

Prof. Laurel Eckhouse

Coronavirus Quick Talk

3/11/2020

Laurel Eckhouse: March 11, 2020

Basics

What's up with the virus?

- A new virus in a family called the coronaviruses
- Officially: SARS-Cov-2 (Severe Acute Respiratory Syndrome - CoronaVirus - 2); causes the disease Covid-19
- Originated in Wuhan, China (capital of Hubei province), transmitted from bats, likely via a live animal market



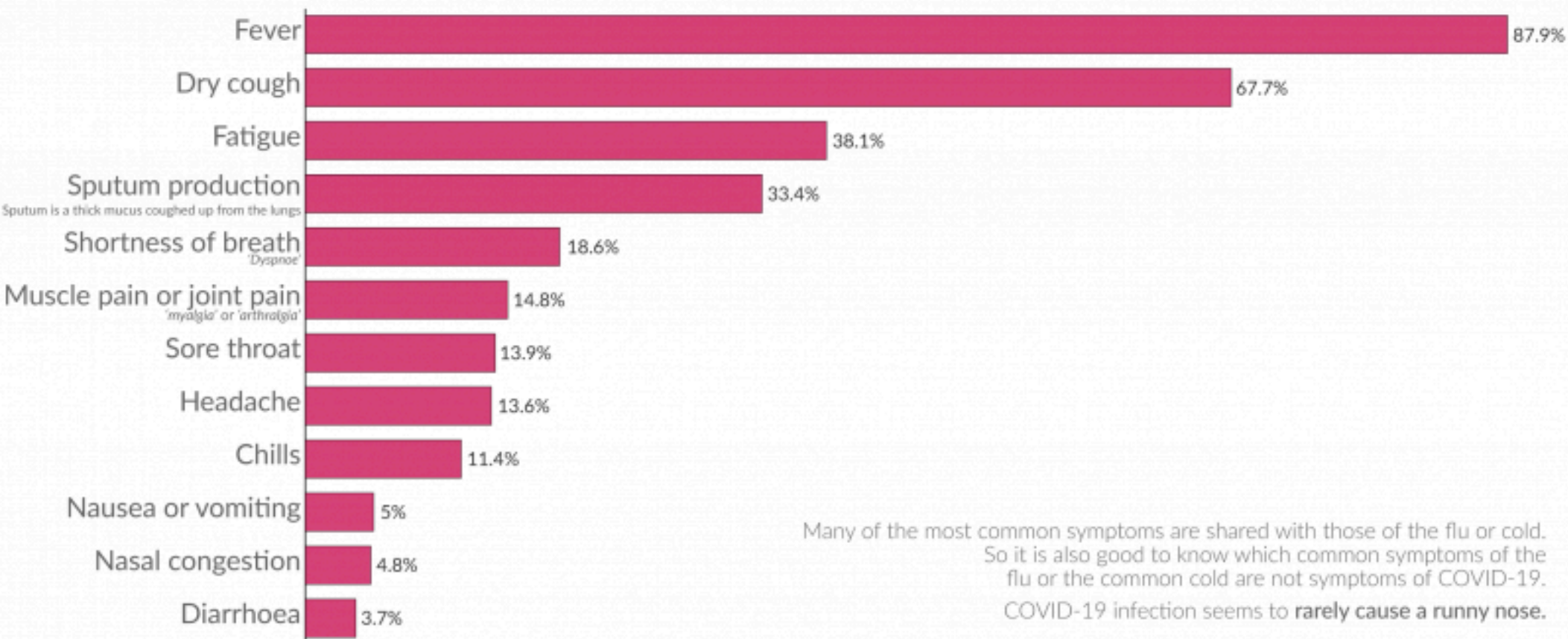
Disease Course

- ❖ Up to two weeks between exposure and symptoms
- ❖ High transmission early on, possibly without symptoms
- ❖ Fever and dry cough are the first signs
- ❖ 80% of cases are mild, but the many severe cases require hospital treatment

