2019 Novel Coronavirus
(2019-nCoV or COVID-19)

Overview and Update

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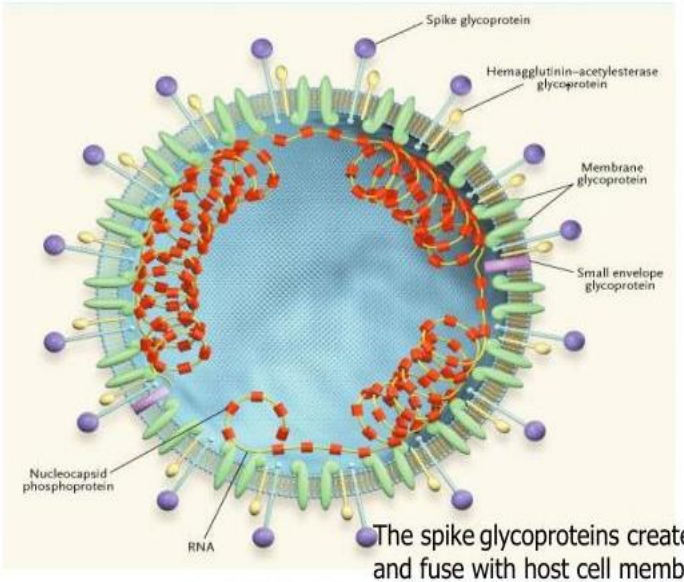
Coronaviruses (general)

- An enveloped RNA virus that may circulate in animal host or human host
- There are 7 coronaviruses that infect people
- People around the world commonly get infected with these four human coronaviruses:
  - 229E, NL63, OC43, and HKU1.
  - These account for 10-30% of common colds every year
- Spread by contact with infected secretions or by aerosol droplets



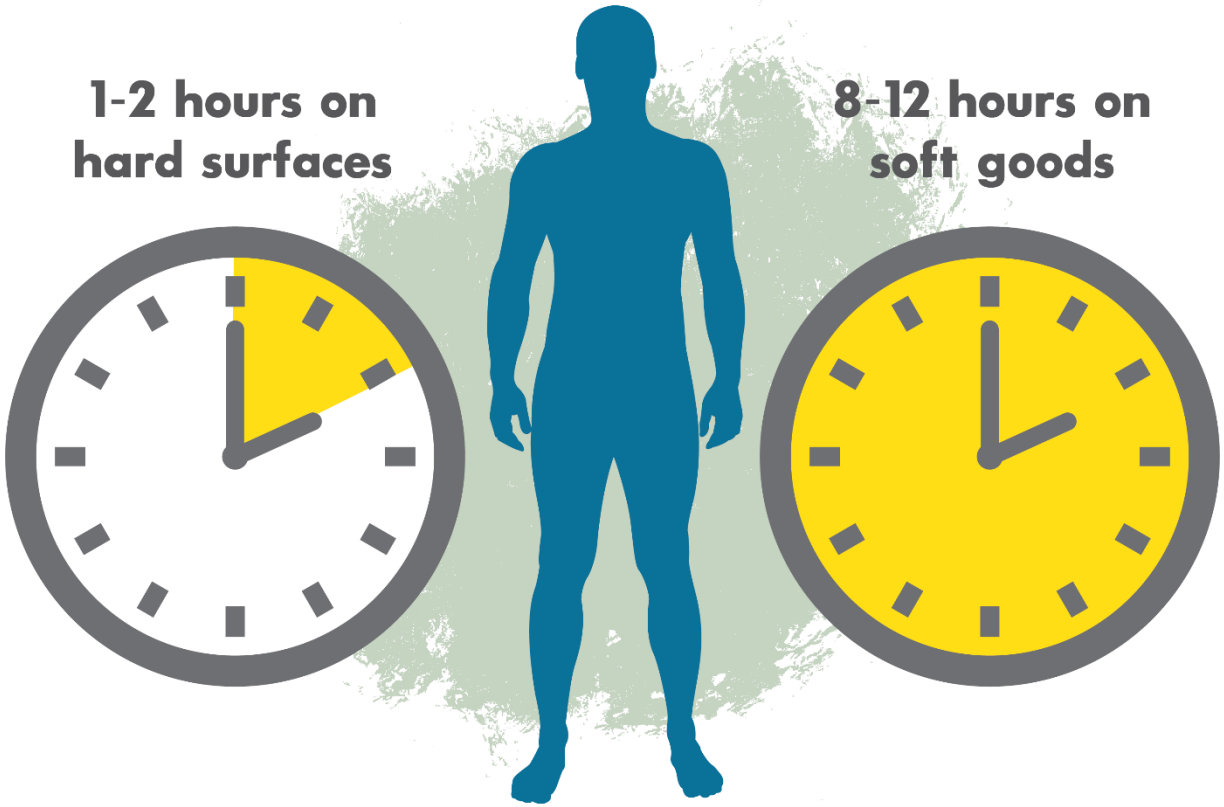
The spike glycoproteins create corona, bind and fuse with host cell membranes

