2019 NOVEL CORONAVIRUS

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Person to person spread through droplets, fomites, maybe aerosol?

Sx are similar to flu but ~10% have no symptoms, some have GI sx

Disease occurs up to 14 days after exposure with average time of 5 days

People can shed virus early in the infection and after symptoms subside

About 14%-20% of infections are severe

About 2% of those infected die – range between 0.5% and 3.5%; Elderly, morbidly obese, those with other medical conditions at higher risk of dying – but young people also at risk

WHAT WE KNOW
What is role of presymptomatic, asymptomatic, postsymptomatic infections in transmission?

When a person is most infectious?

How long virus can remain in environment – preliminary reports of up to 2-3 days

Will virus disappear when warmer weather occurs? And if so, will it return next fall?

How long do we need to physically distance to flatten the curve?

What is best clinical treatment
>312,000 confirmed infections – 74% outside mainland China
>13,500 deaths
Cases reported in 169 other countries
Took 3 months to 1st 100K cases, 12 days to next 100K, 24 hrs to next 100K
Pandemic, infodemic, and feardemic

WORLDWIDE SITUATION AS OF 22 MARCH 2020
Figure 2. Epidemic curve of confirmed COVID-19, by date of report and WHO region through 20 March 2020.
> 27,000 cases with rapid increase despite limited testing; 360 deaths
> Cases in all 50 states, DC, Puerto Rico, VI,
> Shortage of:
>   - Testing kits and supplies
>   - PPE for healthcare workers and first responders
>   - Medical beds/ventilators and other equipment
> Seeing increase in ICU admissions
> May be 8-10 days behind Italy

US SITUATION AS OF 22 MARCH 2020
Where The ICU Beds Are

More than half of counties have no hospital ICU beds, a growing concern as the novel coronavirus spreads throughout the nation. This map shows counties with no hospitals, counties with hospitals but no ICU beds, and counties that do have ICU beds.

Hospitals with ICU beds
Hospitals without ICU beds
No hospitals

Map by Lydia Zuraw/Kaiser Health News
Source: Kaiser Health News analysis of hospital cost reports filed to the Centers for Medicare & Medicaid Services - Get the data - Created with Datawrapper
WHAT'S GOING TO HAPPEN?

- Hard to predict
  - Wave has not crested
  - What happens in fall?
  - May eventually become endemic like other respiratory viruses (colds, flu)
- Social (physical) distancing implemented to flatten the curve
  - How long will this be needed? Different models
  - Will depend on compliance, how long social distancing lasts, characteristics of the virus
- Is business or health the priority? Difficult decisions needed
- We're in this together
Suppression scenarios

Models from researchers at Imperial College London suggest that wide adoption of measures to reduce the transmission of the novel coronavirus can reduce the demand for critical health-care services, in part by spreading the demand over a longer period. The major challenge is that those measures will need to be maintained until a vaccine becomes available, or transmission will quickly rebound.

In the model, a five-month period when suppression measures are assumed to take place stretches through August.

Source: Imperial College London

TIM MEKO/THE WASHINGTON POST
Three scenarios for how the outbreak could spread.

Percent infected by July 1

- 25%
- 50%
- 75%

No control measures

Some control measures

Severe control measures
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?
MEASURES SCIENTISTS WORKING ON

- New diagnostics
- Vaccine
- Antivirals
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 medical condition, immunosuppressed
- For COVID-19 – older age, underlying medical condition, immunosuppressed
- 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
- R₀ 2-2.5 for SARS CoV-2; flu, 1.4
- Children drive flu epidemics, SARS CoV-2?

FLU VS. SARS COV-2
HOW TO REDUCE YOUR (AND OTHER PEOPLE’S) RISK

- 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, exercise, reduce stress
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 only if necessary
Ready.gov/kit
Support public health

HOW TO REDUCE YOUR (AND OTHER PEOPLE’S) RISK, CON’T
Questions