



COVID-19 and Transportation

November 9, 2020

Presented to:



Presented by:

**Sam
Schwartz**

Times Square, March 17

Transit usage decline is a looming existential threat to the region

Proposed 40% bus/subway and 50% commuter rail cuts in 2022:

- -450,000 jobs***
- -\$50 billion in annual earnings***
- -\$65 billion in region's annual GDP***

-NYU Rudin Center for Transportation, October 2020



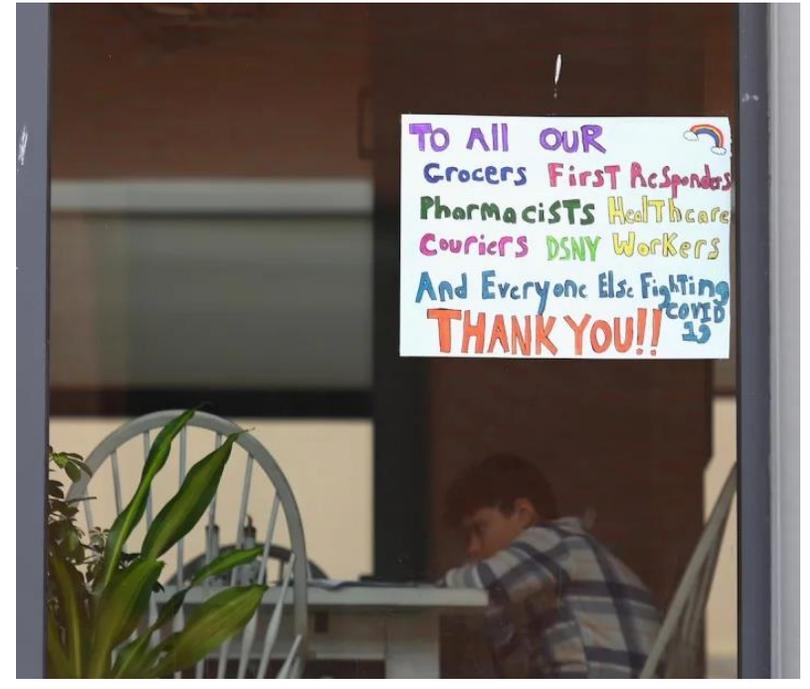
Ridership is Gradually Recovering, Though Unevenly

Ridership as a % change from pre-pandemic levels, NYC metro area:

*Monthly total % change

Mode	Peak Pandemic, April	Most recent data
Airports	-98%*	~ -83%* (August)
NJ TRANSIT Rail	-98%*	-80%
MTA Commuter Rail	-97%	-60% (October)
Taxis	-97%*	-79%* (September)
PATH	-95%*	-76%* (September)
NJ TRANSIT Light Rail	-93%	-45% to -50%
MTA Subways	-92%	-71% (November to-date)
MTA Buses	-87%	-53% (November to-date)
For Hire Vehicles	-80%*	-40% (September)
NJ TRANSIT Bus	-79%*	~-40% to -65% (October)
Bridges & Tunnels Average of PANYNJ and TBTA B&T	-64%*	~-12% * (October)
Citi Bike	-62%*	+1%*, 30% more East River bike crossings (September)
PANYNJ Trucks	-30%*	-2% * (August)

We Hailed Our Heroes

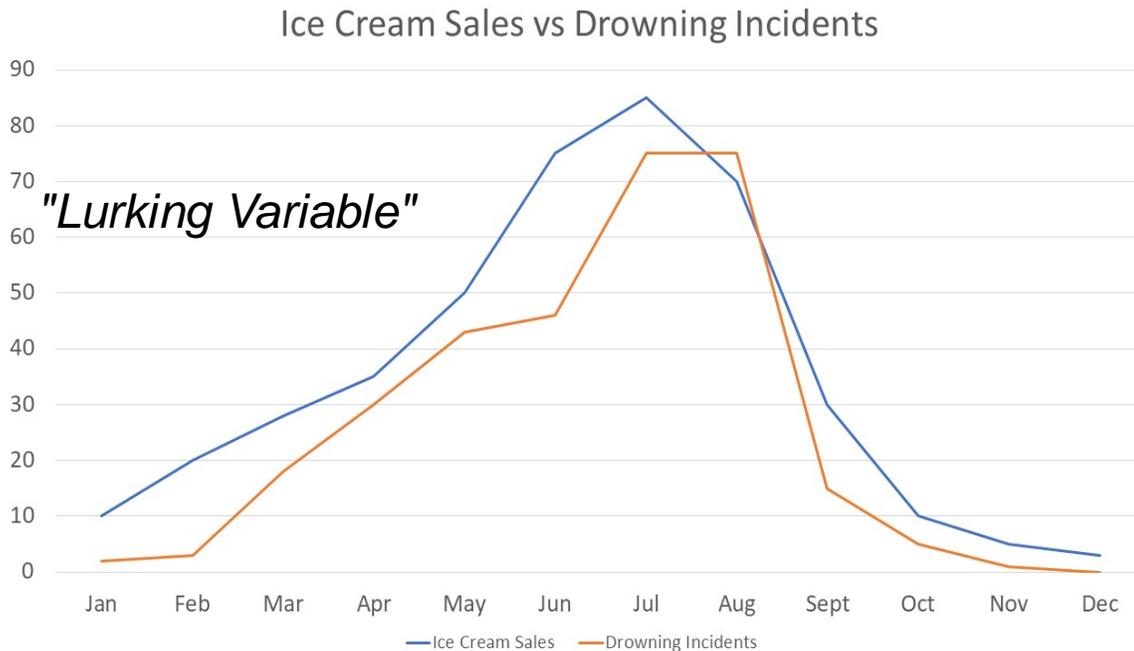


But, Then We Discriminated Against Them and Cut the Service They Rely On - Public Transit

