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# COVID-related “lockdowns” and birth rates in New York



**OBJECTIVE:** Recent analyses have suggested that the number of births in the United States may decrease substantially in the wake of the COVID-19 pandemic.<sup>1</sup> Some of this decline may be attributable to economic disruptions that are often linked to lowered birth rates.<sup>1</sup> However to the best of our knowledge, empirical data to validate these projections and to look more specifically at the consequences of “lockdowns,” have not yet been published. The objective of our study was to compare the birth rates in New York City and Long Island hospitals during the 9 months after the lockdown, to the birth rates during the same time frames in previous years.

**STUDY DESIGN:** This was a multicenter, retrospective study of live births from hospitals in the New York City Maternal-Fetal Medicine Research Consortium, an ongoing collaboration at several hospitals in New York City and Long Island. This consortium captures approximately one-third of the births in New York City (eg, of the 117,013 births recorded in 2017, 42,680 [36.6%] were from this consortium). To evaluate whether the lockdown in New York City (the first in the United States) between March 2020 and June 2020 resulted in a change in the number of births after the lockdown, we calculated the total live births 9 months after the lockdown (between December 2020 and February 2021) and compared the number with the total in the same 3 months during the previous 4 years. Fourteen hospitals with a total of greater than 55,000 annualized live births were included. Time series regression was performed to test the birth trends and to determine whether any change was a part of an ongoing trend.

**RESULTS:** Figure 1 shows the total live births in the different time frames. There were 12,099 live births that occurred between December 2020 and February 2021. This is 2994 (19.8%) less live births than the previous year. In addition, the average number of live births in the 4 years before the study period was 15,101 births. This decrease was seen in all the hospitals included in the cohort. The hospitals located within New York City (N=10) had a larger drop in birth rate in the last 2 years (−1947, 18.9%) than in the hospitals located in Long Island (N=4) (−581, 13.4%).

Figure 2 represents the total live births by individual hospitals in the different time frames. Among the entire cohort, the largest drop in birth rate in the previous years was only 4.9%. In addition, there was no significant trend in the number of births in the previous years ( $P=.586$ ). Furthermore,

no significant trend was identified in the hospitals located in New York City or Long Island ( $P=.831$  and  $P=.178$ , respectively). Hospitals with large numbers of Medicaid-funded births showed the same trend as hospitals with smaller numbers of such births.

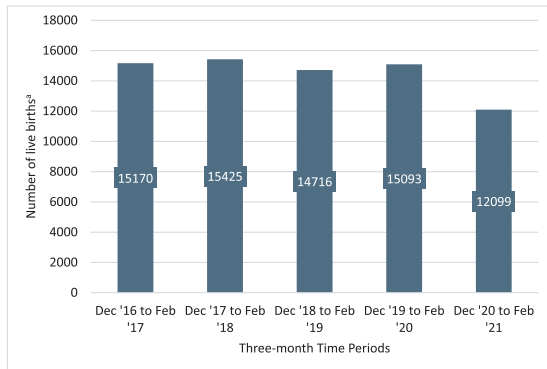
**CONCLUSION:** Nine months after the lockdown was implemented, we observed a nearly 20% decrease in live births than the previous year. Although these data demonstrate a decline that is even greater than previously projected by analysts,<sup>1</sup> there are several issues that should be considered. Firstly, the relationship between lockdowns and preterm birth is unclear, because we did not evaluate the birth outcomes, and thus, we cannot comment on preterm birth. However, most data do not suggest a major effect in the direction of more preterm births.<sup>2–4</sup> We are unable to comment on the outmigration of pregnant women to other hospitals, the 3 accredited free-standing birth centers in New York City, or other geographic areas. However, the estimates on the outmigration data were less than the decrease we found. Using anonymized smartphone location data of approximately 140,000 New York City residents, a company specializing in geospatial analysis found that approximately 5% of New York City residents left New York City between March and May, with the majority moving to surrounding locations in the Northeast and to South Florida.<sup>5</sup>

The steeper decrease in live births in hospitals located in New York City than in those located in Long Island may be related to the population density and the recommended social distancing practices. The population density is higher in New York City than in Long Island (27,000 people per square mile vs 2360 people per square mile). Thus, the lockdown may have had a reduced effect on the number of live births in areas with a lower population density. In addition, most of the New York City residents outmigrated to surrounding locations including Long Island, which may have diminished the decrease in live births.