The symptoms of coronavirus disease [COVID-19]



The most common signs and symptoms of 55,924 laboratory confirmed cases of COVID-19. Reported from China in the period up to February 22, 2020



Many of the most common symptoms are shared with those of the flu or cold. So it is also good to know which common symptoms of the flu or the common cold are not symptoms of COVID-19. COVID-19 infection seems to **rarely cause a runny nose.**

Data source: World Health Organization (2020). Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). Symptoms in fewer than 1% are not shown. OurWorldinData.org - Research and data to make progress against the world's largest problems. Licensed under CC-BY by the authors.

Remember: Sampling Problems

How lethal is it?

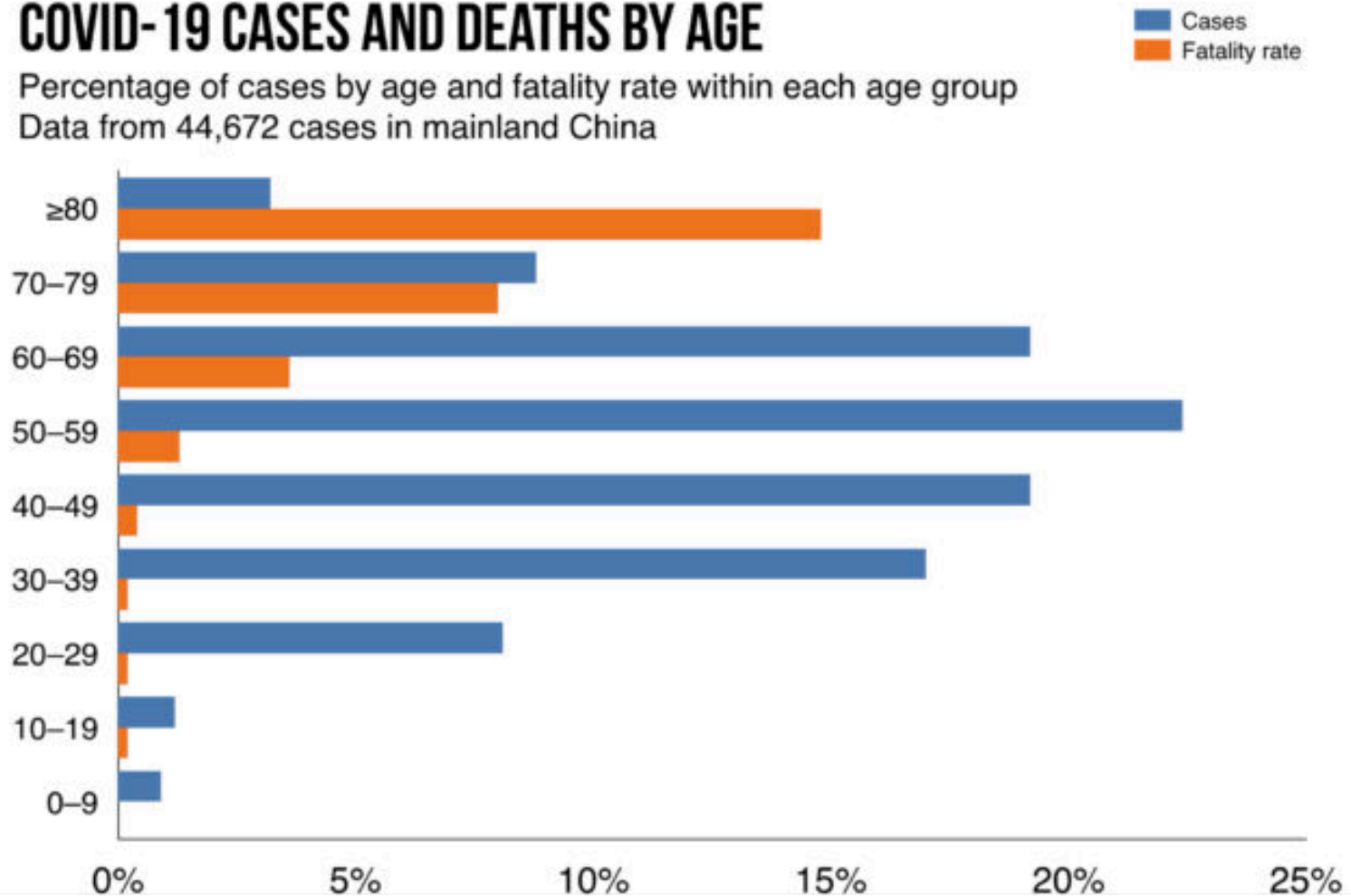
- ❖ Best estimates come from Hubei province and South Korea, both of which have done mass testing
- ❖ .6%-.7%, compared to less than .1% for influenza
- ❖ Fatality rate estimates between .6% and 3.4%
- ❖ But Hubei/S Korea are best case scenario outcomes: young population, quick containment
- ❖ Will be worse if the hospital system is overburdened