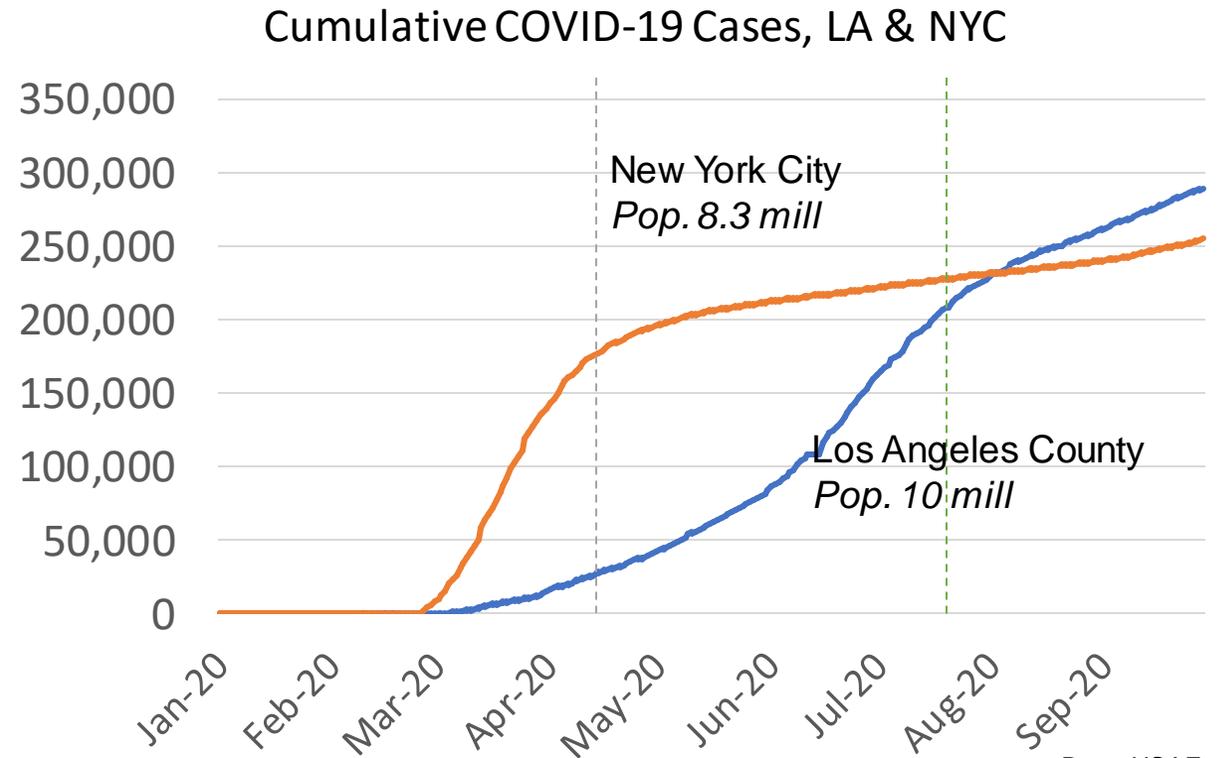
- Local and national policies discriminated against transit users and ergo, low income people
- New York Stock Exchange: **transit riders prohibited from trading floor** (May 2020; *rescinded June 15*); **discounted parking fees** (October 2020)
- Centers for Disease Control: **advises reimbursements/incentives to drive alone** (May 2020)
- A major NY real estate firm: **subsidizes 1/2 monthly parking \$**; ~1/5 employees using the benefit (October 2020)
- And we cut service

Why? Irresponsible Research and Reporting

- **"The Subways Seeded the Massive Coronavirus Epidemic in New York City"** -MIT (April 2020)
- Its like saying ice cream causes drowning



- **"Are Cars Protecting Los Angeles?"** - NYTimes (May 2020)
- **"Is the Subway Risky? It May Be Safer than You Think"** - NYTimes (August 2020)