Holmes, NEJM 2003;348: 1948

Coronaviruses (general)

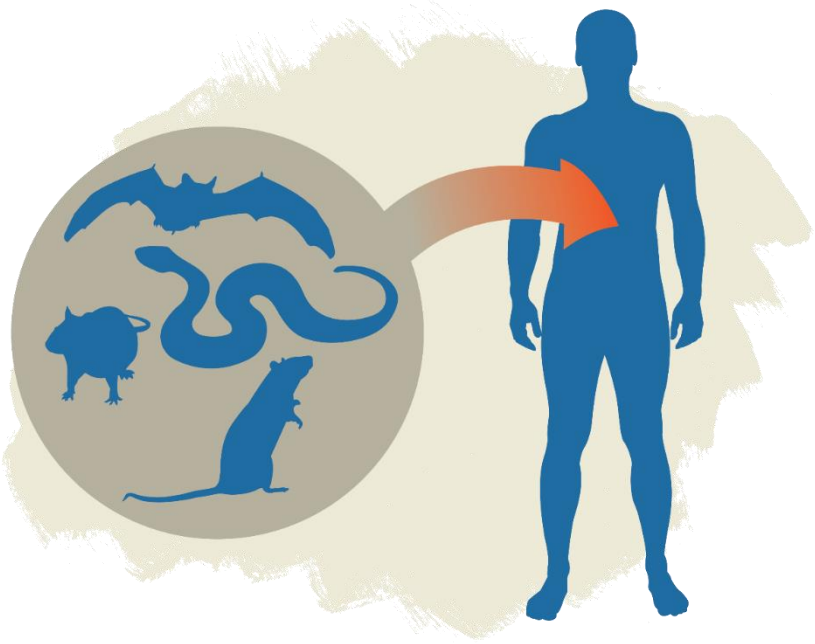
Survivability outside the body:

- 1-2 hours on nonporous surfaces (e.g. hard surfaces)
- 8-12 hours on porous surfaces (e.g. soft goods)



New Coronaviruses

- Sometimes coronaviruses that infect animals can evolve and jump from an animal reservoir to humans, causing illness and then are identified as a “new human coronavirus.”
- We know of three recent times coronaviruses have moved from an animal to a human host
  - SARS (Severe Acute Respiratory Syndrome)
  - MERS (Middle Eastern Respiratory Syndrome)
  - Now 2019-nCoV (Novel Coronavirus). This name is changing to COVID-19.