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COVID-19 CASES AND DEATHS BY AGE

Percentage of cases by age and fatality rate within each age group
Data from 44,672 cases in mainland China



Huge variation in fatality rate by age

Children not very susceptible, older people extremely susceptible

Source: Ars Technica

Limits to What We Know

- ❖ The CDC rejected the World Health Organization's test, then botched their own
- ❖ Testing in the US has been very limited, requires special approval: federal government prevented Seattle Flu Study from doing testing
- ❖ Seattle looks like it has more cases because the UW virology lab bypassed testing restrictions
- ❖ Mass testing is on the way via the Gates Foundation, Labcorp, and expanded testing kits at public health labs

Useful Political Science Concepts

- ❖ Metrics management (Eckhouse 2020): President says “I like the numbers being where they are”
- ❖ Blame avoidance (Weaver 1986): delegating crisis response to the Vice President
- ❖ Federalism: response runs through state and local governments, highly fragmented, political pressures against crackdowns / quarantines

Myopic Voters and Credit Claiming

- ❖ \$1 spent on disaster preparedness generates \$15 in benefits
- ❖ Voters reward the president's party for disaster relief spending, but not for disaster preparedness spending
- ❖ Healy and Malhotra (2009)

Polarized Reactions

- ❖ People are more likely to follow government vaccine recs when their party is in power (Krupenkin, Rothschild, and Hill 2020)
- ❖ 40% of Democrats think covid-19 is a serious threat, 20% of Republicans
- ❖ Some uncertainty about whether responses like these are sincere or “cheerleading” (Bullock and Lenz 2019), but Krupenkin et al show actual behavior changes

	Dem	Rep
Washing hands more often	48%	38%
Avoided physical contact	21%	14%
Altered travel plans	8%	3%
Haven't changed daily routine	40%	54%

Source: Reuters/Ipsos poll March 2-3

Public Health as an Excuse for Xenophobia

- ❖ 100+ year history of blaming immigrants for “bringing diseases” (see Natalie Molina’s work)
- ❖ Despite knowing about the germ theory of disease, screening/exclusion has often been different depending on race because race/racism is an organizing principle of US society
- ❖ Violent and dangerous reactions to immigrants: “gasoline baths” & DDT fumigations (<https://www.vox.com/2019/7/29/8934848/gasoline-baths-border-mexico-dark-history>)
- ❖ This pandemic is no exception:
 - ❖ more aggressive screening of visitors from China than Italy
 - ❖ xenophobic reactions to Asian Americans, Chinatowns, etc
 - ❖ racist reactions to people of Asian descent in the US
 - ❖ attempts to use the pandemic to justify border restrictions/wall-building

