

# COVID-19: THE DATA ABUSE PANDEMIC

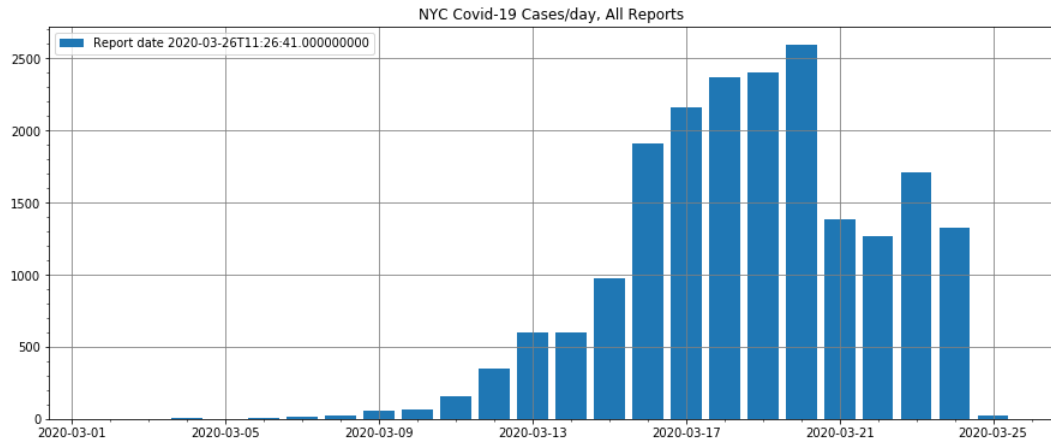
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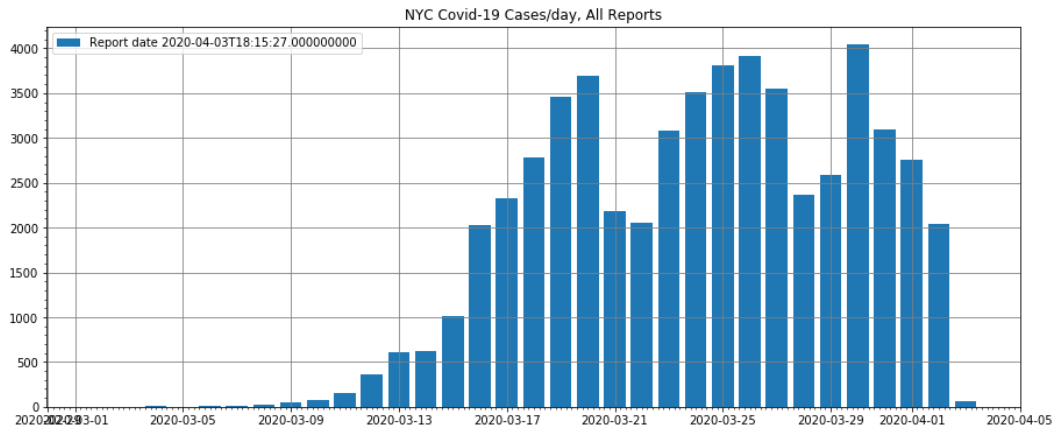
Bloomberg Quant Seminar  
May, 2020  
DRAFT SLIDES

# WHAT THEY FIRST SHOWED IN NYC



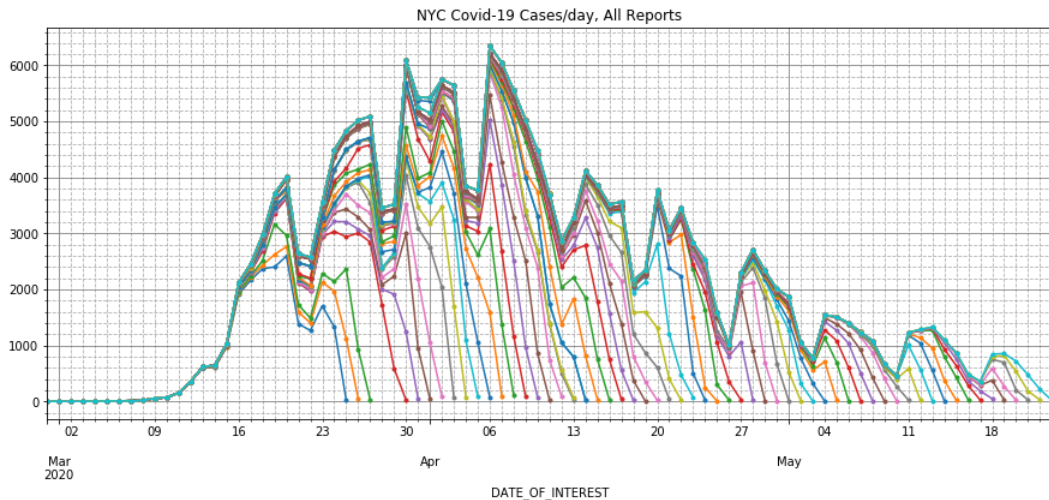
Looks like cases/day are dropping off after 3/20