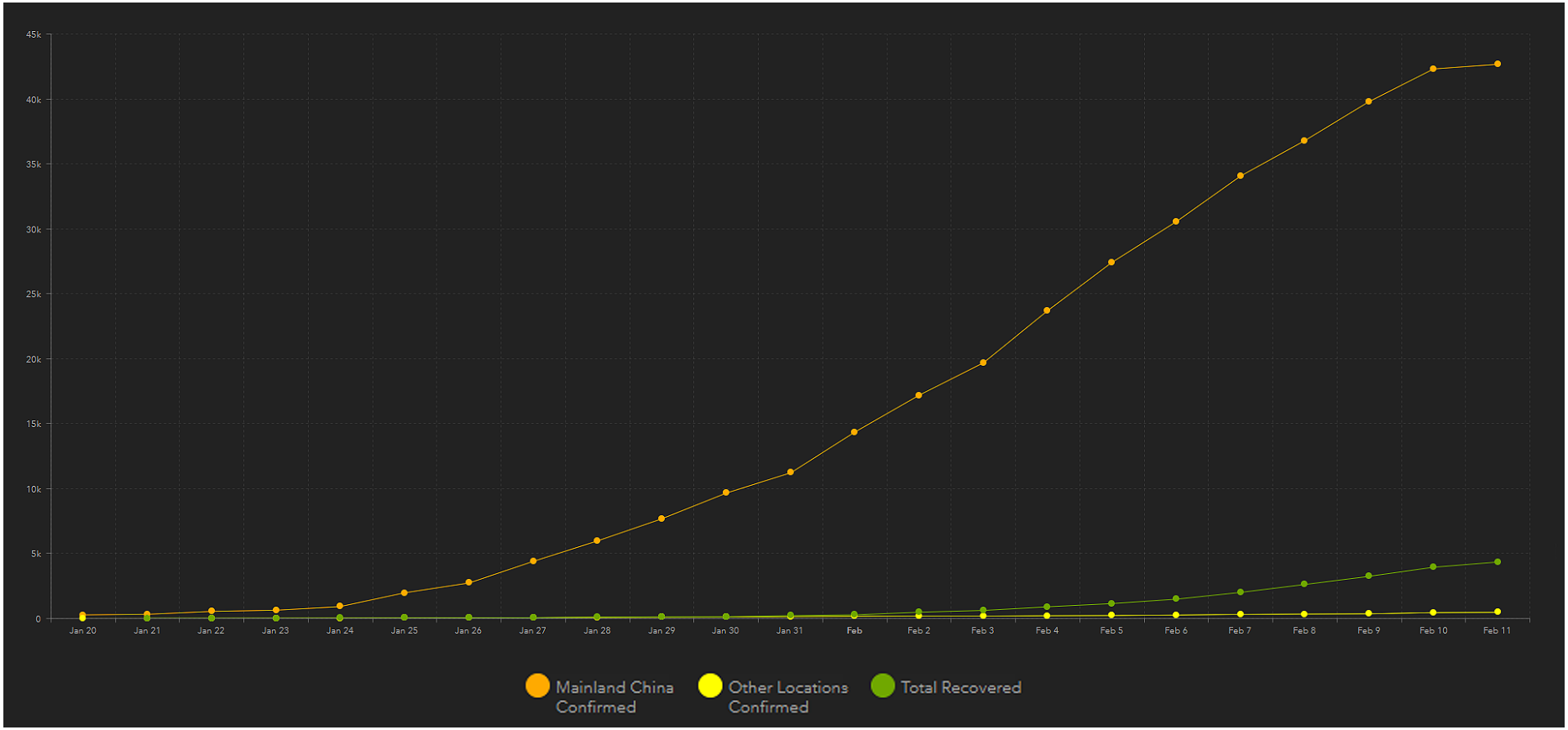


2019-nCoV

- First reported by Chinese health officials on December 31, 2019
- Likely very recently moved from an animal reservoir to humans
- Asymptomatic shedding is still unclear
- Incubation is between 2-14 days (mean is about 5 days)
- As of 1/11/20 there are 43,103 cases worldwide and 1,017 deaths (WHO)
- 13 confirmed cases in the United States in 6 states
- No deaths in the United States