Our data clearly demonstrate that there were significant changes in the number of births in the 9 months after the nation’s first lockdown. Although we cannot definitively determine the contributions of migration, family choice, or other factors to those changes, these preliminary findings should provide direction to future studies. That work should consider zip codes, parities, and other factors that might exaggerate or mitigate the trends we report here.

## EDITOR'S CHOICE

**FIGURE 1**  
**Total live births at 14 New York hospitals**



The superscript letter *a* represents births that occurred at 14 New York hospitals as follows: Huntington Hospital, Lenox Hill Hospital, Long Island Jewish Forest Hills, Long Island Jewish Medical Center, Maimonides Medical Center, Montefiore Wakefield Hospital, Montefiore Weiler Hospital, The Mount Sinai Hospital, Mount Sinai West, New York University Langone Health-Tisch Hospital, North Shore University Hospital, Phelps Memorial Hospital Center, South Shore University Hospital, and Staten Island University Hospital.

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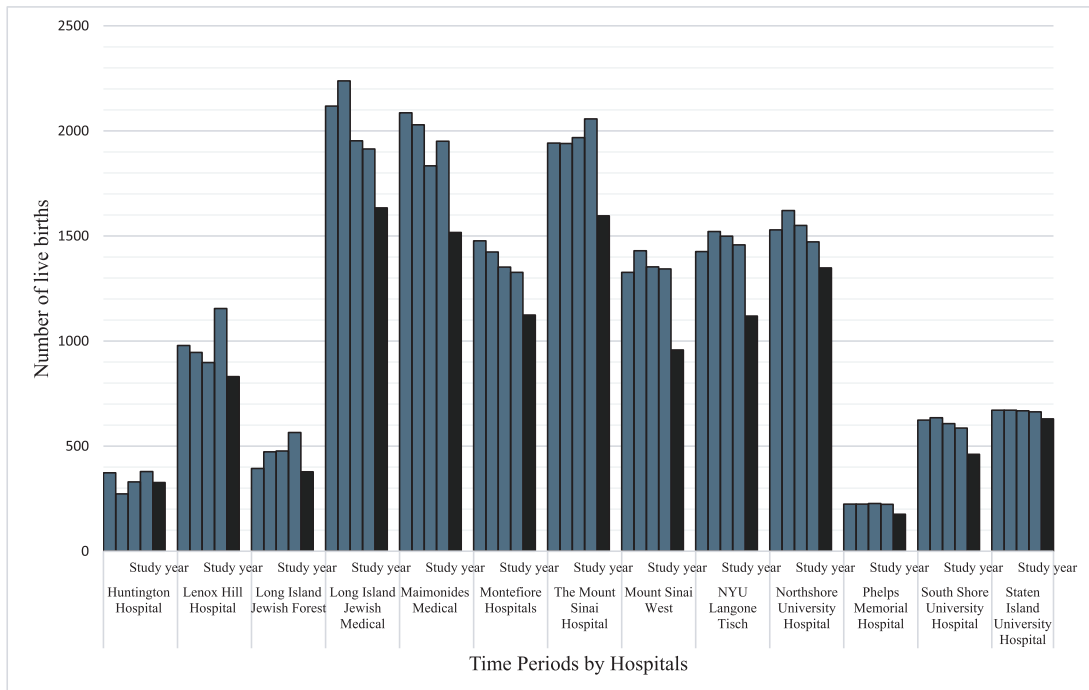
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**FIGURE 2**  
**Total live births stratified by hospitals**



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