# EIGHT DAYS LATER

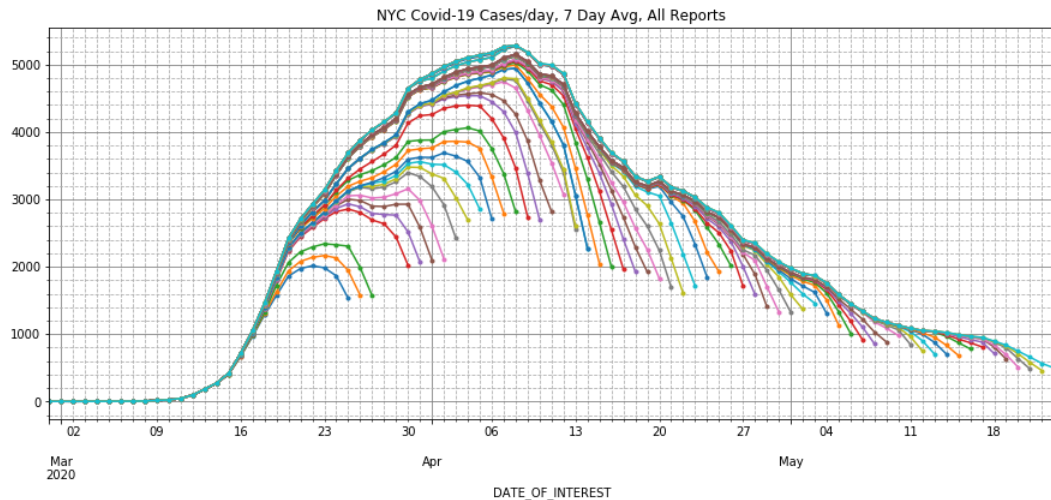


Now it looks like it **didn't** drop off after 3/20!

# WHAT THEY DIDN'T SAY



# AFTER APPROPRIATE SMOOTHING



# ABUSES

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## What's going on?

- ▶ Different sites report cases at different times

## Impact:

- ▶ Reporting delays can account for 30% changes as much as 3 weeks later
- ▶ Latest counts for each date are reported – history is harder to extract
- ▶ Low weekend counts obscure trends
- ▶ Reporting aggregates instead of per site data makes analysis difficult

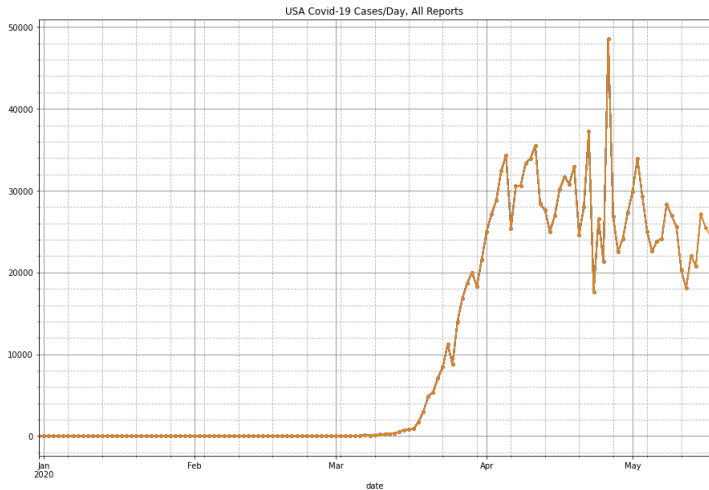
## But this is the good case!

## See:

- ▶ *COVID-19 NYC Stats – A Ray Of Hope* [Ste20d]
- ▶ *COVID-19 NYC Stats – Not What They Seem* [Ste20e]

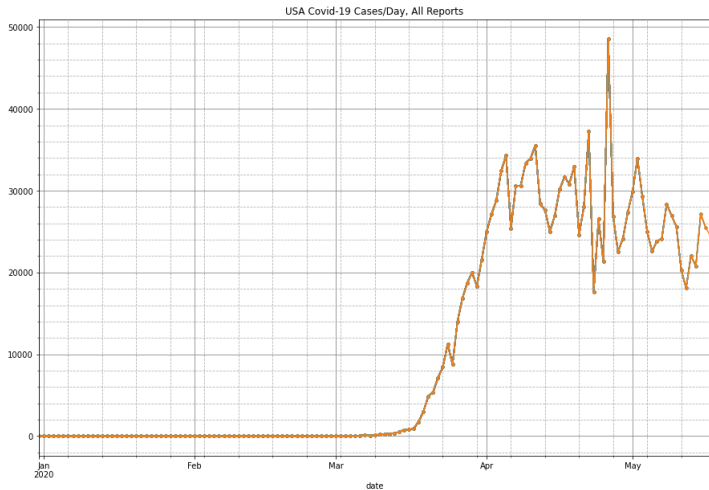
# WHAT THEY SAID FOR THE USA

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# WHAT THEY DIDN'T SAY

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# ABUSES

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## What's going on?

- ▶ Recording by report date instead of by incident date!