Graph of nCoV cases to date

Coronavirus COVID-19 Global Cases by Johns Hopkins CSSE



Case Fatality

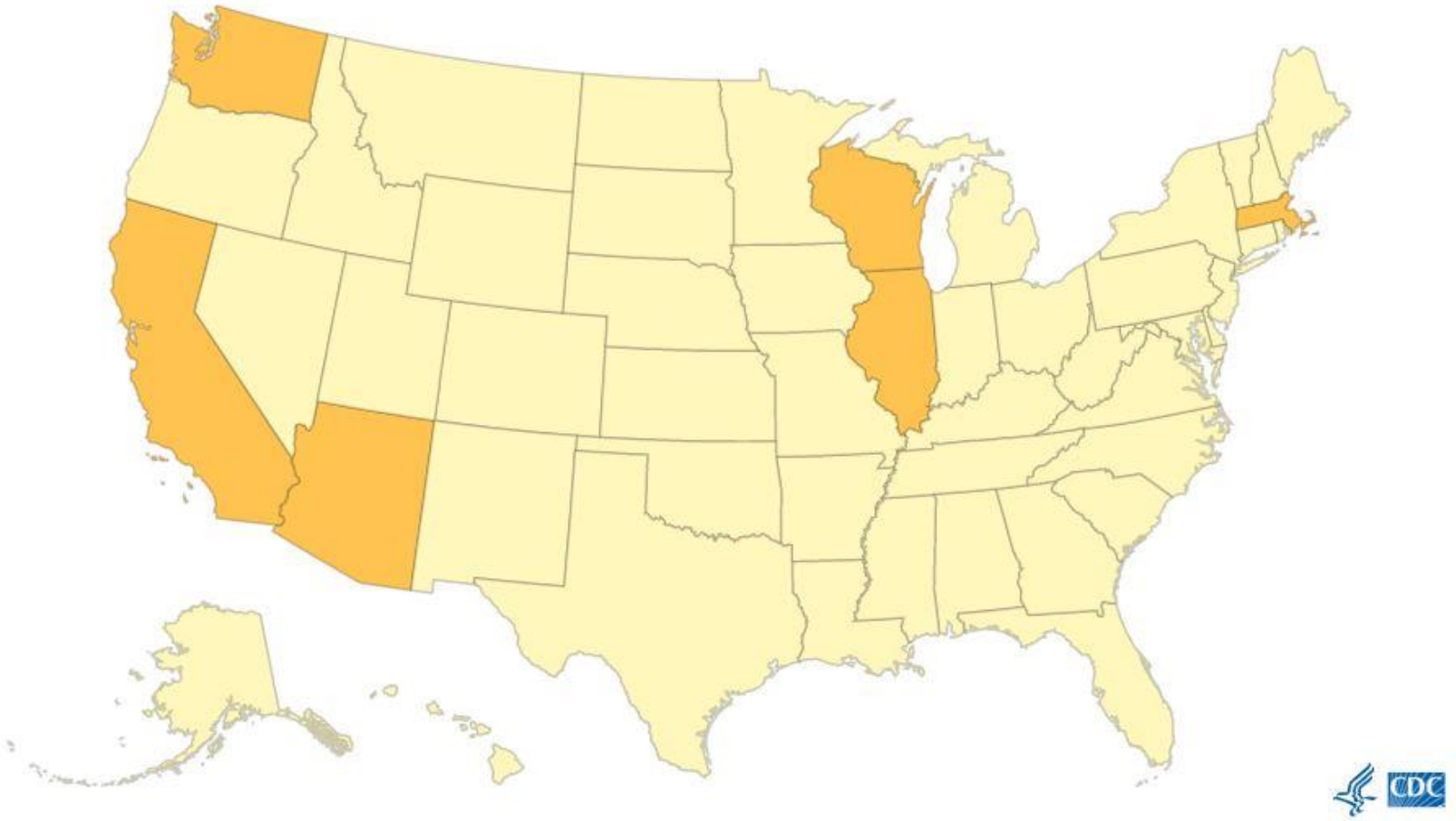
- SARS had a case fatality rate (CFR) of ~10%
- MERS has a ~35% mortality rate and continues to circulate in animal reservoirs with sporadic zoonotic spillover
- Influenza H7N9 (bird flu) had about a 40% fatality
- Influenza averages <0.1% mortality
- H1N1 has a case fatality of ~0.03% fatality
- Ebola has roughly 60% fatality rate
- 2019-nCoV is estimated to have about a 2% mortality rate

Transmission

- Early on, suspected animal-to-person spread
- Now, also known to be person-to-person spread
  - Respiratory droplets when an infected person coughs or sneezes
  - Close contact (about 6 feet)
  - Unclear if transmitted through touching a surface or object
- It is unclear how easily or sustainably this virus is spreading between people
- 2019-nCoV has an R naught of about 2.5 (this means each infected person will transmit the virus to about 2.5 other people)
- Measles: >12
- SARS: ~3
- 1918 flu: ~2
- 2009 H1H1: ~1.5
- Seasonal Flu: ~1.2

2019-nCoV in the U.S.