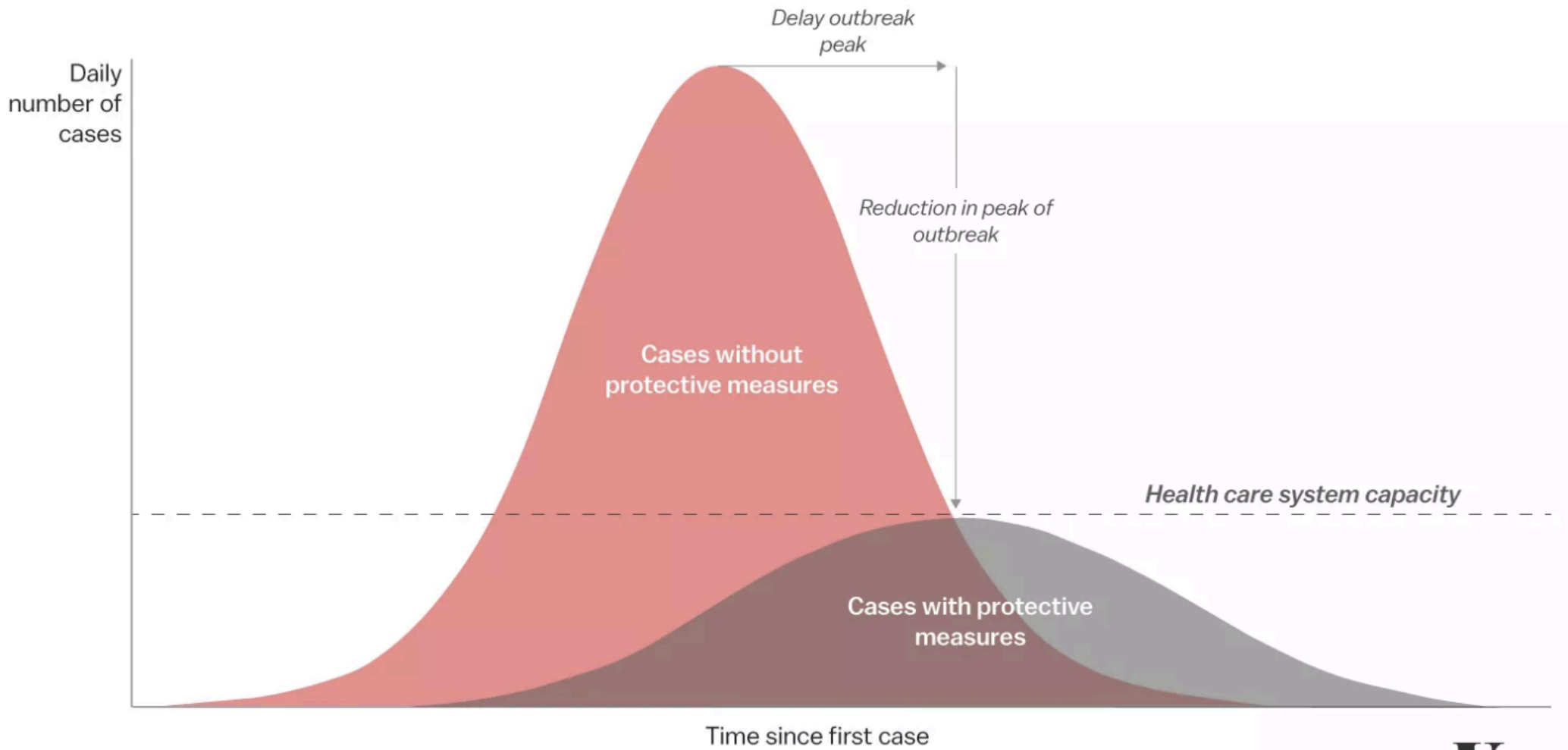
Don't Be Racist or Xenophobic

- ❖ Don't call it Chinese coronavirus. It doesn't have a passport.
- ❖ Don't use other weird names that associate it with people of Asian ancestry.
- ❖ Don't act like people with Asian ancestry are more likely to have covid-19 than other people.

