

# Coronavirus: Why You Need to Act Now

## Who Am I?

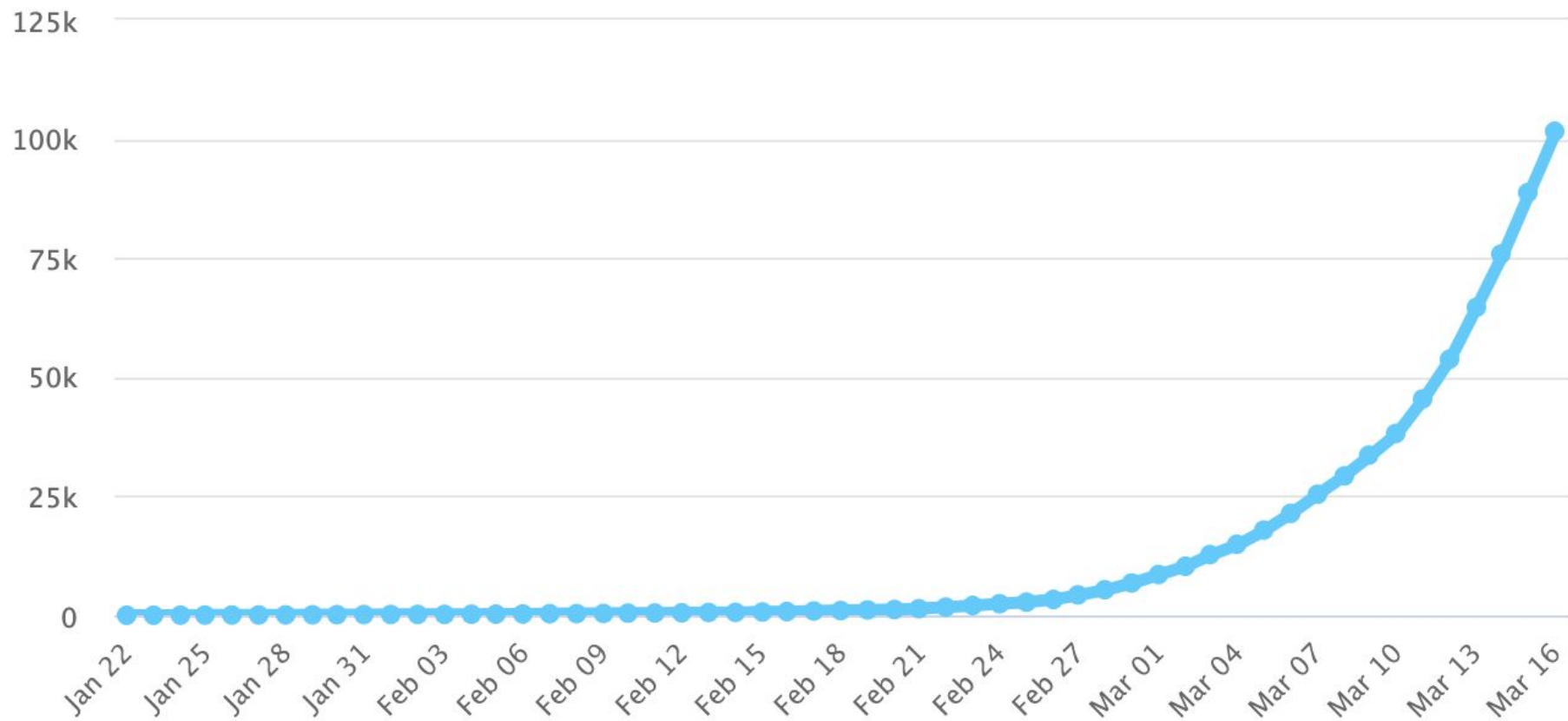
- A citizen
- Author of viral post on Coronavirus (~37M views)
- 2 MSc in Engineering
- MBA from Stanford
- Heavy stats and analytics background
- Created viral applications with 10s of millions of users
- Heavy experience modeling virals and exponential growth
- Currently VP Growth, managing a billion-dollar business at Course Hero

## Endorsements

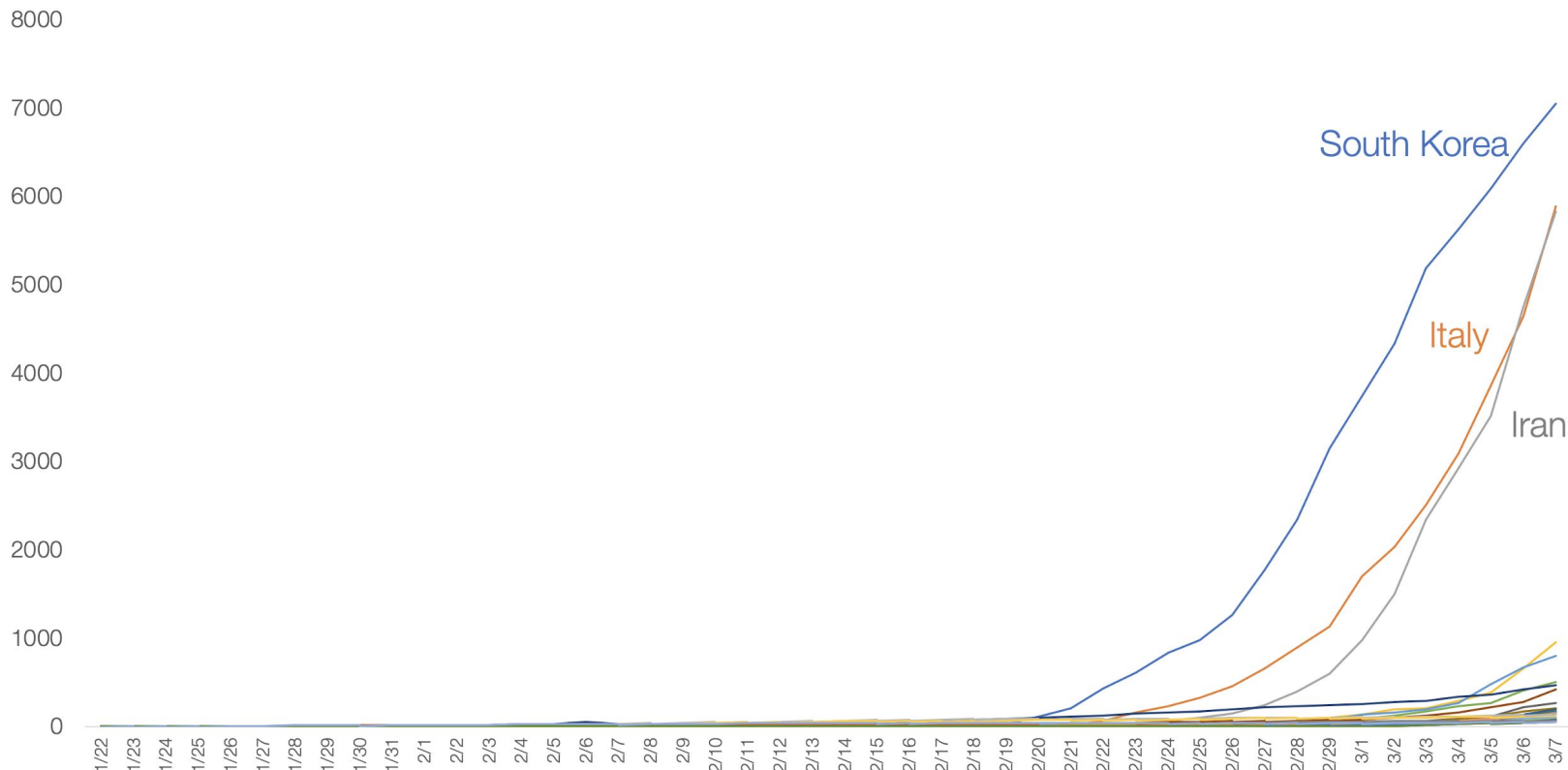
- >500 academics from > 10 countries
- Professors from MIT, NYU, Harvard, Cornell, WHO...
- Famous thinkers: Ehud Barak, Tim Berners-Lee, Steven Pinker, Andrew Yang, George Takei, Salman Khan, Margaret Atwood, Patrick Collison (CEO Stripe), Simon Baron Cohen, Edward Norton, Dick Costolo (ex-CEO Twitter), Kara Swisher, Marc Benioff (Salesforce CEO), Ev Williams (founder, Twitter, Medium)...

