

Outbreak of COVID-19, 2020

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COVID-19 Timeline

- December 31, 2019, China notifies WHO of outbreak of pneumonia of unknown etiology in Wuhan
- January 1, 2020, Wuhan live animal market closed
- January 7, novel coronavirus identified as cause
- January 9, first death reported
- January 12, genetic sequence published
- January 17, traveler screening begins at 3 U.S. airports (>45,000 travelers to date)

COVID-19 Timeline (cont.)

- January 21, first U.S. case
- January 30, WHO declares PHEIC
- February 2, U.S. closes borders to travelers from China except U.S. citizens
- February 10, named COVID-19; SARS-CoV-2
- Currently 79,000 cases, 2,627 deaths in 35 countries

COVID-19 Timeline (cont.)

- Recent increase in South Korea, Japan, Italy, Singapore, Hong Kong
- 14 cases in U.S. including 2 person-to-person, plus 3 from Wuhan and 36 from Diamond Princess cruise ship

Clinical Characteristics

- Based on hospitalized patients in China
- Incubation period 2-14 days (median, 4)
- Median age 56; 54% male; underlying health conditions (diabetes, hypertension, CVD)
- Asymptomatic, fever, fatigue, dry cough, SOB, lymphopenia
- Chest CT scan - bilateral patchy areas or ground glass opacity
- 26% to ICU
- 2-3% case fatality rate

Clinical Characteristics (cont.)

- Manage in a hospital capable of caring for patients in AIIRs
- Supportive care
- Lopinavir/ritonavir; remdesivir
- Symptom-based screening (fever, fatigue, sore throat, cough, runny nose, muscle aches, diarrhea) may be ineffective
- Evidence of transmission from asymptomatic persons

Risk Assessment and Management of Persons with Potential SARS-CoV-2 Exposure

- High risk: living in same house as patient; Hubei Province
- Medium risk: Travel from China outside of Hubei; self-monitoring, avoid congregate settings
- MDH notified of travelers; we contact them and conduct "Day 0" interview and Day 14 follow-up



Patient Under Investigation

- Fever AND cough OR shortness of breath, AND Hubei
- Fever AND cough OR shortness of breath, requiring hospitalization AND mainland China
- Health department discretion allowed!

Laboratory Testing

- RT-PCR developed by CDC; FDA EUA received 2/4
- Initially sent kits to PHLs 2/7 but unable to be validated
- OP, NP, and sputum
- Note: some commercial PCRs detect 4 human coronaviruses, but not SARS-CoV-2

Infection Control

- Minimize exposures
- Isolate in an AIIR if available
- Standard, contact, and airborne precautions
 - PPE: gloves, gowns, respiratory protection, eye protection

Coronaviruses and Source

- Coronaviruses common in animals; enveloped RNA virus
- 7 human coronaviruses: 4 cause mild respiratory illness
- SARS-CoV; 2003, 8,098 cases, 774 deaths
- MERS-CoV; 2012-current; 2,494 cases, 858 deaths
- SARS-CoV-2; COVID-19
- 87-96% homologous to bat coronavirus; intermediary species?





















Prognosis

- "It's hard to make predictions, especially about the future."
(Y. Berra)
- WHO Director, 2/18 "a very dangerous situation" ... "the risks are enormous and we need to be prepared worldwide for that"
- Declaration of pandemic?
- Sustained transmission?; $R_0=2.2-4.0$

Prognosis (cont.)

- Pharmaceutical – treatment, vaccine
- Nonpharmaceutical interventions (border closures, isolation, infection control, individual quarantine, group quarantine, social distancing)

PPE Shortages; Crisis Standards of Care

- Work with Regional Health Coalition to determine PPE (masks, respirators, gowns) inventories
- Review Crisis Standards of Care Strategies for Scarce Resources



In some Chinese cities face masks are running out. The flu-like virus has killed more than 130 people and has infected almost 8,000 other as of this morning.



Stay at home to prevent infection,
Turn your in-laws out if they come visit.



Please avoid going to crowded places as much as possible,
How much pension you will receive at retirement depends
on how much you go out recently.



Save pennies not wearing a mask,
Spend a fortune getting treatment on your sickbed.



Not gathering for a feast is so you can eat in the future,
Not visiting others is so you still have relatives in the future.



If you hang out in public today,
Grass will grow on your grave next year.



A surgical mask or a breathing tube,
It's your call.



You are a piece of garbage if you go out without wearing a mask.



I'll break your legs if you insist on going out,
I'll wreck your teeth if you challenge me.



Questions?