Map from February 11th, 2020



Signs and Symptoms

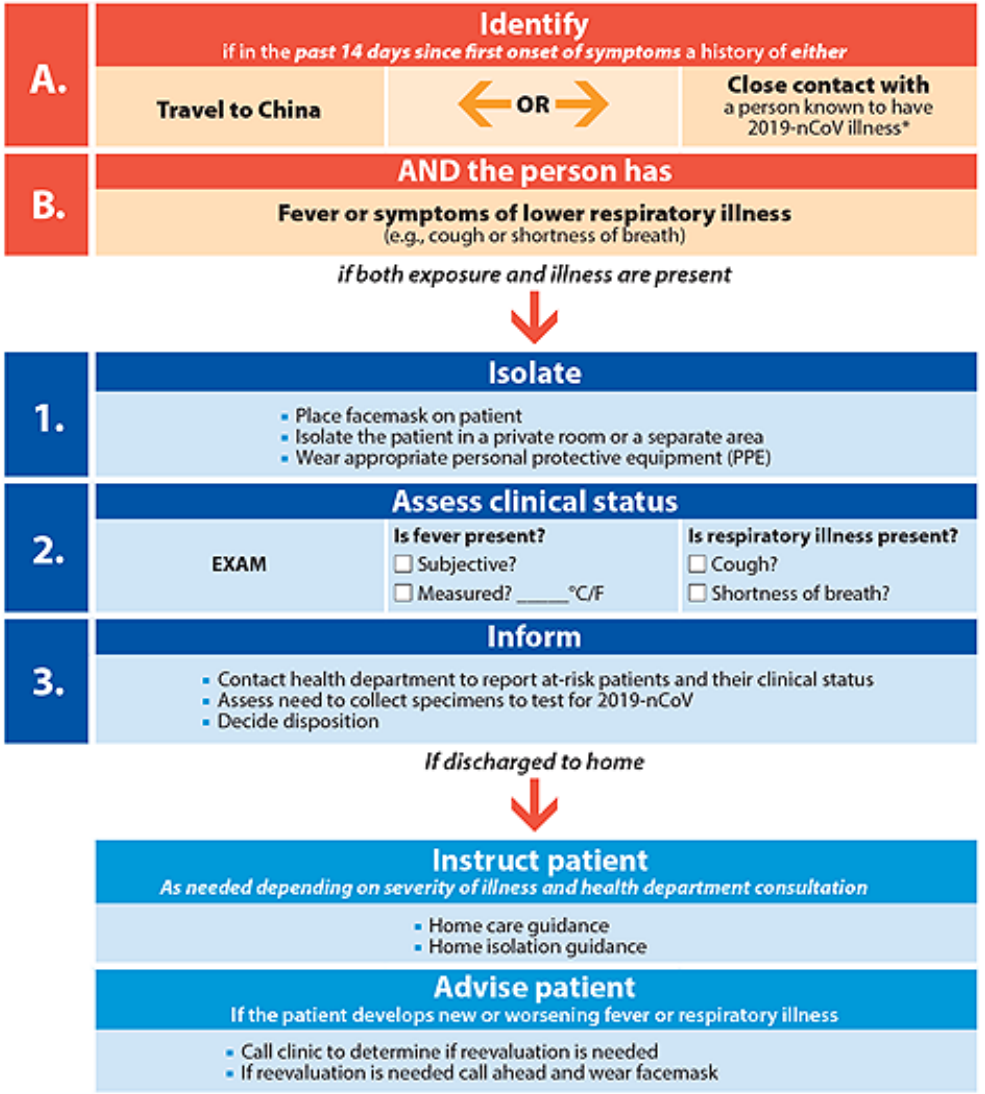
- May look similar to the common cold or flu
- For confirmed 2019-nCoV infections, reported illnesses have ranged from people with little to no symptoms to people being severely ill and dying
- Fever
- Cough
- Shortness of breath
- Myalgia / fatigue
- Appears to disproportionally affect the elderly or those with underlying medical conditions

Testing and Treatment

- CDC has developed a real time Reverse Transcription-Polymerase Chain Reaction (rRT-PCR) test that can diagnose 2019-nCoV in respiratory and serum samples from clinical specimens.
- On January 24, 2020, CDC publicly posted the assay protocol for this test. Currently, testing for this virus must take place at CDC.
- Currently testing can only be done at the CDC but on 1/5/2020 the CDC announced they will start to roll out testing to individual states
- Alaska Labs has been in communication with the CDC to gear up for testing. At the earliest, Alaska could start testing by March.
- There is no known treatment except for good supportive care.
- A vaccine or treatment is likely not going to be available in the near future.