# Total Cases outside of China

(Linear Scale)



### Chart 3: Coronavirus Cases per Country (Excluding China)

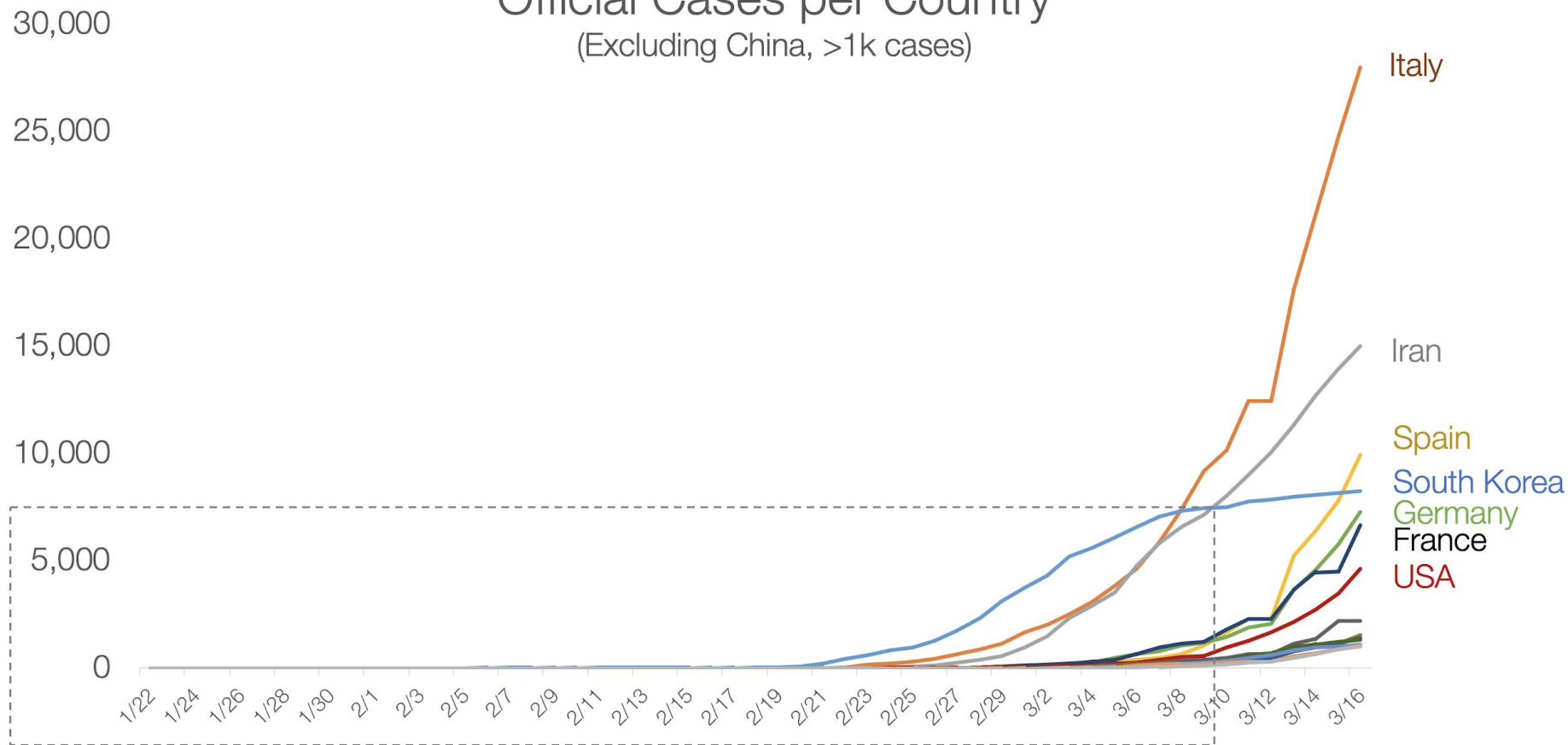


Source: Tomas Pueyo analysis from primary data from Github:

[https://github.com/CSSEGISandData/COVID-19/blob/master/csse\\_covid\\_19\\_data/csse\\_covid\\_19\\_time\\_series/time\\_series\\_19-covid-Confirmed.csv](https://github.com/CSSEGISandData/COVID-19/blob/master/csse_covid_19_data/csse_covid_19_time_series/time_series_19-covid-Confirmed.csv)

# Official Cases per Country

(Excluding China, >1k cases)



