

2019 NOVEL CORONAVIRUS

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- ▶ CoV not seen in humans previously; very similar to virus found in bats
- ▶ Person to person transmission occurs – droplet, fomites
- ▶ Sx are similar to flu; some cases may present with GI sx
- ▶ Elderly, morbidly obese, those with co-morbid conditions at higher risk of dying
- ▶ Mass scale quarantines bought us time to prepare but will be difficult to contain the virus; Will require a different approach from SARS
- ▶ New pathogen from animals will happen again – cutbacks in public health funding have affected our ability to detect/address pandemics

WHAT WE KNOW

- ▶ Incubation period of 1-14 days, mean around 5 – 7 days
- ▶ More infectious than SARS but lower percent of deaths among those infected
- ▶ People can shed virus early in the infection
- ▶ As with SARS, appear to be “superspreaders”

WHAT WE'RE PRETTY SURE WE KNOW

- ▶ About 14%-20% of infections are severe
- ▶ About 2% of those infected die – range between 0.5% and 3.5%

WHAT WE OBSERVE NOW THAT WILL LIKELY CHANGE

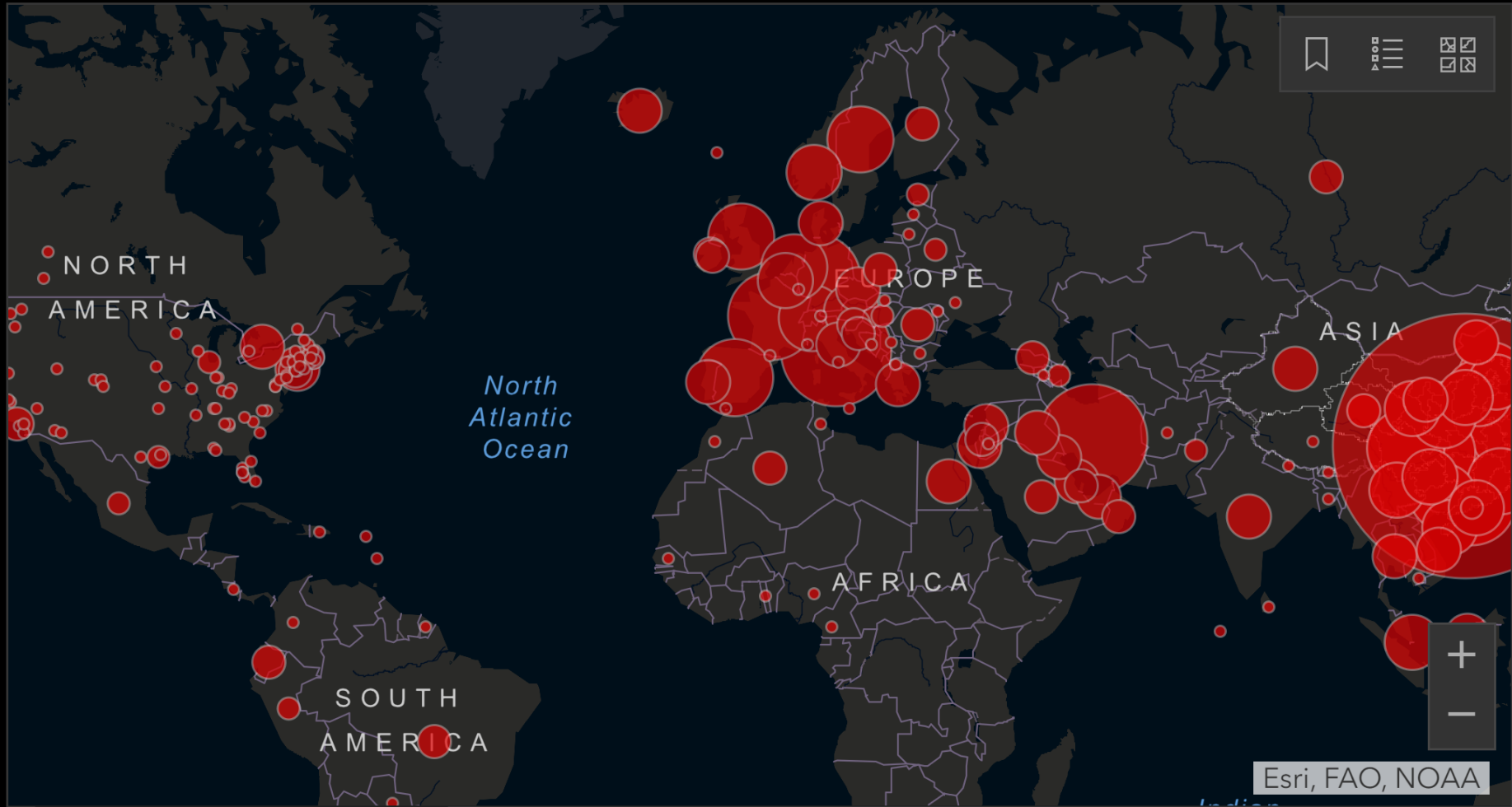
- ▶ Does aerosol transmission occur?
- ▶ Role of immunogenetic factors in who gets infected, who dies
- ▶ What is role of presymptomatic, asymptomatic, post symptomatic infections in transmission?
- ▶ When a person is most infectious?
- ▶ How long virus can remain in environment – preliminary reports of up to 9 days?
- ▶ Best clinical management of cases; are there antivirals that work?
- ▶ Will virus disappear when warmer weather occurs? And if so, will it return next fall?