Estimated Impact

- ❖ Areas in other countries with active outbreaks are currently quarantined, with massive economic and social consequences
- ❖ Things will get worse before they get better
- ❖ 20-80% of the world's population may eventually be infected (THAT IS A HUGE CONFIDENCE INTERVAL)
- ❖ With unconstrained spread, US hospital beds will be full sometime in May
- ❖ **We still have time to change the outcomes**

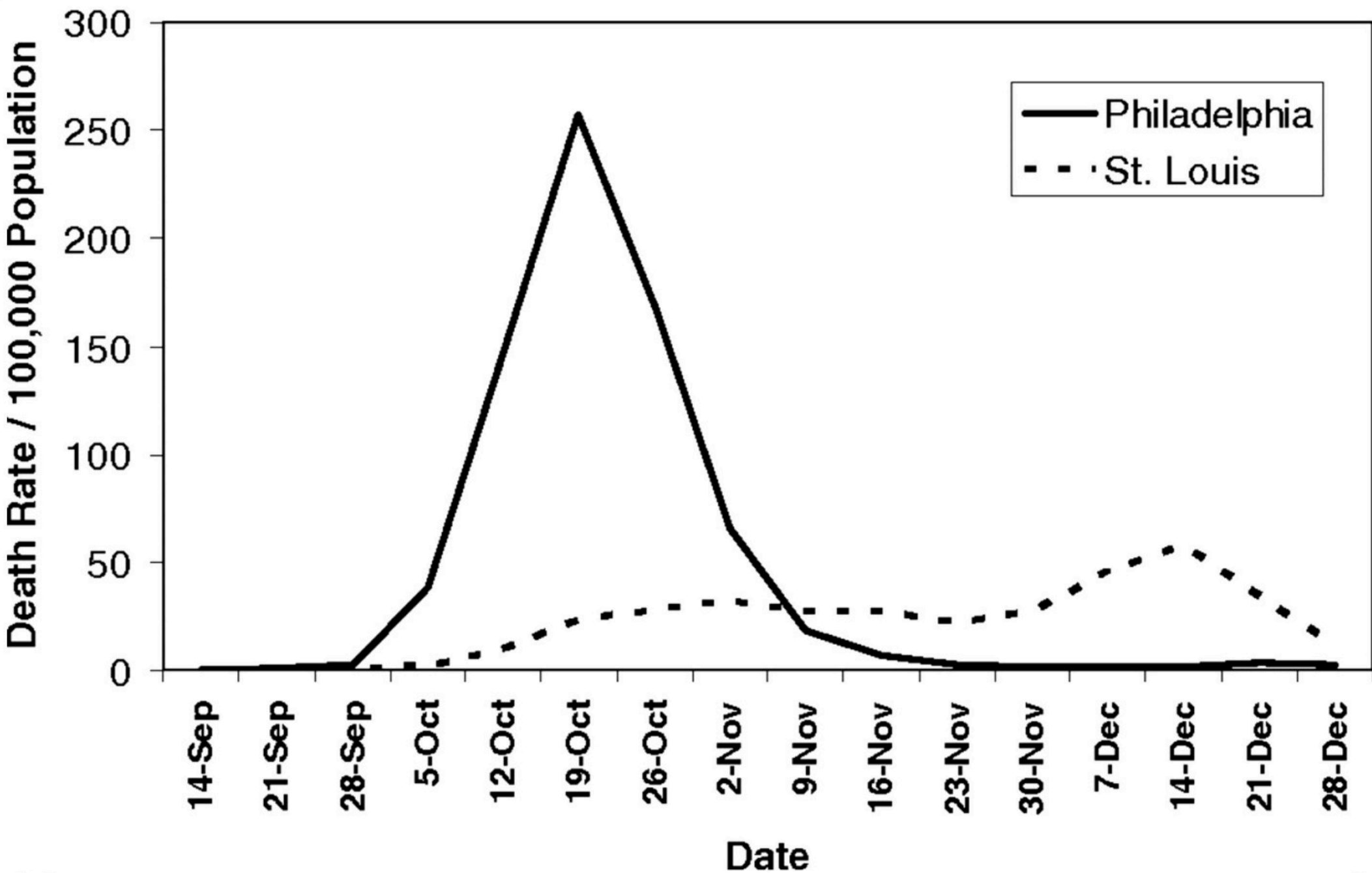
Flattening the curve



Source: CDC

Christina Animashaun / Vox

Vox



Hatcher, Mecher, and Lipsitch, 2007.

Philadelphia had a 200,000 person parade on 9/28, St. Louis implemented social distancing.

If you're young and
healthy, it's not about you

**Assess the vulnerabilities of
other people in your life**

**Protect vulnerable people
everywhere: don't be a vector**

What You Can Do

1. Hygiene: Wash your hands with soap, disinfect surfaces, don't touch your face
2. Stay home if you're sick
3. Practice social distancing: stop touching people you don't already share germs with, avoid large gatherings
4. Limit non-essential travel
5. Don't buy masks (maybe buy gloves)
6. Make a plan for vulnerable friends / family

Wash Your Dang Hands/Soap Works Great

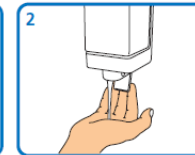
Hygiene

- ❖ Wash your hands with soap and water for 20 seconds
- ❖ If you can't, sanitizer with at least 60% alcohol is ok
- ❖ Don't touch your face (it's hard)
- ❖ Sanitize surfaces you touch regularly: doorknobs, counters, phone, keys