## USA, Today

~5,000 cases

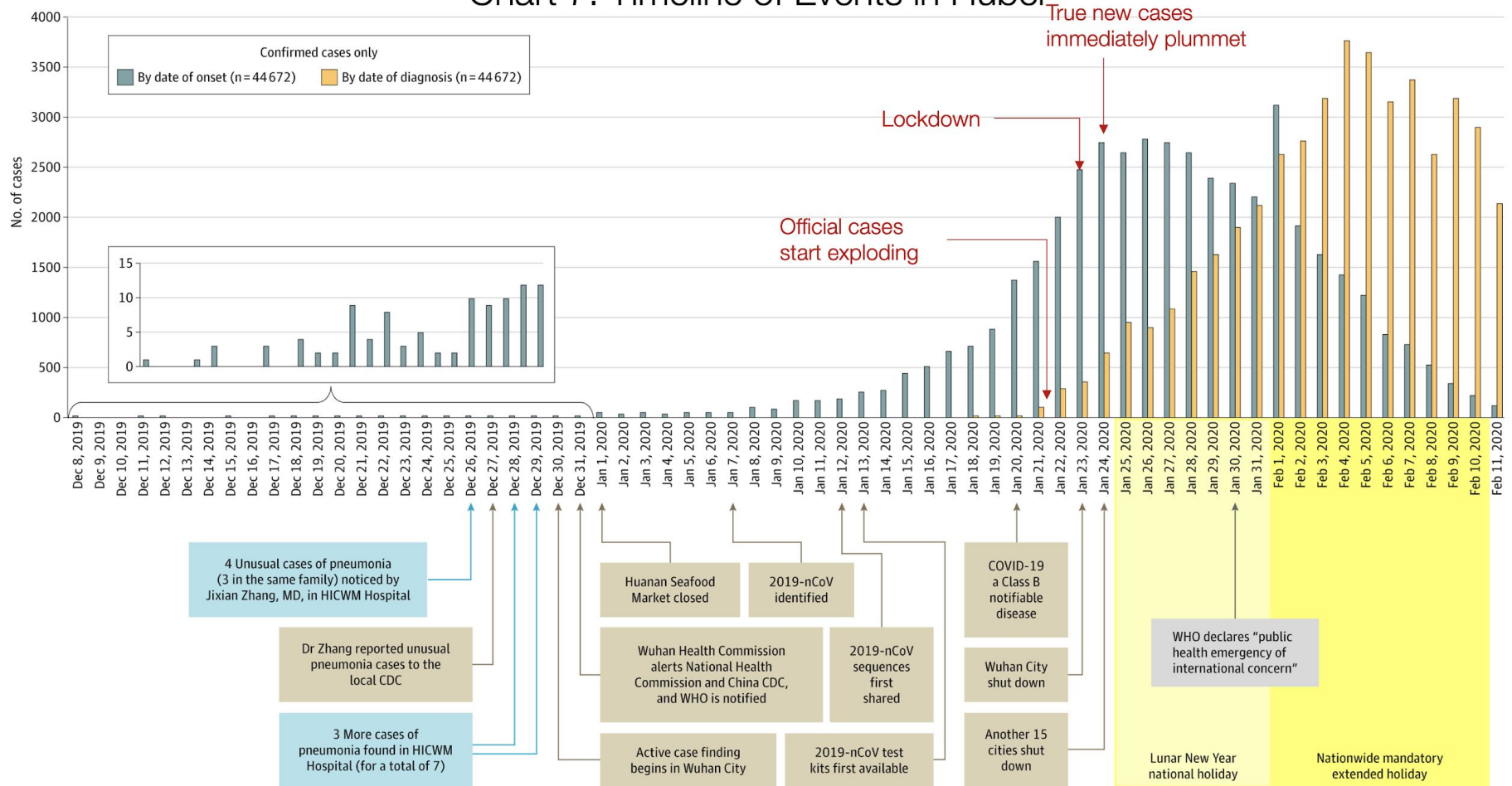
~100 deaths

+32% daily growth

2x every 2.5 days

If growth continues → 1000x in 4 weeks  
(5M cases in a month)