WHAT WE DON'T KNOW

- ▶ >110,000 confirmed infections – 27% outside mainland China
- ▶ >3,800 deaths
- ▶ Cases reported in 108 other countries, seeing secondary transmission
- ▶ Not called a pandemic...yet but infodemic
- ▶ Concern over rapid increase in cases in Italy, Iran, S. Korea

WORLDWIDE SITUATION AS OF 8 MARCH 2020

COVID-19 Global Cases by Johns Hopkins CSSE



Cumulative Confirmed Cases

Active Cases

108

countries/regions

Lancet Inf Dis Article: [Here](#). Mobile Version: [Here](#). Visualization: JHU CSSE. Automation Support: [Esri Living Atlas team](#) and [JHU APL](#).

- ▶ **537 cases but testing limited; original cases linked to travel but now seeing community transmission; 21 deaths**
- ▶ **Cases in 34 states**
- ▶ **Contact tracing**
- ▶ **Can't find what you don't test for: CDC distributing testing kits to state and other labs – problem with kits;**
- ▶ **Estimated 29 million illnesses, 280,000 hospitalizations and 20,000 deaths (136 children) in US from influenza since 1 Oct 2019**

US SITUATION AS OF 8 MARCH 2020

- ▶ **Hard to predict but very unlikely we can contain the virus**
 - ▶ Will see many more cases
 - ▶ Will it be mild, moderate or severe?
 - ▶ Not as serious as SARS – but spreads easier if people not as sick
 - ▶ May become endemic like other respiratory viruses (colds, flu)
- ▶ **Need to move from containment to control - will require international cooperation**
- ▶ **Social distancing**

WHAT'S GOING TO HAPPEN?

Effect of Community Mitigation

Earlier timing of interventions was associated with lower peak death rates

Interventions included:

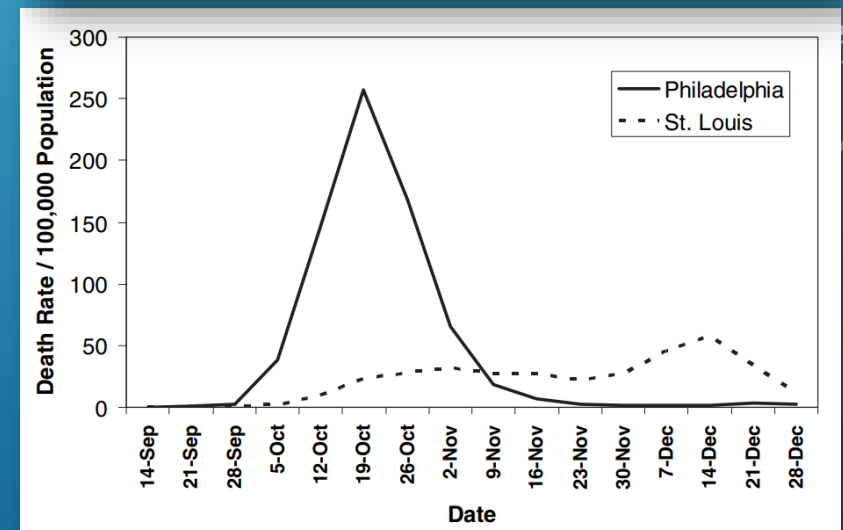
Closure of schools, churches, dance halls, and theaters

Bans on public gatherings

Examples from Philadelphia and St Louis

Philadelphia *delayed* implementation of interventions, allowed Liberty Loan Parade in September

St Louis implemented multiple measures *early* after first cases identified



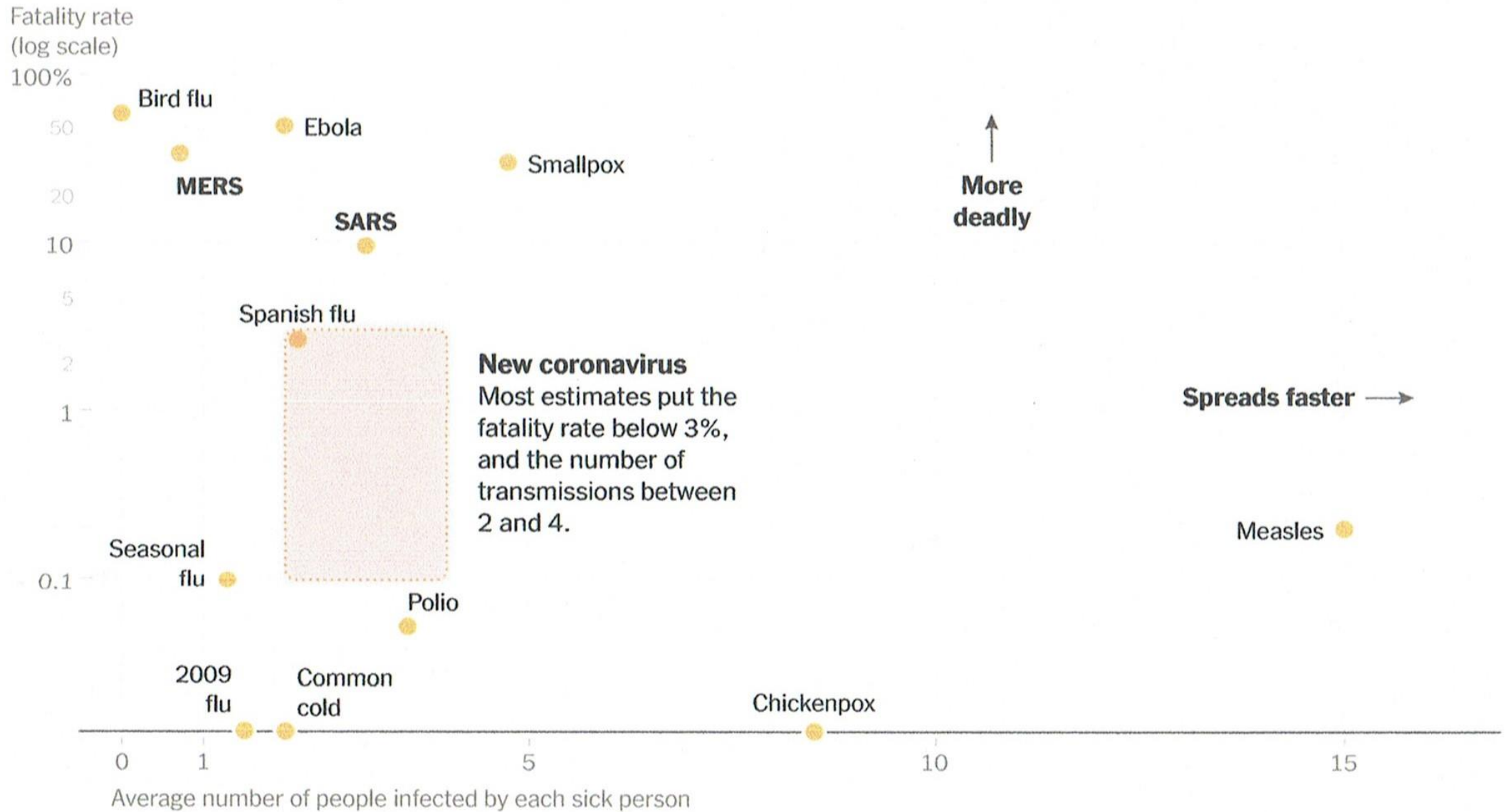
- ▶ **PPE**
- ▶ **Medical beds/ventilators and other equipment**
- ▶ **Infections in HCW, public safety, teachers, etc.**
- ▶ **\$8.3B in emergency funding signed 3/5**
- ▶ **Health depts working overtime**