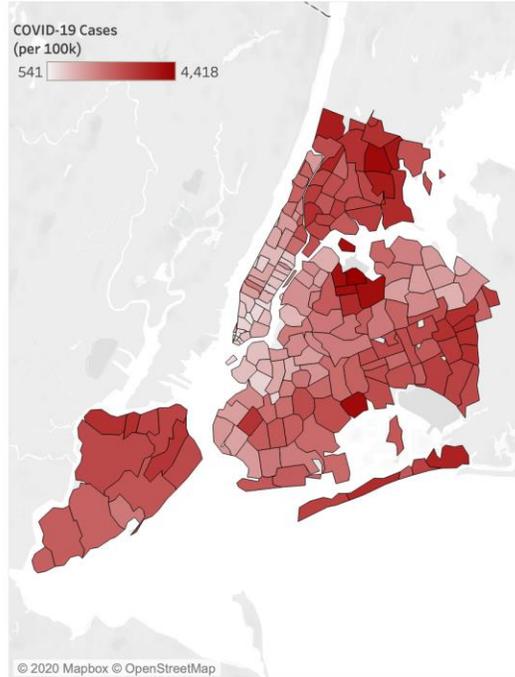


Data: USAFacts

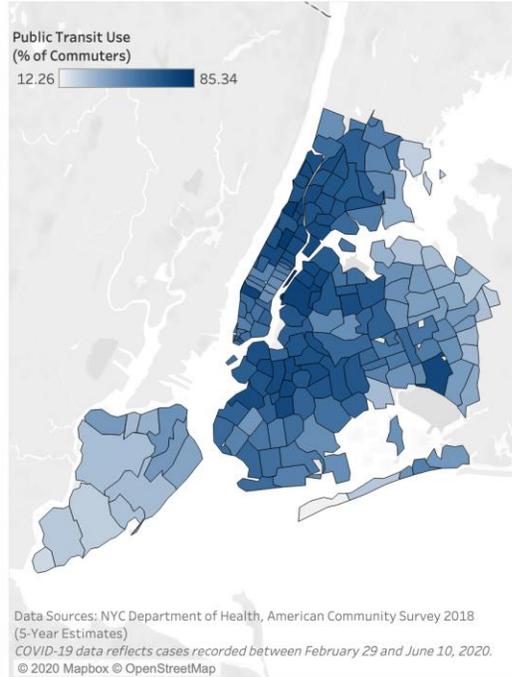
<https://envueconsulting.com/3-mistakes-people-make-when-analyzing-data-to-drive-business-decisions/>

Within New York City: Little Correlation With Transit Usage (Peak Pandemic)

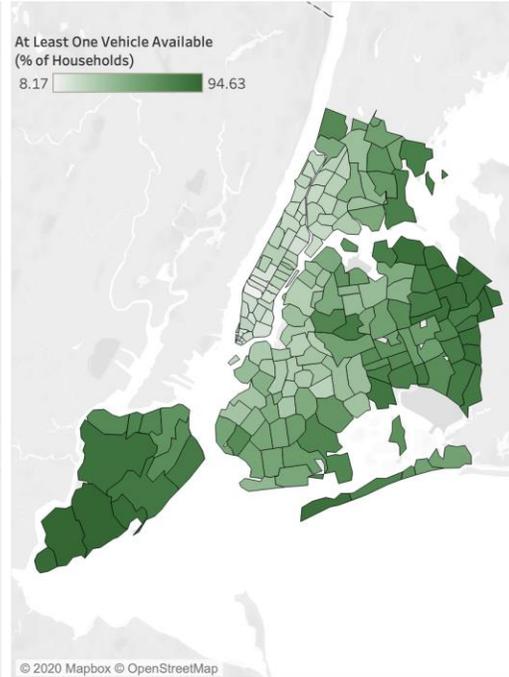
Map 1. Confirmed COVID-19 Case Rate by Modified ZCTA per 100,000



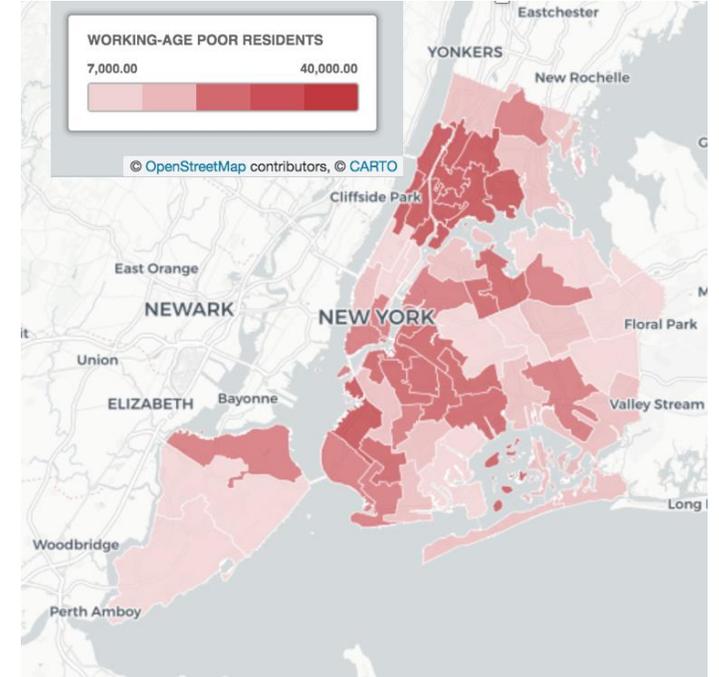
Map 2. Public Transit Use by Modified ZCTA Percent of Commuters 16 years and Older