# Chart 7: Timeline of Events in Hubei







Week 0

Week 1

Week 2

Week 3



94



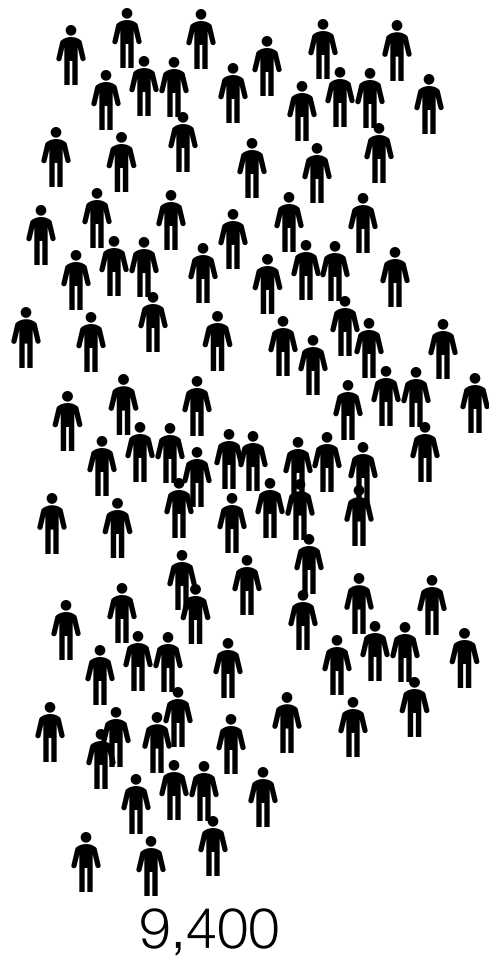
94

Week 0

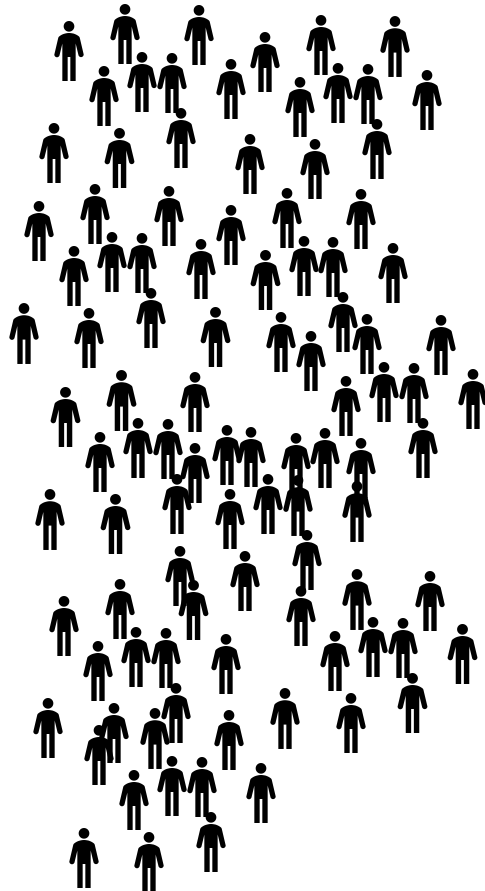
Week 1

Week 2

Week 3

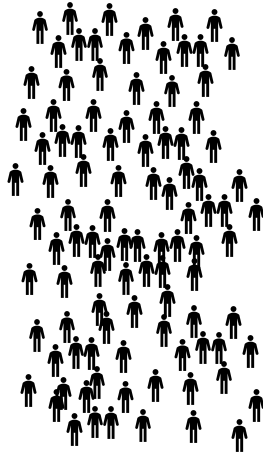


Week 0



9,400

Week 1



18,400

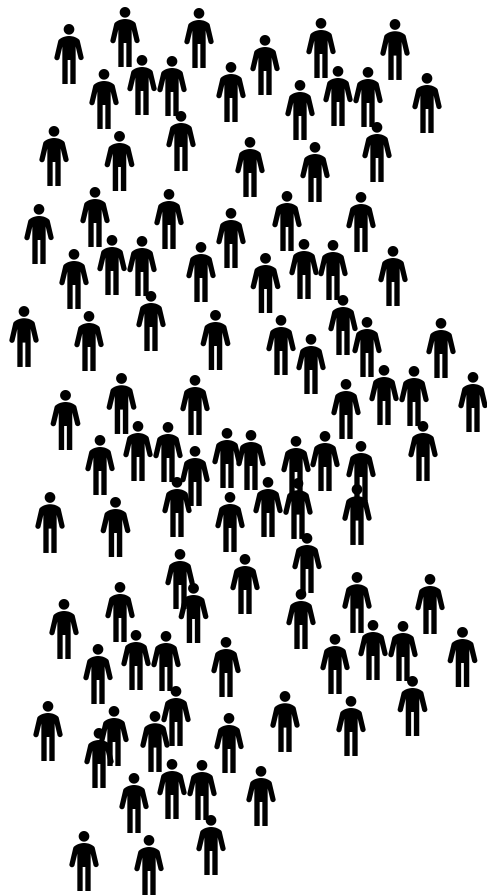
Week 2

Week 3



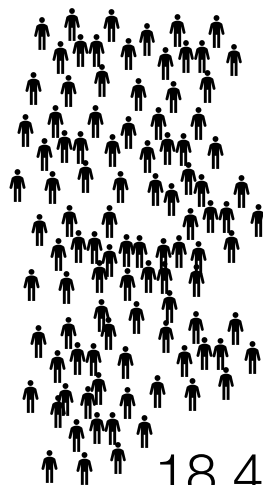
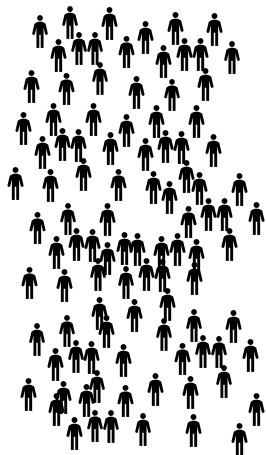
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Week 0



9,400

Week 1



18,400

Week 2



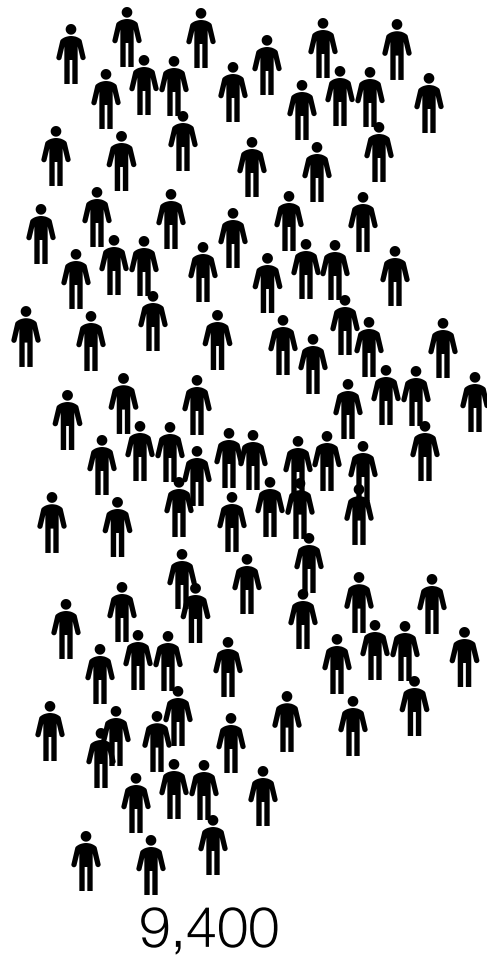
36,800

Week 3

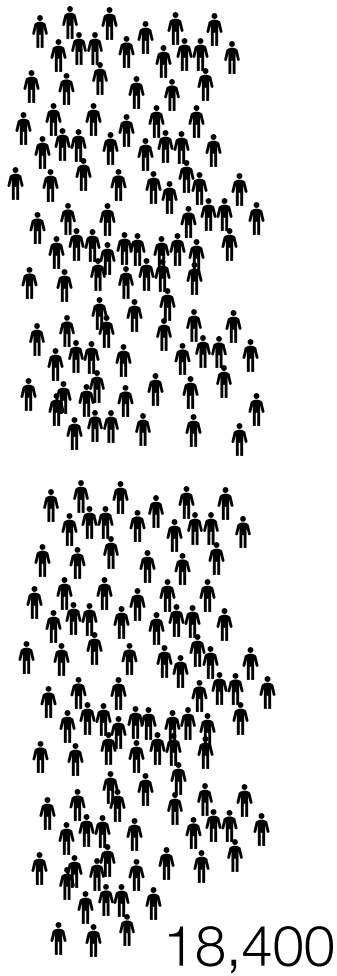


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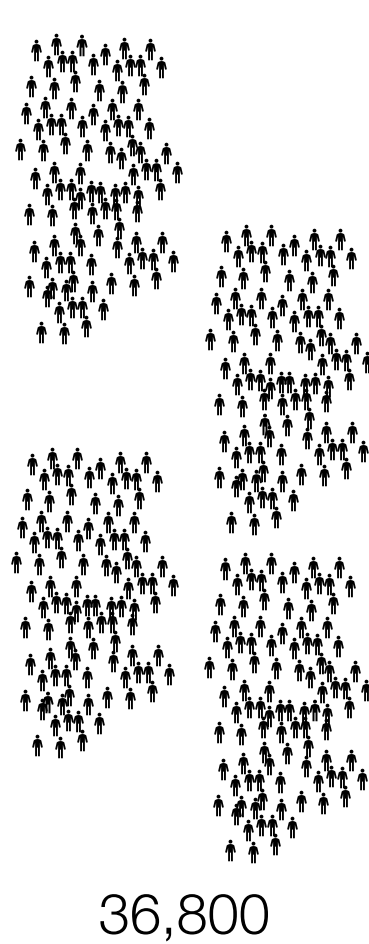
Week 0