CDC Evaluation Flowchart

For the evaluation of patients who may be ill with or who may have been exposed to the 2019 Novel Coronavirus (2019-nCoV)



*Documentation of laboratory-confirmation of 2019 n-CoV may not be possible for travelers or persons caring for patients in other countries. For more clarification on the definition for close contact see CDC's Interim Guidance for Healthcare Professionals: www.cdc.gov/coronavirus/2019-nCoV/hcp0/clinical-criteria.html

PUI (Persons Under Investigation)

- Alaska currently has no PUI cases.

Criteria to Guide Evaluation of Patients Under Investigation (PUI) for 2019-nCoV

Patients in the United States who meet the following criteria should be evaluated as a PUI for 2019-nCoV.

Clinical Features	&	Epidemiologic Risk
Fever[1] **or** signs/symptoms of lower respiratory illness (e.g. cough or shortness of breath)	**AND**	Any person, including health care workers, who has had close contact[2] with a laboratory-confirmed[3,4] 2019-nCoV patient within 14 days of symptom onset
Fever[1] **and** signs/symptoms of a lower respiratory illness (e.g., cough or shortness of breath)	**AND**	A history of travel from **Hubei Province**, China within 14 days of symptom onset
Fever[1] **and** signs/symptoms of a lower respiratory illness (e.g., cough or shortness of breath) requiring hospitalization[4]	**AND**	A history of travel from mainland **China** within 14 days of symptom onset

The criteria are intended to serve as guidance for evaluation. Patients should be evaluated and discussed with public health departments on a case-by-case basis if their clinical presentation or exposure history is equivocal (e.g., uncertain travel or exposure).

Notes on travel

- Jan 1, 2020 Huanan Seafood Wholesale Market was closed
- Jan 23, 2020 Wuhan City shuts down public transportation
- Jan 31, 2020 Presidential Proclamation suspends entry into the United States to foreign nationals who visited Mainland China in the past 14 days. Exempted persons include immediate family members of U.S. citizens, legal permanent residents and crew members of air travel

Isolation vs Quarantine

- Isolation and quarantine help protect the public by preventing exposure to people who have or may have a contagious disease.
- **Isolation** separates sick people with a contagious disease from people who are not sick.
- **Quarantine** separates and restricts the movement of people who were exposed to a contagious disease to see if they become sick.
- In addition to serving as medical functions, isolation and quarantine also are “police power” functions, derived from the right of the state to take action affecting individuals for the benefit of society.