Map 3. At Least One Vehicle Available by Modified ZCTA Percent of Households



Map 4. Working-age Poor By City Council District 2017



- 10 highest transit usage zones (excluding Manhattan) **31% lower case rate** than 10 lowest zones
- Staten Island rate **50%** > Manhattan, **28%** > than Brooklyn
- 10 highest case rates **57% households had cars**, lowest 10 **21% had cars**
- 10 highest case rates **53% transit users**, lowest 10 **55% transit users**

NYC Suburbs

- Most suburban counties in region had higher infection rates than NYC (**3,073 cases per 100,000**):

New York		New Jersey	
Rockland	5,282	Passaic	4,031
Westchester	4,088	Union	3,436
Nassau	3,586	Hudson	3,279
Orange	3,428	Essex	2,874
Suffolk	3,256	Ocean	2,674

Source: New York Times, Coronavirus Interactive Dashboard accessed October 20, 2020



Public Transit and COVID-19 Pandemic:

Global Research and Best Practices



SEPTEMBER 2020

**Sam
Schwartz**

Disclaimer: The global COVID-19 pandemic is an **evolving** situation. As new evidence emerges, it may affect the following information.

I am not a medical professional, but I am a professional engineer.

Sam Schwartz/APTA report, September 2020. [Public Transit and COVID-19 Pandemic: Global Research and Best Practices.](#)

Health experts have looked at transit as a potential major source of infection, have **found no clear links to date.**

Paris	0 of 150 case clusters in May/June originated on city transit; to date no cases linked to city transit*
Austria	0 of 2,407 case clusters in April-September traceable to transit**
Japan	None of the infection clusters traced to the country's famously crowded rail systems***
Hong Kong	Despite >12mm transit riders, known cases citywide remained low (until recently; current outbreak not connected to transit)****

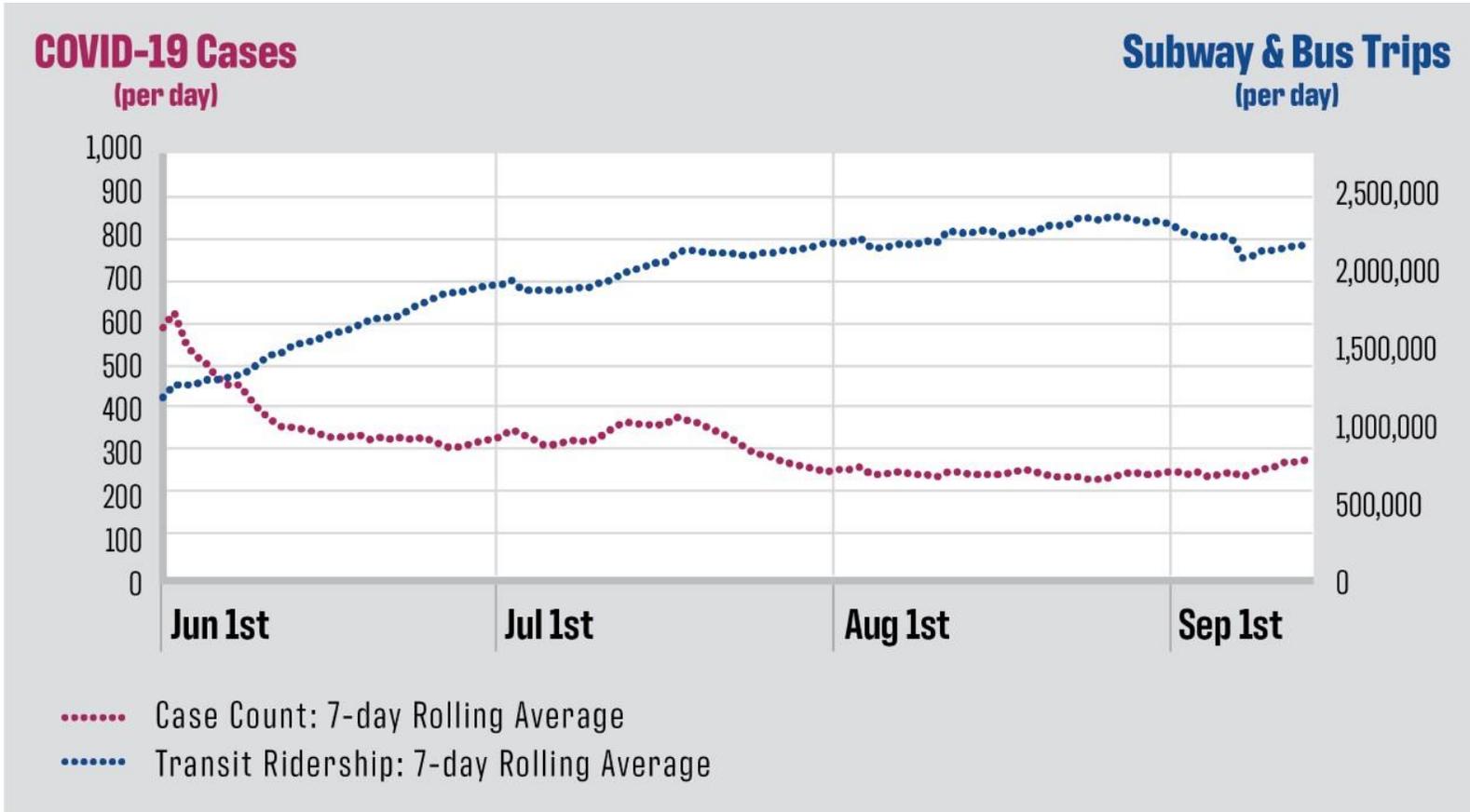
* www.leparisien.fr/societe/coronavirus-pourquoi-aucun-cluster-n-a-ete-detec-te-dans-les-transports-05-06-2020-8330415.php