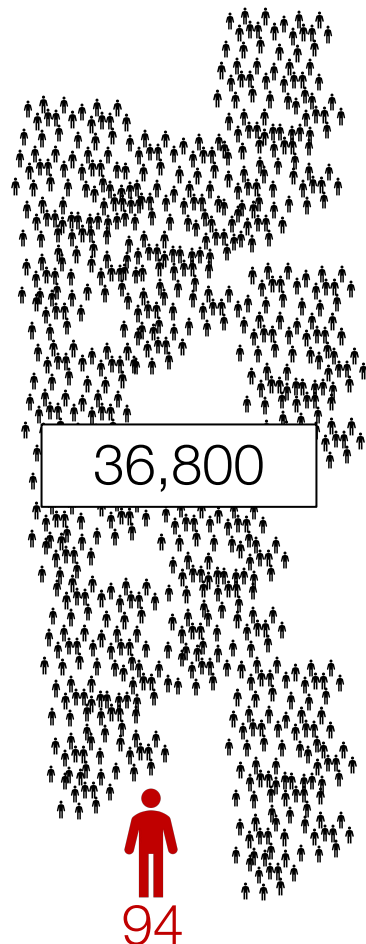
Week 1



Week 2



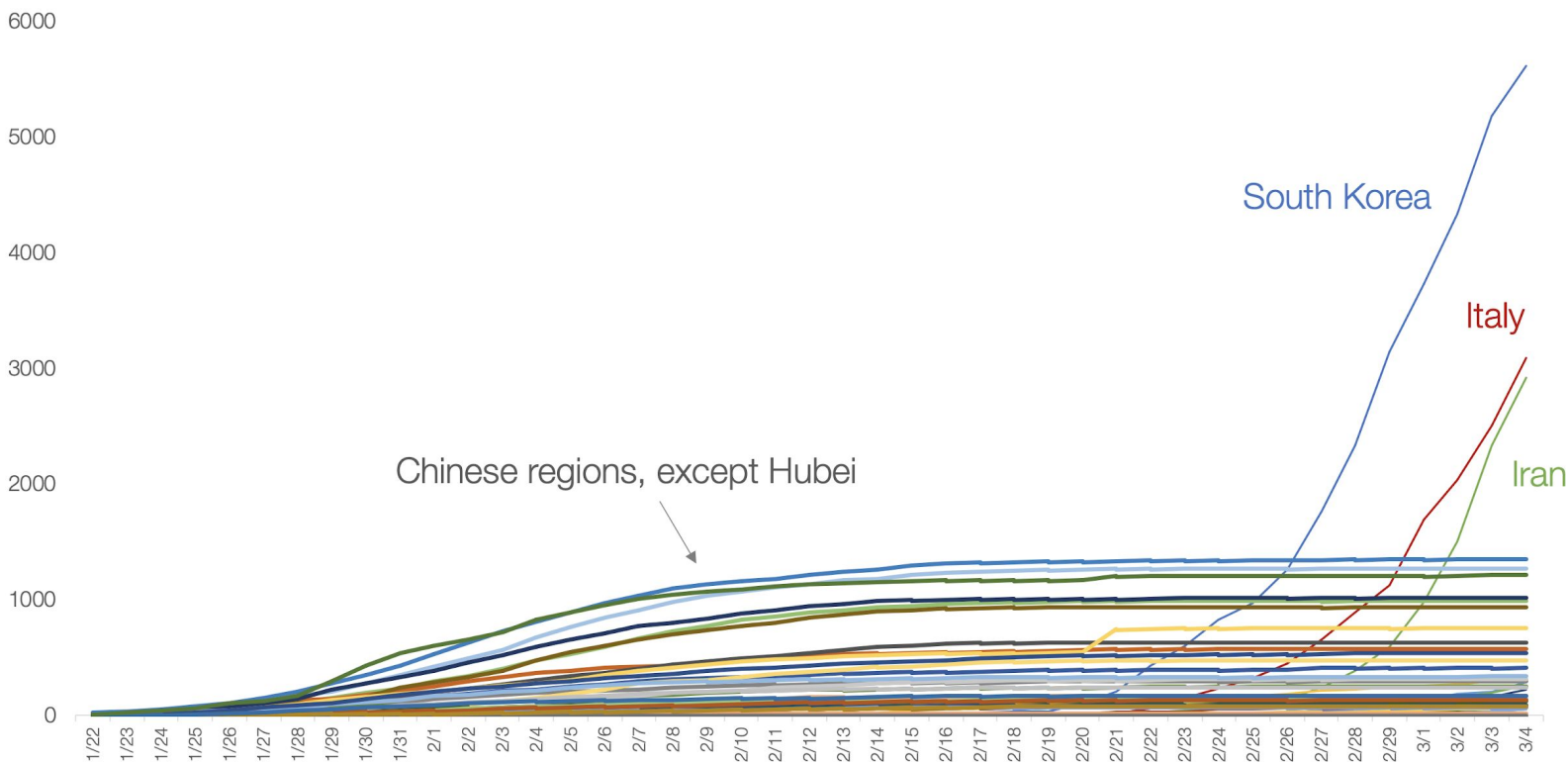
Week 3



- Hidden # cases: in the 10Ks
- Exponential growth

# Chart 8: Coronavirus Cases

Chinese Regions Outside Hubei vs. Italy, Iran and South Korea

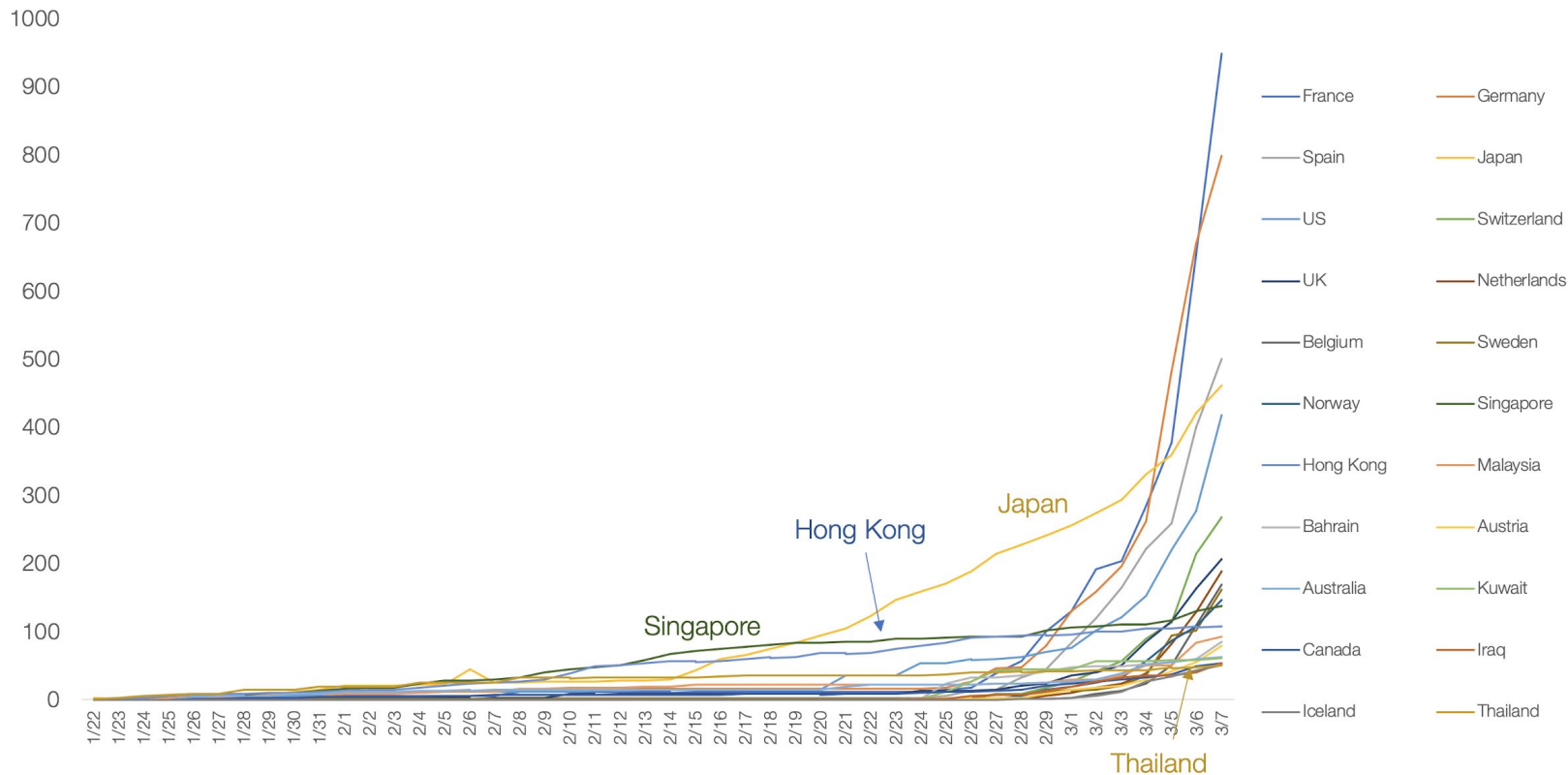


Source: Tomas Pueyo analysis from primary data from Github:

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# Chart 9: Total Cases of Coronavirus Outside of China

(Countries with >50 cases as of 3/7/2020)



Source: Tomas Pueyo analysis from primary data from Github:

[https://github.com/CSSEGISandData/COVID-19/blob/master/csse\\_covid\\_19\\_data/csse\\_covid\\_19\\_time\\_series/time\\_series\\_19-covid-Confirmed.csv](https://github.com/CSSEGISandData/COVID-19/blob/master/csse_covid_19_data/csse_covid_19_time_series/time_series_19-covid-Confirmed.csv)



This can be stopped

# Chart 18: Slide from a Webinar of the American Hospital Association, communicating best guesses on the impact of the Coronavirus in the US healthcare system in 2020

## Best Guess Epidemiology

- $R_0 = 2.5$ ; Doubling time 7-10 days
  - Community attack rate = 30-40%
  - Cases requiring hospitalization = 5%
  - Cases requiring ICU care = 1-2%
  - Cases requiring ventilatory support = 1%
  - CFR = 0.5%
- Community epi wave 2 months  
US: 96 million cases  
US: 4.8 million admissions  
US: 1.9 million ICU  
US: 1 PPV  
US: 480,000 deaths
- **PREPARE FOR DISEASE BURDEN ROUGHLY 10X SEVERE FLU SEASON**



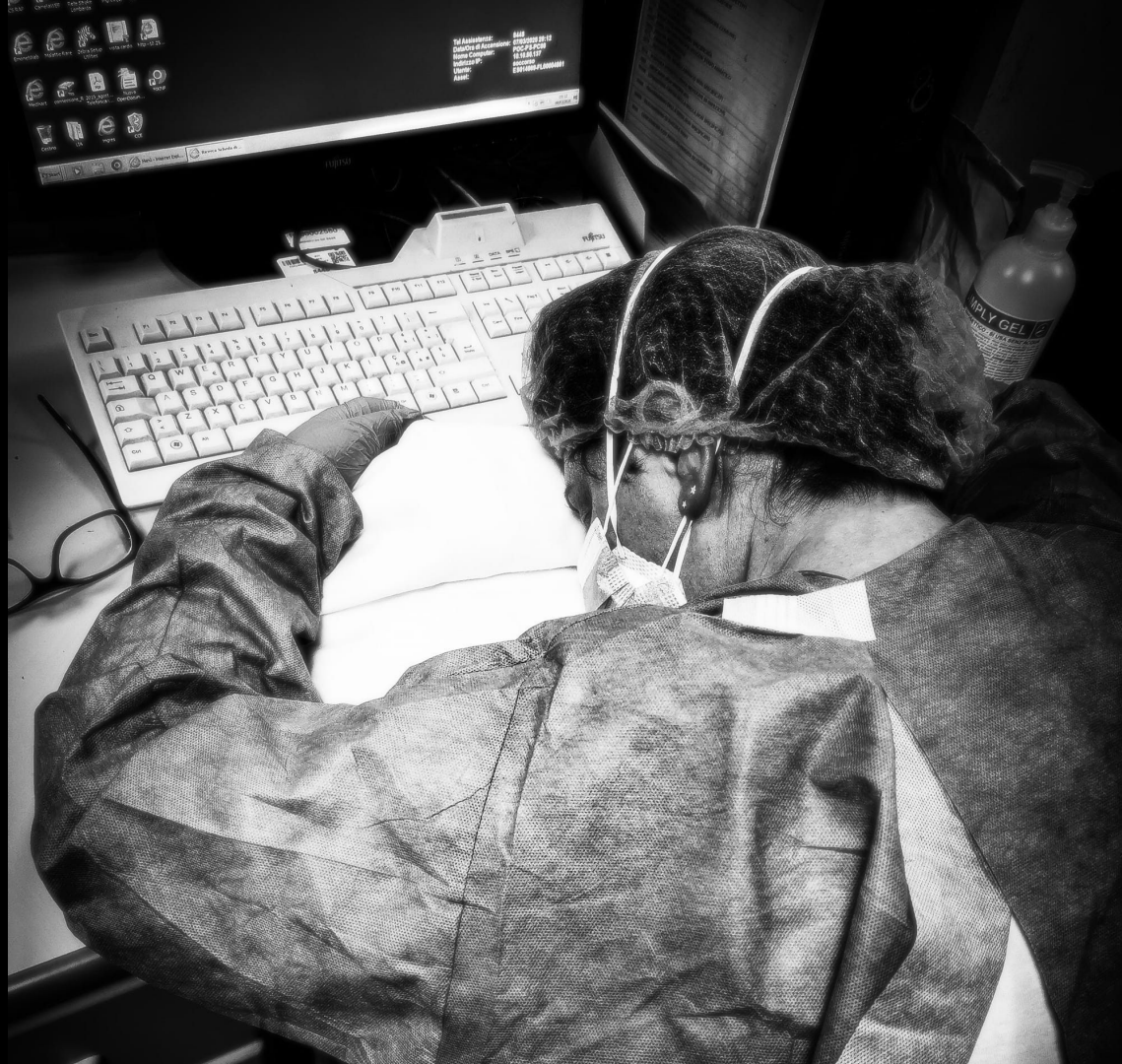
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### AHA webinar

Source: *Dr. James Lawler, professor at the University of Nebraska Medical Center, for the American Hospital Association, via Business Insider, <https://www.businessinsider.com/presentation-us-hospitals-preparing-for-millions-of-hospitalizations-2020-3>*







