

## **The Subways Seeded the Massive Coronavirus Epidemic in New York City**

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*Abstract.* New York City's multipronged subway system was a major disseminator – if not the principal transmission vehicle – of coronavirus infection during the initial takeoff of the massive epidemic that became evident throughout the city during March 2020. The near shutoff of subway ridership in Manhattan – down by over 90 percent at the end of March – correlates strongly with the substantial increase in the doubling time of new cases in this borough. Subway lines with the largest drop in ridership during the second and third weeks of March had the lowest subsequent rates of infection in the zip codes traversed by their routes. Maps of subway station turnstile entries, superimposed upon zip code-level maps of reported coronavirus incidence, are strongly consistent with subway-facilitated disease propagation. Reciprocal seeding of infection appears to be the best explanation for the emergence of a single hotspot in Midtown West in Manhattan.