** www.ages.at/service/service-presse/pressemeldungen/epidemiologische-abklaerung-am-beispiel-covid-19/

*** <https://www.sciencemag.org/news/2020/05/japan-ends-its-covid-19-state-emergency>

**** <https://coronavirus.jhu.edu/map.html>

Analysis shows no correlation with the rise or fall of local COVID-19 cases.

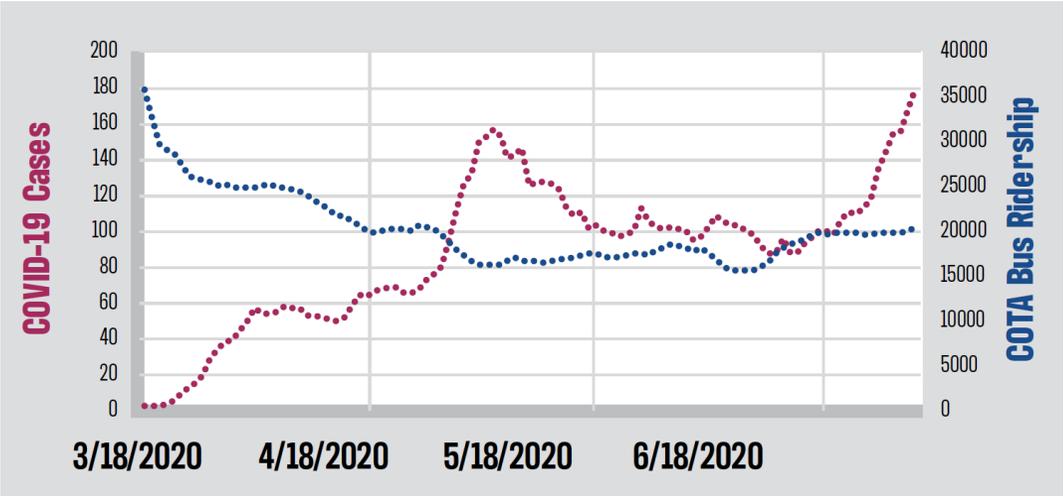


New York City: June 1st – September 12th, more than 212 million rides were taken on subways and buses; avg. case counts dropped from 623 per day to 281 per day (-55%)

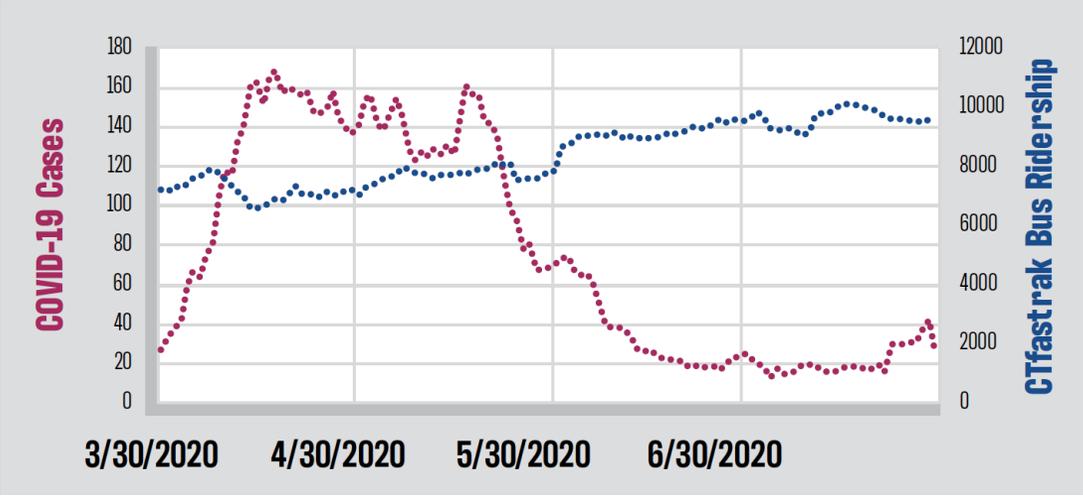
Positivity rates dropped 55% from 3.3% to 1.5%

DATA SOURCES: Case Counts, NYC Department of Health (shown for NYC residents only). Transit Ridership, MTA.

