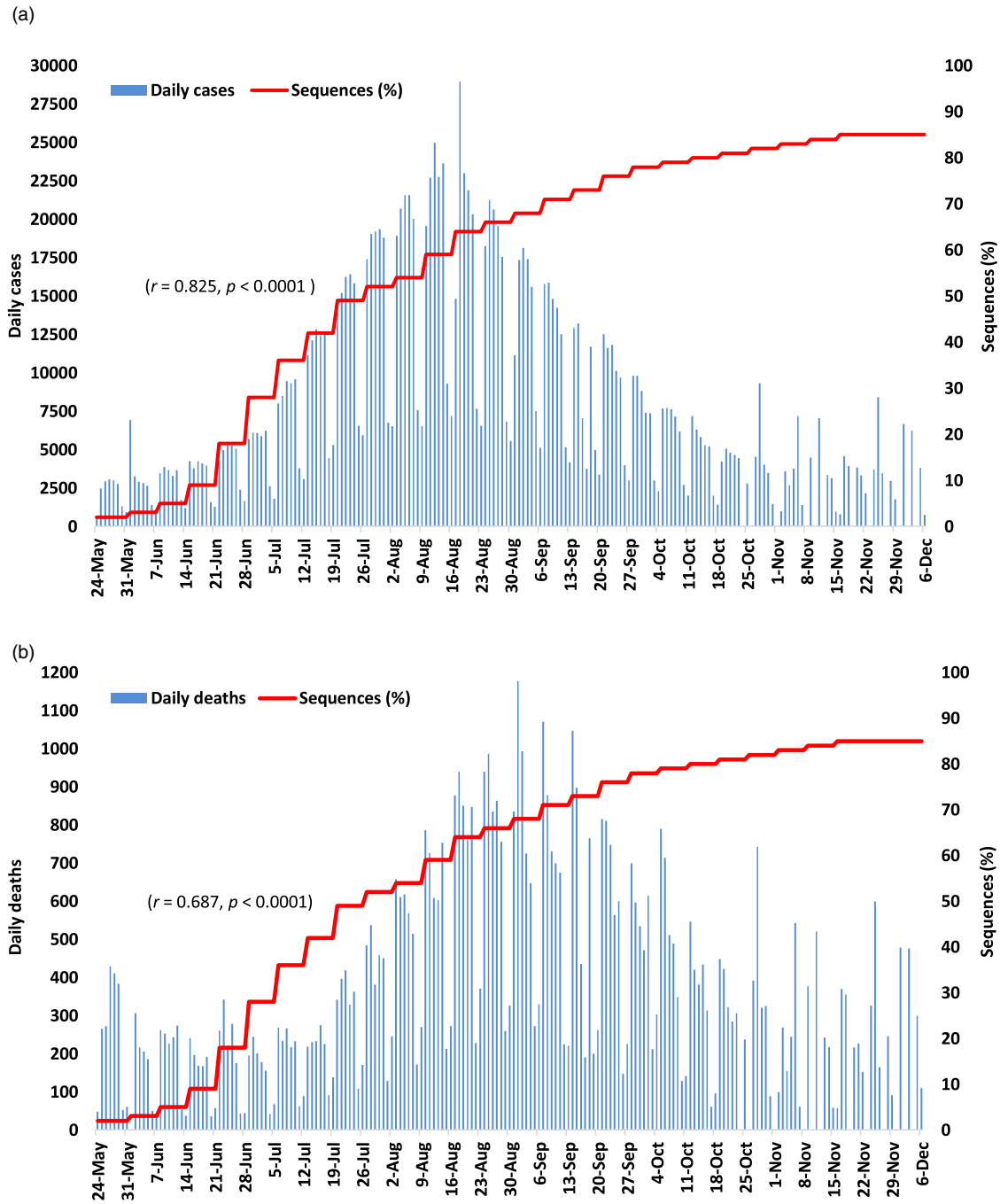

Figure 1. New daily cases and deaths during the third wave of COVID-19 caused by the Delta variant of SARSCoV-2 in Mexico. Pearson's correlation coefficient was used to test the association between the proportion of reported sequences of the Delta variant with new daily cases (A), and new daily deaths (B) from the beginning to the peak of the third COVID-19 wave. Reports of new daily cases and deaths were obtained from the Johns Hopkins University Coronavirus Resource Center,[4] while the proportion of sequences (not cases) of the Delta variant (21J) from Mexico were obtained from CoVariants, enabled by data from GISAID.[5]

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