ARE WE PREPARED?

- ▶ **How contagious is the virus?**
- ▶ **How deadly is the virus?**
- ▶ **Are people infectious before/without symptoms?**
- ▶ **How much have infected persons traveled?**
- ▶ **How effective is our response?**
- ▶ **How long to develop vaccine?**

HOW BAD WILL IT GET?

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- ▶ **New diagnostics**
- ▶ **Vaccine**
- ▶ **Antivirals**

MEASURES SCIENTISTS WORKING ON

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- ▶ **Both cause respiratory disease – wide range of illness**
 - ▶ COVID-19 more likely to cause severe infections (80% mild, 15% severe, 5% critical); COVID-19 appears to have higher mortality rate (2-3.5% vs. 0.1%)
 - ▶ Those most at risk for severe flu diseases are children, pregnant women, elderly, those with underlying chronic medical condition, immunosuppressed
 - ▶ For COVID-19 – older age, co-morbid conditions
 - ▶ No treatment for COVID-19; vaccine and anti-virals for flu
- ▶ **Both transmitted by contact, droplets, and fomites**
- ▶ **Flu has shorter incubation period; presymptomatic transmission - can spread faster; 3-11% are infected each year by seasonal flu**
- ▶ **R_0 2-2.5 for SARS CoV-2; flu, 1.4**
- ▶ **Children drive flu epidemics, SARS CoV-2?**

FLU VS. SARS COV-2

- ▶ Don't panic
- ▶ Wash your hands with soap and water (20 seconds or two 'Happy Birthdays'); moisturize
- ▶ If soap/water not available, use alcohol-based hand sanitizer
- ▶ Clean and disinfect frequently touched objects and surfaces
- ▶ Cover your cough/sneeze – either crook of elbow or use tissue and dispose of in lidded receptible
- ▶ Don't touch your face, nose, eyes
- ▶ Stay healthy – adequate sleep, good nutrition, reduce stress

HOW TO REDUCE YOUR (AND OTHER PEOPLE'S) RISK

- ▶ Stay home if you're sick
- ▶ Stay away from sick people
- ▶ Mask – evidence isn't there, may do more harm than good
- ▶ Get a flu shot every year; pneumonia vaccine if ≥ 65 years old
- ▶ Travel?
- ▶ Support public health funding
- ▶ [Ready.gov/kit](https://www.ready.gov/kit)

**HOW TO REDUCE YOUR (AND OTHER PEOPLE'S)
RISK, CON'T**



Questions