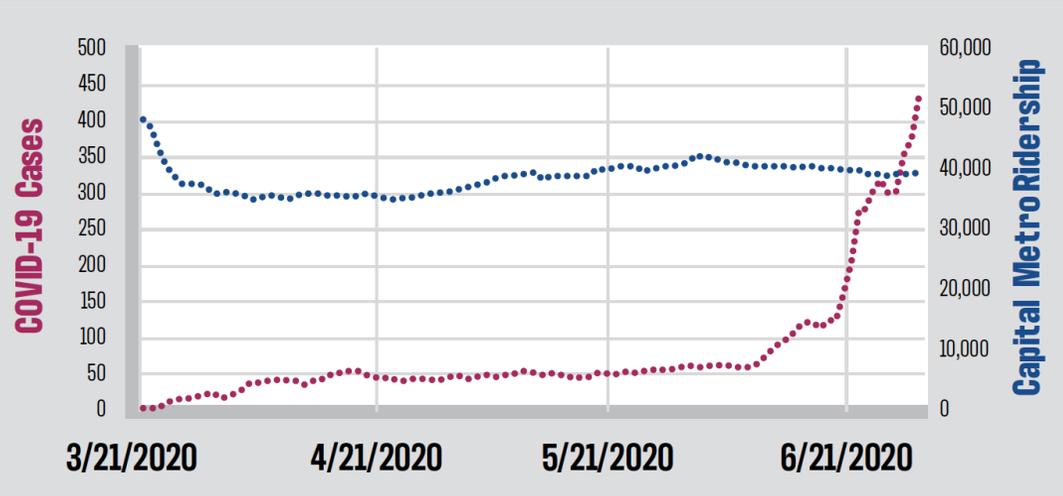
Case studies underscore that case rates are tied primarily to local community spread, rather than correlated to transit ridership rates.



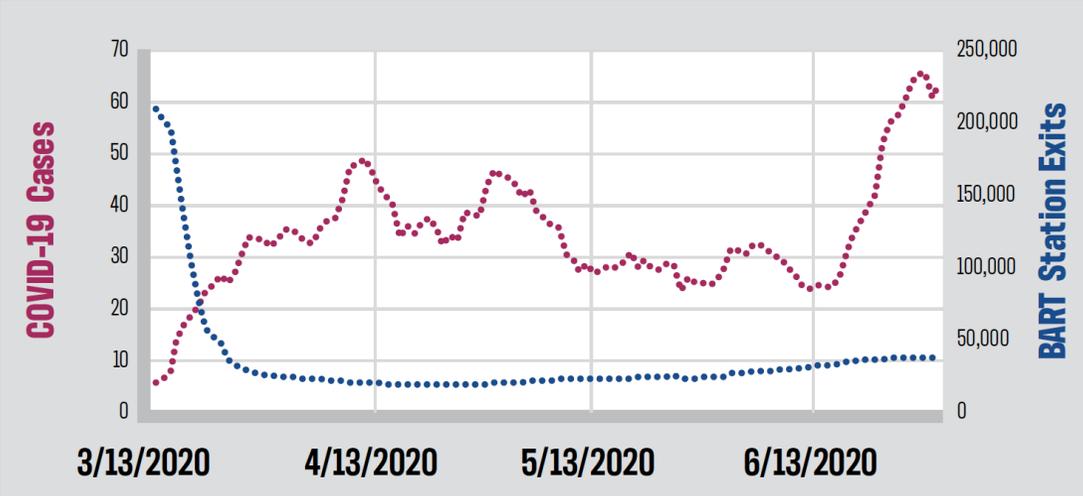
Columbus, OH



Hartford, CT



Austin, TX



San Francisco, CA

There are **several possible explanations** for the lack of **correlation**:

- Little talking
- Enhanced airflow
- Short duration

Successful Infection = Exposure to Virus x Time*

*Dr. Erin Bromage; Biologist, University of Massachusetts <https://www.erinbromage.com/post/the-risks-know-them-avoid-them>

Evidence Points to Concentrated Environments with a Strong Social Element

I.e. bars, clubs, indoor restaurants, houses of worship

Dr. Hitoshi Oshitani, virologist at Tohoku University: **clusters of the disease originated in gyms, pubs, live music venues...places where people gather to eat and drink and chat.**

Did not trace any clusters to Japan's heavily packed commuter trains. **Riders are usually alone, not talking** to other passengers, and **wearing masks.** *"An infected individual can infect others in such an environment [on trains], but it must be rare."*

Source: <https://www.sciencemag.org/news/2020/05/japan-ends-its-covid-19-state-emergency>

Ventilation is Above the Recommended Amount on Many Rail Cars

- Air changes per hour(ACH) on NYC subway cars = **18-times an hour, 50 percent more frequently than the 12-times recommended rate for air quality for medical isolation rooms.**