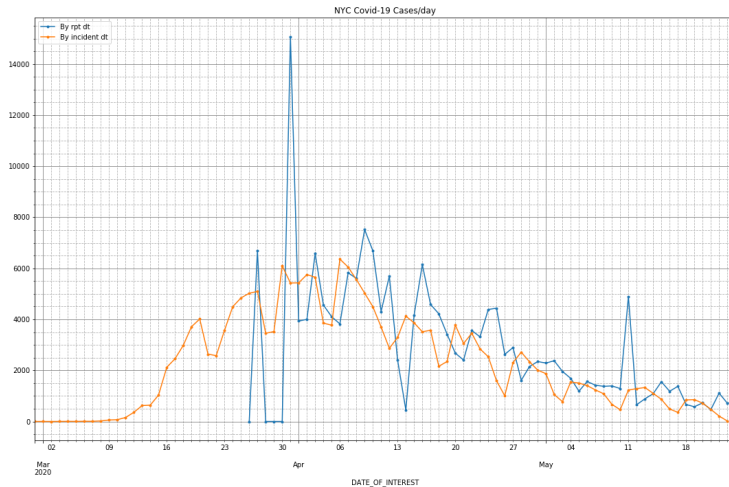
## Impact:

- ▶ No record of when incidents actually occurred
- ▶ Misstates ramp up to peak, delays peak and overstates post-peak incidents
- ▶ Obscures periodicity and adds noise
- ▶ Makes modeling harder and more error prone
- ▶ News reports of yesterday's numbers are deceptive

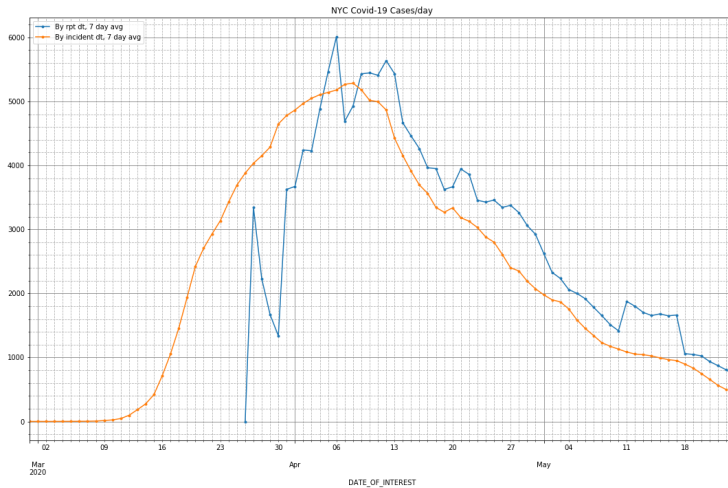
## Recording by report date is rampant – all major sources do it:

- ▶ [Our World in Data repository](#) (data from the European CDC)
- ▶ [Johns Hopkins University COVID-19 repository](#)
- ▶ [New York Times COVID-19 repository](#)

# IMPACT



# IMPACT



# SUMMARY

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## What now?

- ▶ Know your data!
- ▶ Be aware that recent reports are inaccurate – either missing data or misrepresenting counts
- ▶ Account for this in your modeling
- ▶ Ask data sources to collect by incident date, publish full history and publish per site data instead of aggregating
- ▶ Investigate actual meaning of data – classification of COVID-19 hospitalizations, deaths due to COVID-19, ...

See **COVID-19 Data Collection – Garbage In, Garbage Out [Ste20c]**

# References

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- [OWI20] OWID. *Data on COVID-19 (coronavirus) confirmed cases, deaths, and tests, All countries, Updated daily by Our World in Data*. 2020. URL: <https://github.com/owid/covid-19-data>.
- [Ste20a] Harvey Stein. *Analysis of NYC COVID-19 infection rate*. Fork of <https://github.com/nychealth/coronavirus-data>. 2020. URL: <https://github.com/hjstein/coronavirus-data>.
- [Ste20b] Harvey Stein. *Analysis of Our World of Data's COVID-19 dataset*. Fork of <https://github.com/owid/covid-19-data>. 2020. URL: <https://github.com/hjstein/covid-19-data>.

# REFERENCES

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- [Ste20c] Harvey Stein. *COVID-19 Data Collection – Garbage In, Garbage Out*. Blog, Harvey J. Stein, Essays and commentary from a member of the quantitative community. Apr. 2020. URL: [http://hjstein.blogspot.com/2020/05/covid-19-data-collection-garbage-in\\_33.html](http://hjstein.blogspot.com/2020/05/covid-19-data-collection-garbage-in_33.html).
- [Ste20d] Harvey Stein. *COVID-19 NYC Stats – A Ray Of Hope*. Blog, Harvey J. Stein, Essays and commentary from a member of the quantitative community. Apr. 2020. URL: <https://hjstein.blogspot.com/2020/04/covid-19-nyc-stats-ray-of-hope.html>.
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## REFERENCES

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<https://github.com/CSSEGISandData/COVID-19>.
- [New20a] New York City. *NYC Health Coronavirus Data*. 2020. URL:  
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- [New20b] New York Times. *An ongoing repository of data on coronavirus cases and deaths in the U.S.*. 2020. URL:  
<https://github.com/nytimes/covid-19-data>.