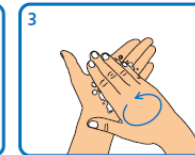
Hand-washing technique with soap and water



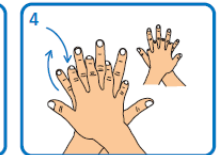
1
Jolene, Jolene, Jolene,
Jolene



2
I'm begging of you please
don't take my man



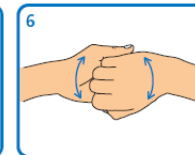
3
Jolene, Jolene, Jolene,
Jolene



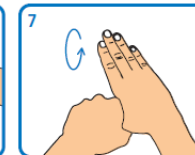
4
Please don't take him just
because you can



5
Your beauty is beyond
compare



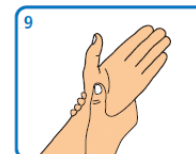
6
With flaming locks of
auburn hair



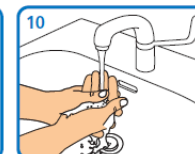
7
With ivory skin and eyes
of emerald green



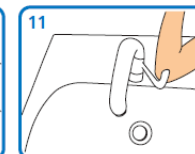
8
Your smile is like a breath
of spring



9
Your voice is soft like
summer rain



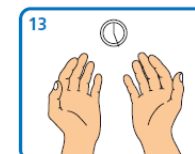
10
And I cannot compete
with you, Jolene



11
He talks about you in his
sleep



12
There's nothing I can do to
keep



13
From crying when he calls
your name, Jolene

Create your own
<https://washyourlyrics.com>

Jolene
Dolly Parton

Adapted from National Health Service, who adapted from the World Health Organization Guidelines on Hand Hygiene in Health Care.

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Self Isolate for Illness

- ❖ We need to establish a social norm that people stay home when sick — always, but especially now.*
- ❖ If you're sick, isolate yourself until you recover,* except to seek medical care. If you're worried you have covid-19, call your doctors ahead, don't just come in.
- ❖ Social distancing and self-isolation ended the regular flu season in Hong Kong.