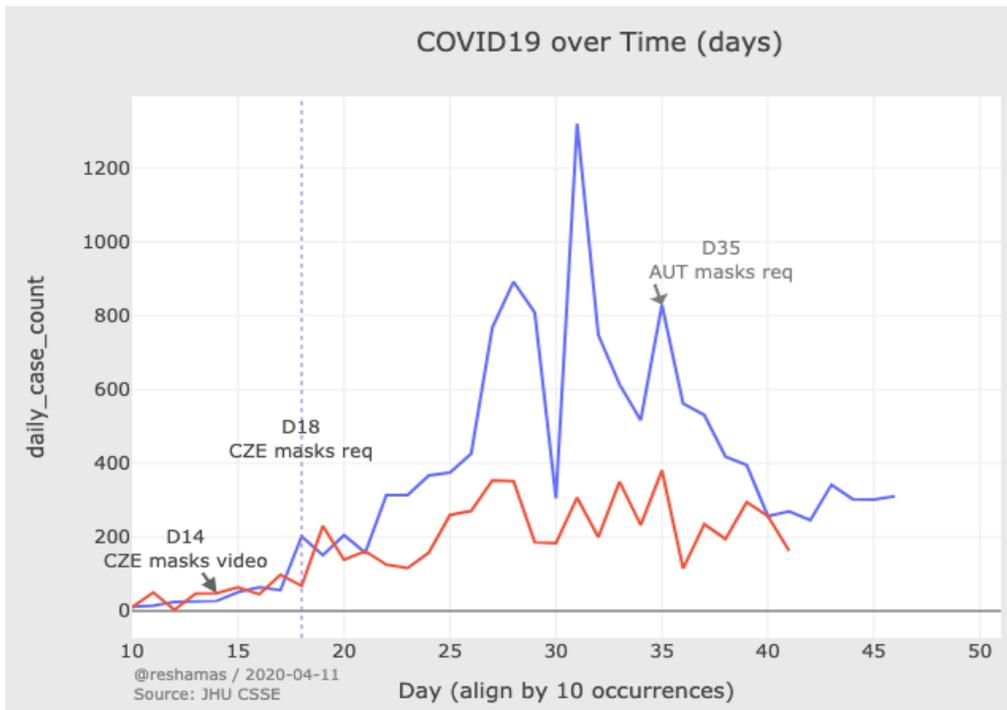
Note: for offices recommended ACH rate = 6-8x/hr, classrooms recommended ACH = 3-4x/hr



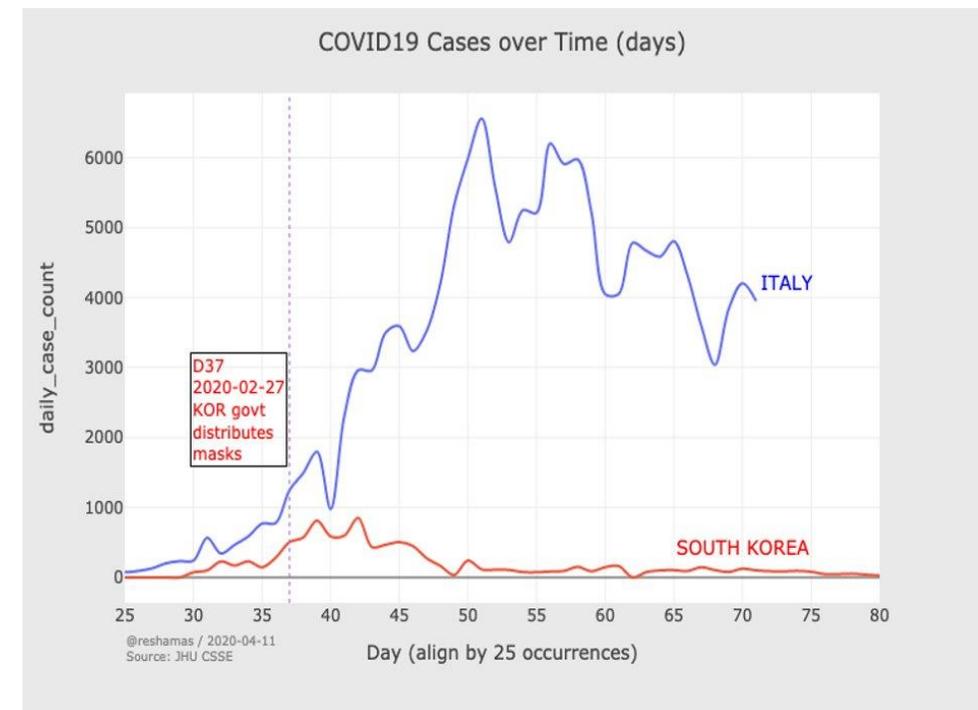
<https://www.nytimes.com/interactive/2020/08/10/nyregion/nyc-subway-coronavirus.html>

Masks are effective in reducing transmission

[Masks are] *“the most important, powerful public health tool we have. I might even go so far as to say that **this face mask is more guaranteed to protect me against Covid than when I take a Covid vaccine,**”* Dr. Robert Redfield CDC Director, before U.S. Senate committee



Both Austria and Cechzia instituted physical distancing on the same day, but only CZE required masks (March 18); Austria mask mandate April 6



S. Korea distributed masks in Feb, w/ mask mandate May 13; Italy mask mandate August 16

Source: <https://www.fast.ai/2020/04/13/masks-summary/>

The communities with the highest per capita case rates in the U.S. rely mostly on cars.