Prevention

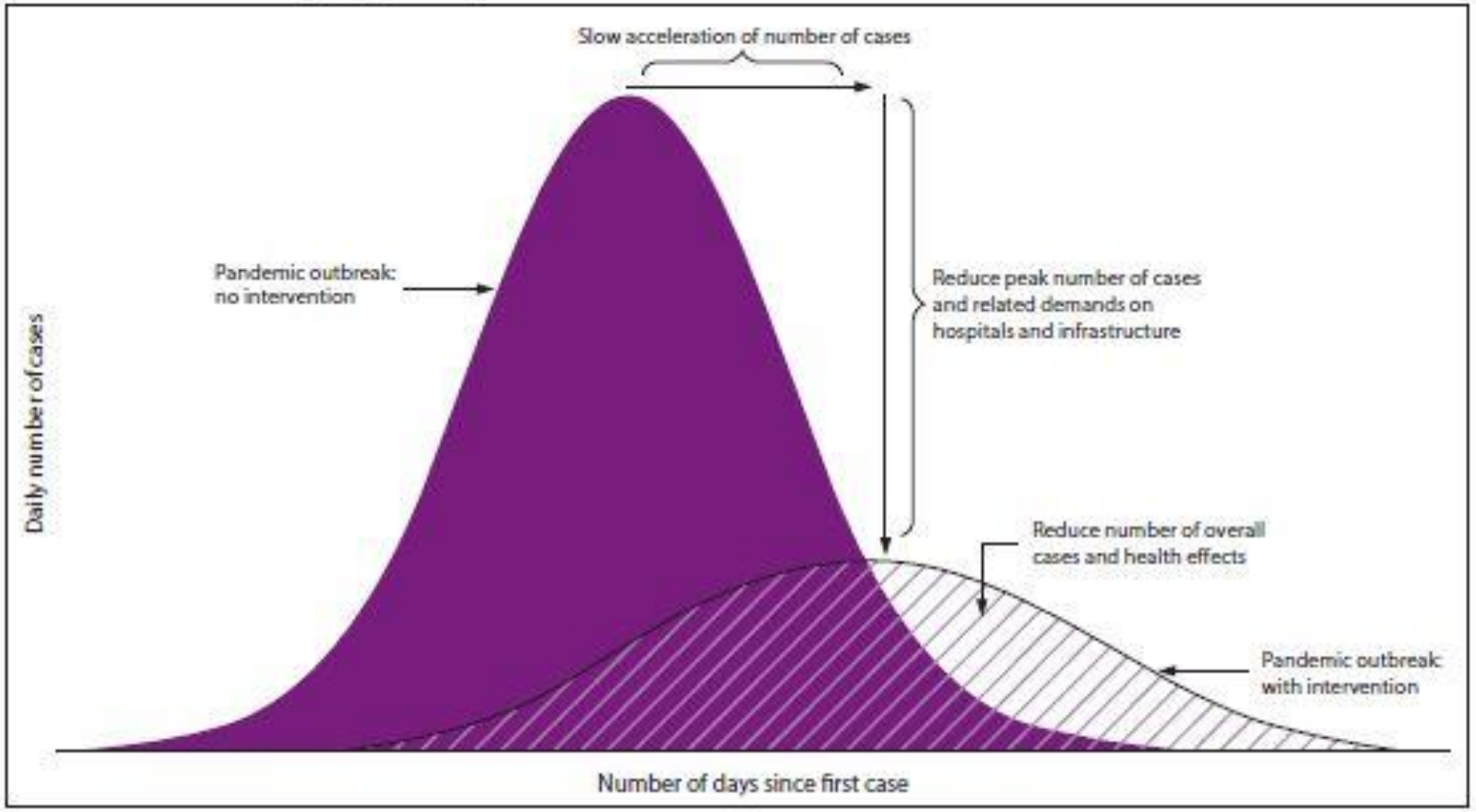
There is currently no vaccine to prevent 2019-nCoV infection. The best way to prevent infection is to avoid being exposed to this virus.

CDC always recommends everyday preventive actions to help prevent the spread of respiratory viruses, including:

- Avoid touching your eyes, nose, and mouth with unwashed hands.
- Avoid close contact with people who are sick.
- Stay home when you are sick.
- Cover your cough or sneeze with a tissue, then throw the tissue in the trash.
- Clean and disinfect frequently touched objects and surfaces using a regular household cleaning spray or wipe.
- Wash your hands often with soap and water for at least 20 seconds, especially after going to the bathroom; before eating; and after blowing your nose, coughing, or sneezing.
- If soap and water are not readily available, use an alcohol-based hand sanitizer with at least 60% alcohol. Always wash hands with soap and water if hands are visibly dirty.

An outbreak

FIGURE 1. Goals of community mitigation for pandemic influenza



Source: Adapted from: CDC. Interim pre-pandemic planning guidance: community strategy for pandemic influenza mitigation in the United States—early, targeted, layered use of nonpharmaceutical interventions. Atlanta, GA: US Department of Health and Human Services, CDC; 2007. https://stacks.cdc.gov/view/cdc/11425.