*We don't have anything like adequate sick leave, so I know this can be a really hard choice. At least some employers are adding leave for this crisis. Colorado now has paid leave for food service, home care, and child care workers.

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Social Distancing

- ❖ Mild version: don't hug or shake hands with people you don't know. Wave, bow, elbow bump.
- ❖ Don't share food, chapstick, etc.
- ❖ Maintain physical distance: 3-6 feet
- ❖ More intense version: avoid public spaces

Social Distancing 2: Avoid Large, Crowded Events

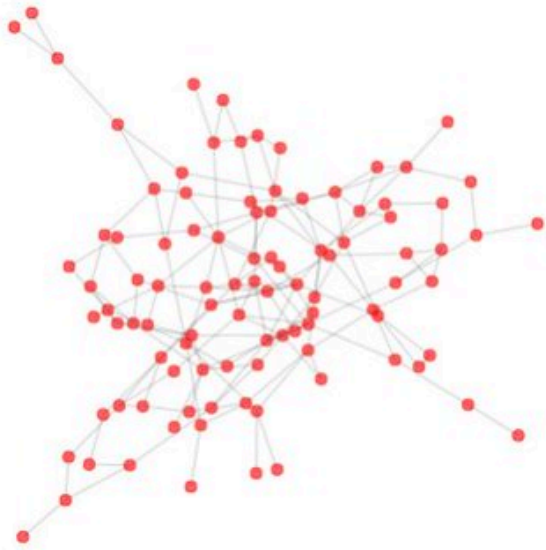
- ❖ Conferences, spring break venues, concerts bring together large groups from multiple areas
- ❖ I am currently avoiding groups > 30
- ❖ Eventually: work from home, avoid restaurants, etc.



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Source: @NetScience on Twitter

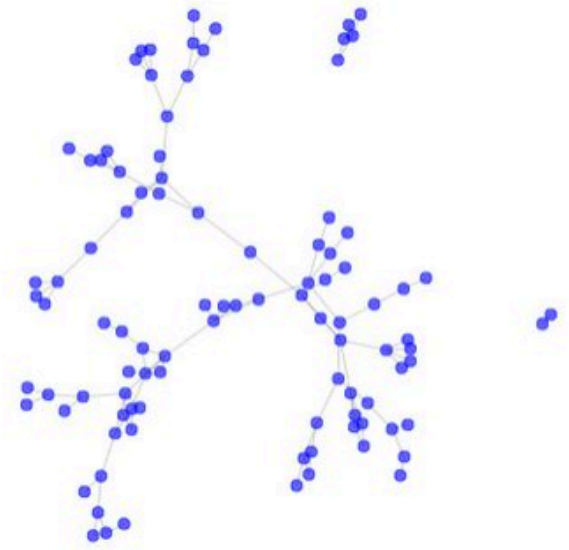
Temporal contacts integrated over T time steps