RANK	METRO OR MICRO AREA	METRO AREA POPULATION	TOTAL CASES	CASES PER 1,000 (AS OF 8/24/20)	METRO AREA TRANSIT SHARE
1	Gallup, NM	71,367	4,157	58.2	0.8%
2	El Centro, CA	181,215	10,393	57.4	0.8%
3	Yuma, AZ	213,787	12,072	56.5	1.9%
4	Eagle Pass, TX	58,722	3,117	53.1	0.0%
5	Show Low, AZ	110,924	5,496	49.5	0.9%
6	Rio Grande City, TX	64,633	2,973	46.0	0.4%
7	Marion, OH	65,093	2,978	45.7	0.8%
8	Yakima, WA	250,873	11,476	45.7	0.5%
9	Brownsville-Harlingen, TX	423,163	19,225	45.4	0.6%
10	Lake City, FL	71,686	3,226	45.0	0.0%
148	New York City metro area	18,351,295	*597,513	*29.9	31.1%

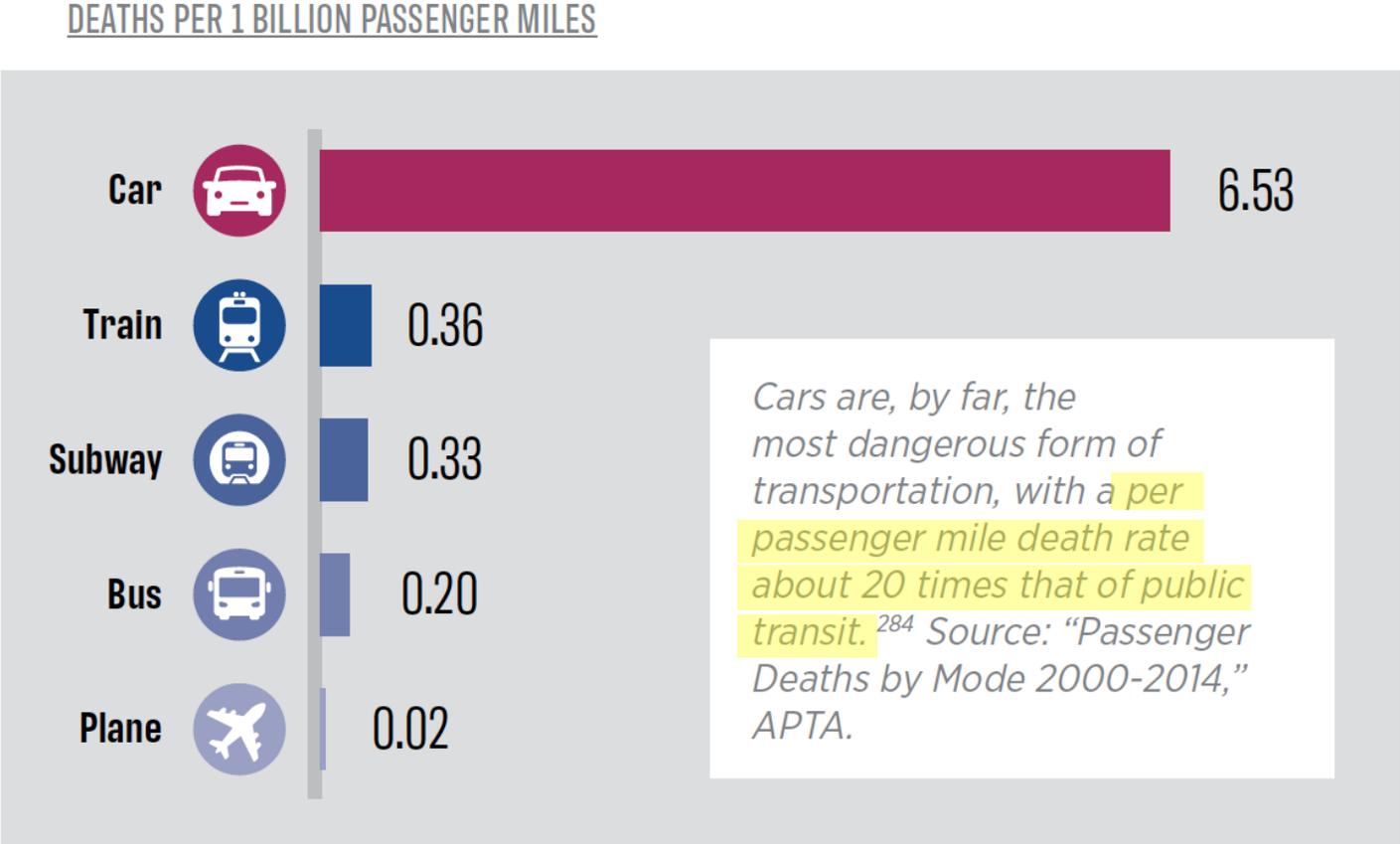
*As of 10/12

Source: <https://www.nytimes.com/interactive/2020/04/23/upshot/five-ways-to-monitor-coronavirus-outbreak-us.html>;
US Census Bureau, ACS 5-Year Estimate 2012-2018: Table B0141. Means of Transportation to Work.

A conclusion: what you do at a trip end, not necessarily the mode, affects probability of contracting the virus.

Those who traveled by any means, car or transit, had higher case rates regardless of commute mode. Where they went, often to essential front-line jobs, had more associated risk than how they got there.

Safety and Health consequences if people in large numbers switch from transit to private cars.



+ more pollution, inactivity diseases and climate change



www.samschwartz.com

New York + Jersey City + Chicago + Washington, DC + Tampa + Los Angeles + White Plains + Oakland