# 10x Fatality Rate

Hubei vs.  
Other Chinese Regions

Italy / Iran vs.  
South Korea





# Why it is so important to **act early** on COVID-19

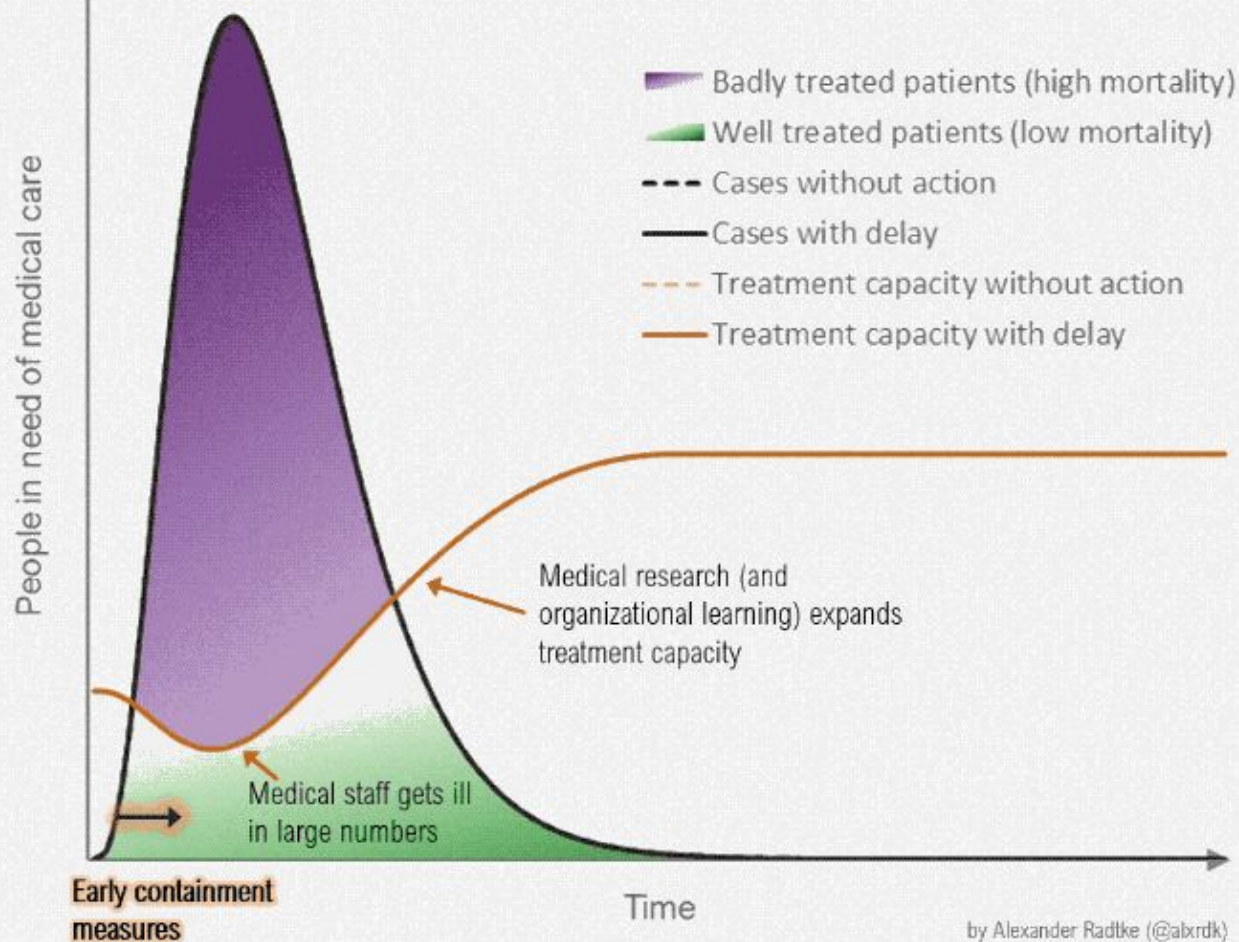
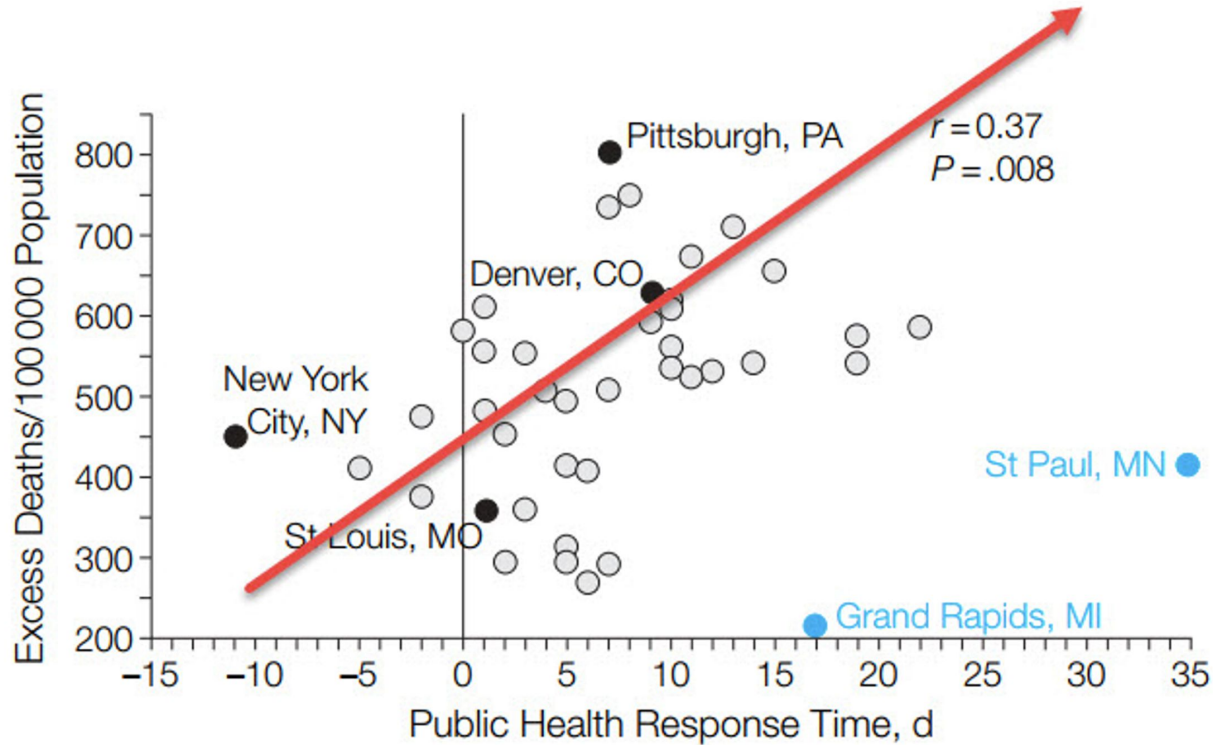
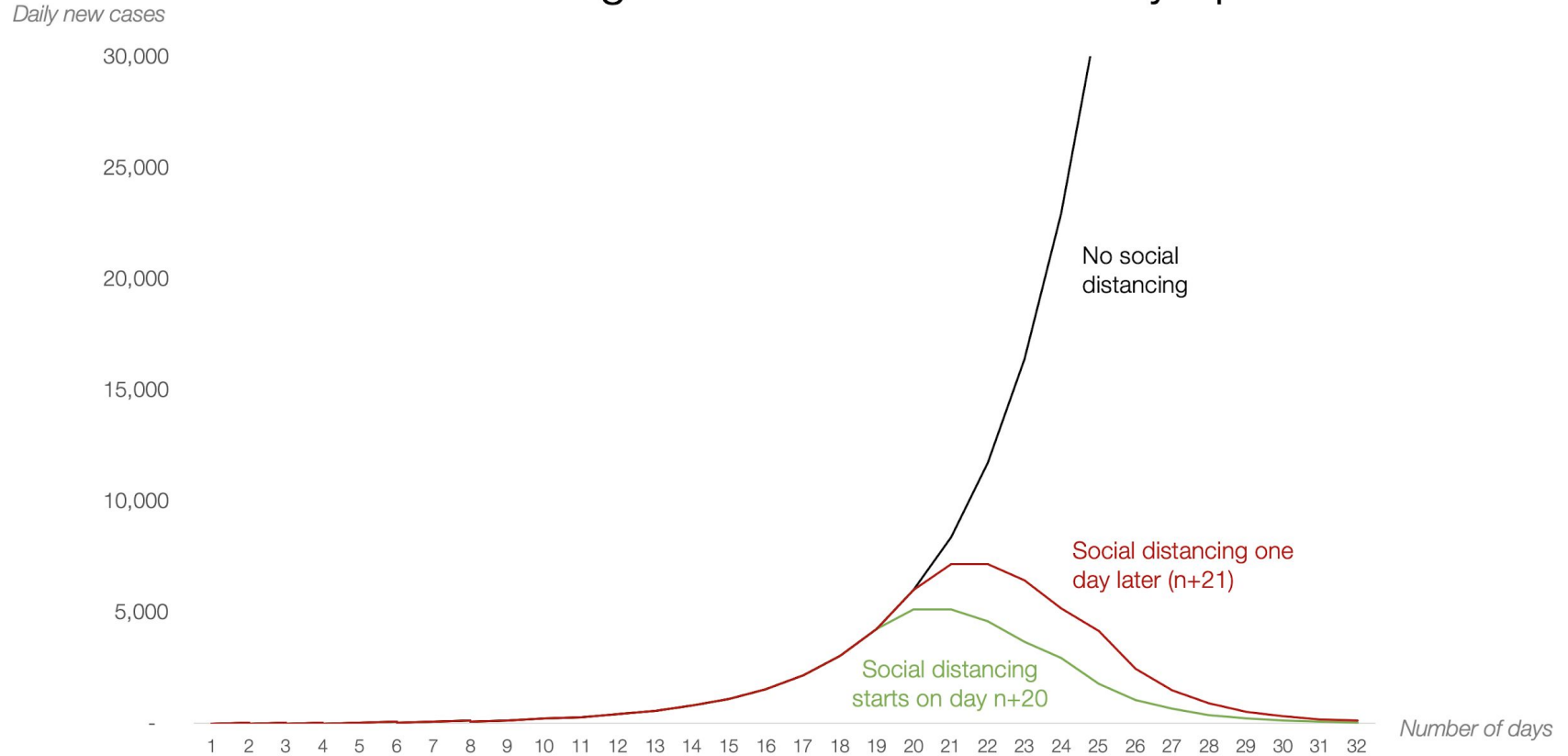