Disaster Preparedness

Preparing for the next steps

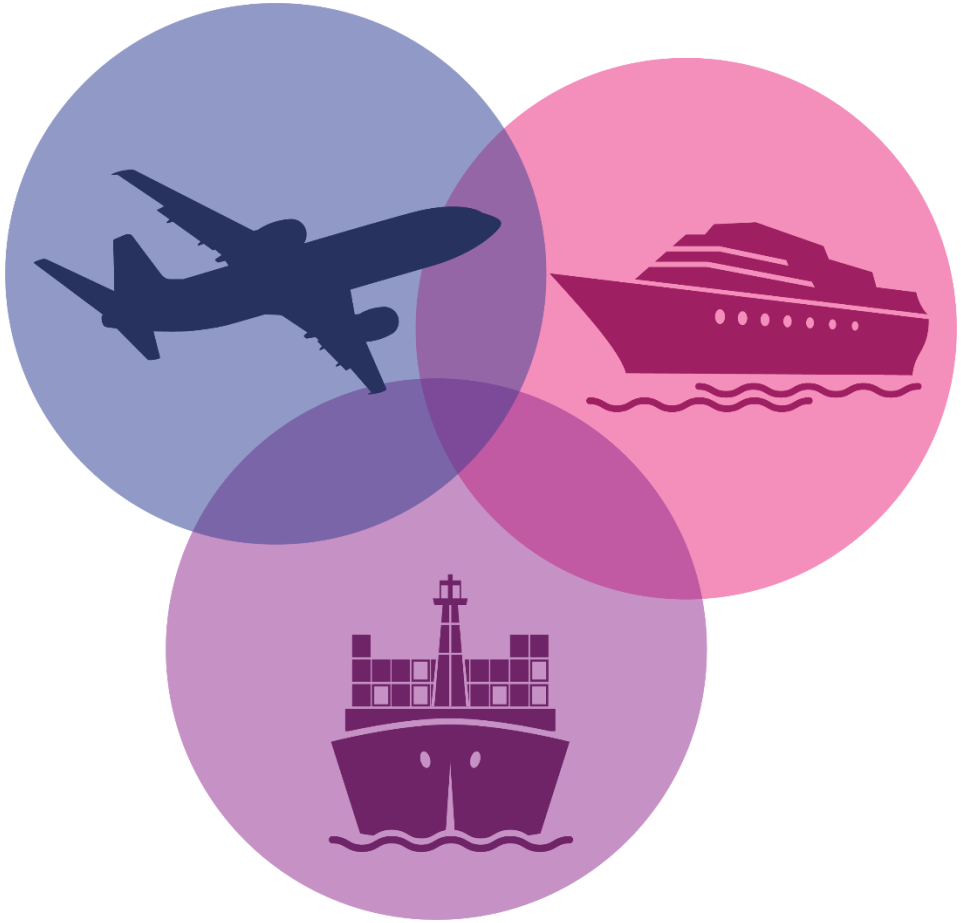
- Preparedness is something that we do, practice and prepare for
- Build on existing structures and lessons learned from the 1918 flu, H1N1, SARS, MERS, and Ebola
- Have recently updated Pandemic Influenza Plan that can be used as guidelines
- Exercised planning for a contagious pandemic in the “Ragin’ Contagion” exercise from April 8-13, 2019
- Have active Emergency Medical Countermeasures Management Plan
- DHSS EOC (Emergency Operations Center) stood up Jan. 24, 2020
- Working closely with other departments, tribal, federal and local partnerships to run through all of the “what ifs”

A special case

- Asked to assist in the repatriation of up to 240 US citizens and their families on January 28th, 2020
- Worked closely with federal, local, tribal and state partners to ensure Alaskans were not at any increased risk
- Passenger have all cleared their 14 day quarantine period with no cases
- Alaska is more prepared from having the courage to carry out this mission

Looking forward - Cruise Ships and Cargo

- Anchorage airport is one of the busiest cargo airports in the world
- Crew members of aircraft have FAA requirements which are slightly different than the general screening into the US
- Cruise lines are limiting passengers who are boarding with pre-boarding screening



Strengths and Weaknesses

- Strong, centralized public health system including labs, epidemiology, emergency operations center
- Strong state, federal, Tribal, local partnerships
- Limited health care capacity and large distances
- Housing and quarantine challenges
- Supply chain challenges
- Rapid spread of fear, stigma and misinformation

What is being done

- Health provider webinars
- Emergency operations meetings
- Daily national calls with federal partners including CDC and others
- Public messaging and media
- Interdepartmental preparedness planning including:
  - DMVA, DEED, DOT, DOC, DPS and others

What you can do

- Stay healthy – wash your hands, stay home if sick and get your flu shot
- Stay calm
- Stay involved

Where you can learn more and what is being done

- DHSS website: http://www.dhss.alaska.gov/dph/Epi/id/Pages/Human-Coronavirus.aspx
- CDC website: https://www.cdc.gov/coronavirus/index.html
- On going:
  - Health provider webinars
  - Emergency operations
  - Interdepartmental preparedness planning


Thank You!