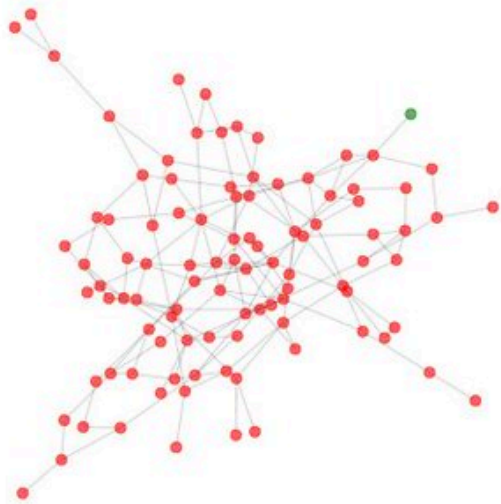
social distancing applied at time t^*



Temporal contacts integrated over T time steps

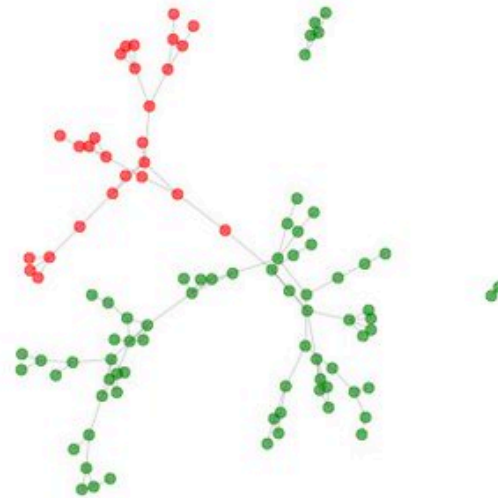


SIR model simulated on the network

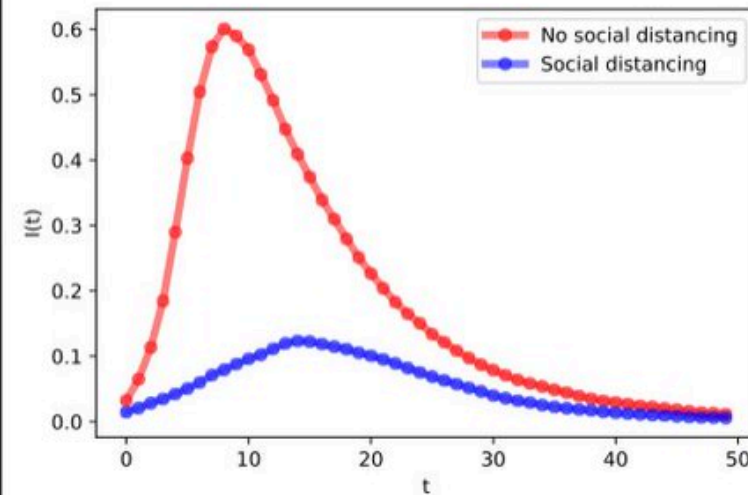


Red nodes: affected by the disease
Green nodes: not affected by the disease

SIR model simulated on the network



SIR evolution



Disclaimer: this is just a theoretical toy model to illustrate the effects of social distancing

Limit Non-Essential Travel

- ❖ For high risk destinations: what would you do if you got stuck at your destination for 3-6 weeks? (Italy is locked down for a month)
- ❖ What would you do if you needed to quarantine yourself for 2 weeks on your return?



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Don't Buy Masks

- ❖ Masks won't protect you from other people's germs (except special N95 masks, which are in short supply: leave them for vulnerable groups unless that's you)
- ❖ Masks make you touch your face more, so can increase infection risk (unless you're trained / have practice)
- ❖ Don't hoard hand sanitizer, etc
- ❖ **If you're sick:** surgical masks can help prevent transmission at the doctor or when around a caregiver
- ❖ Wearing gloves on transit isn't a bad idea: helps avoid face touching
- ❖ **Wash your hands**

Support Vulnerable Friends/Family

- ❖ Stay stocked on essential meds, food — no need to hoard, but stay 2 weeks ahead of your needs if you can.
- ❖ Assess your risk: do you regularly have contact with older family members/friends? With people with cystic fibrosis or suppressed immune systems? Take more precautions.
- ❖ Help friends/family make plans to stay safe, get care if needed.

What will it look like if precautions work?

- ❖ Disease doesn't spread
- ❖ Everyone says “remember how we were panicking? That was dumb, we totally didn't need to.”
- ❖ But without the behavioral changes, things would have been much worse.
- ❖ If this crisis doesn't escalate, thank public health and precautions.

Get updates here

- ❖ Ars Technica has a large document they're updating every day at 3 pm Eastern: <https://arstechnica.com/science/2020/03/dont-panic-the-comprehensive-ars-technica-guide-to-the-coronavirus/2/#h8>
- ❖ Best quick resource: www.FlattenTheCurve.com