Chart 21: Total excess pneumonia and influenza mortality by public health response time

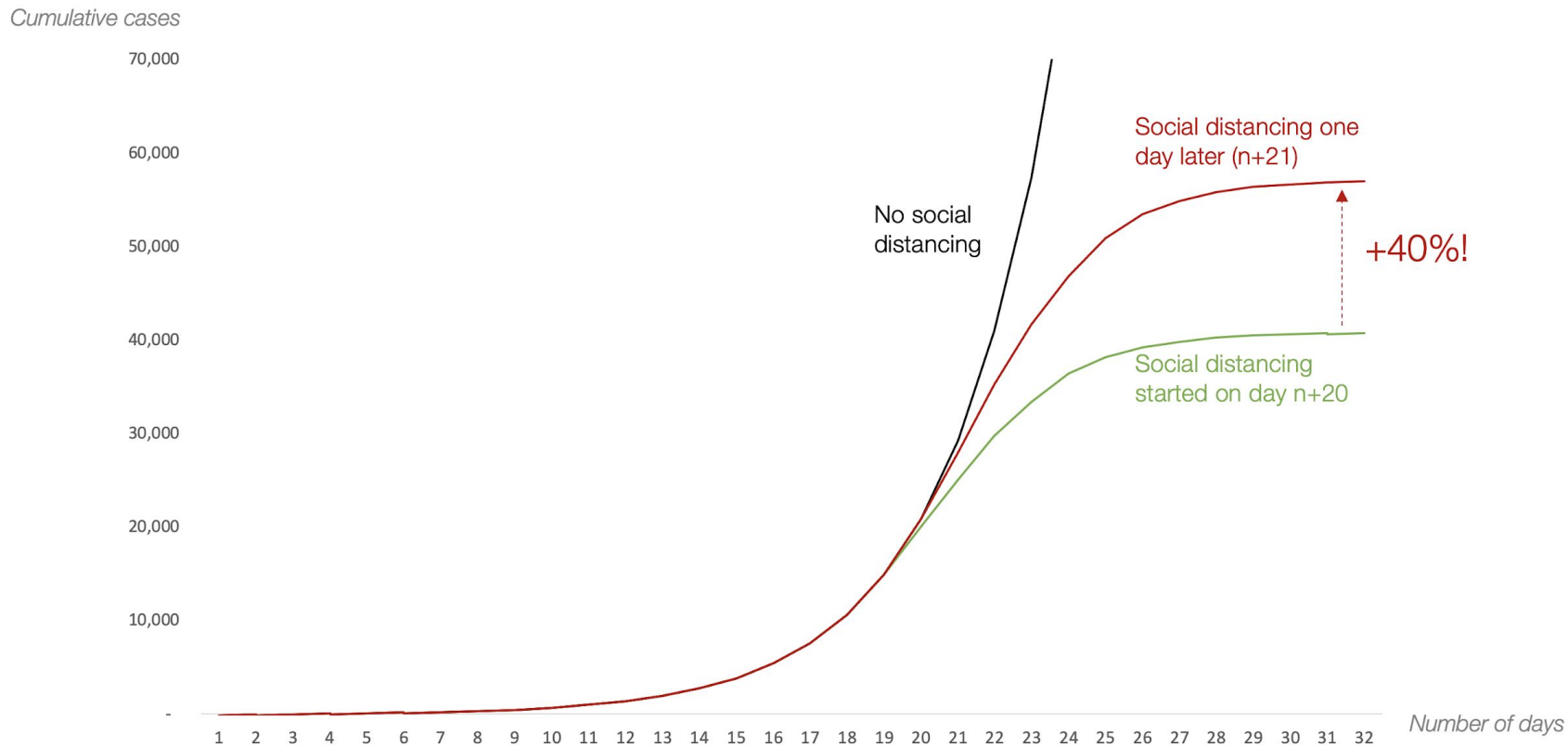


# Chart 22: Model of Daily New Cases of Coronavirus with Social Distancing Measures Taken One Day Apart



Source: Tomas Pueyo

# Chart 23: Model of Cumulative Cases of Coronavirus with Social Distancing Measures Taken One Day Apart



Source: Tomas Pueyo

What Strategy Should We Follow?

