



Grand Rounds
ICAP Webinar

Isolation, Quarantine, Social Distancing: What Does It All Mean?

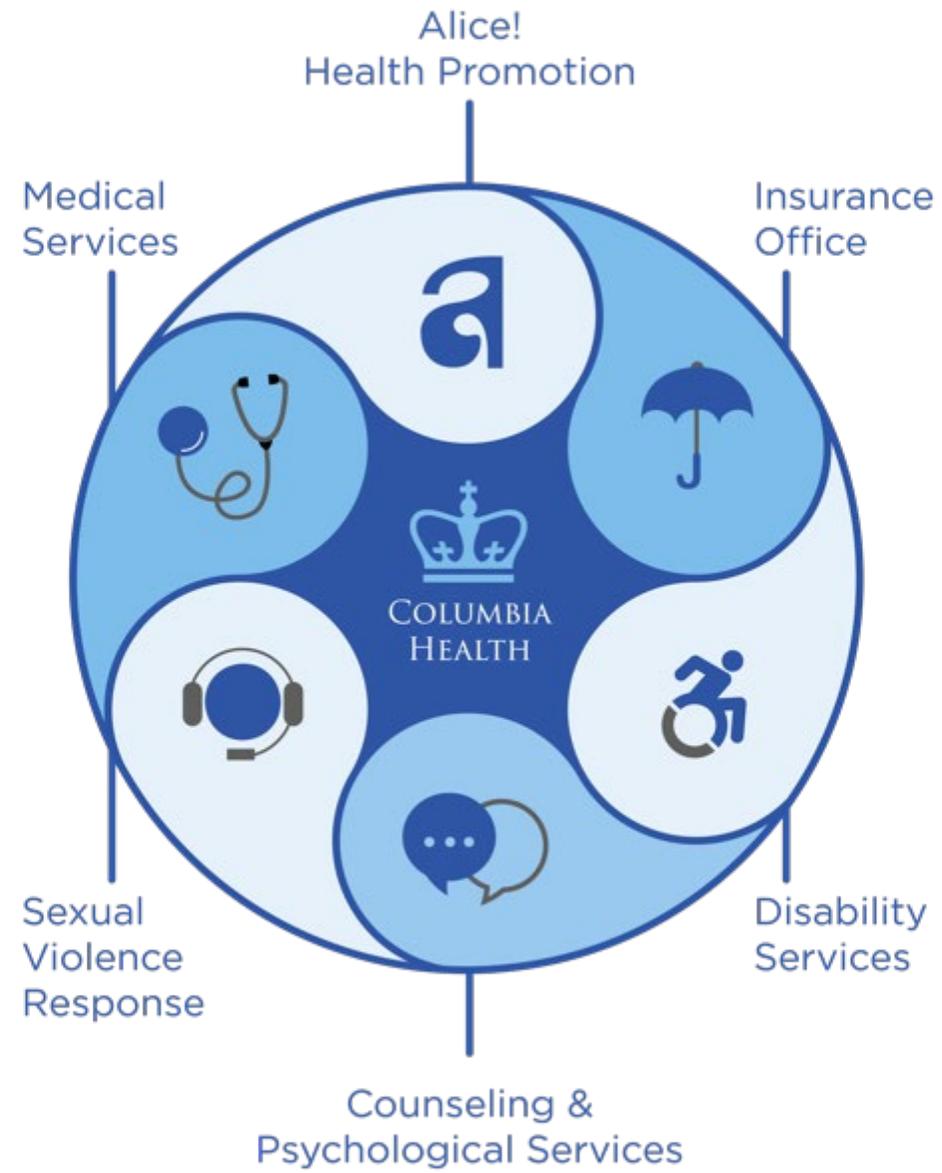
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April 2, 2020

Financial Disclosures

None

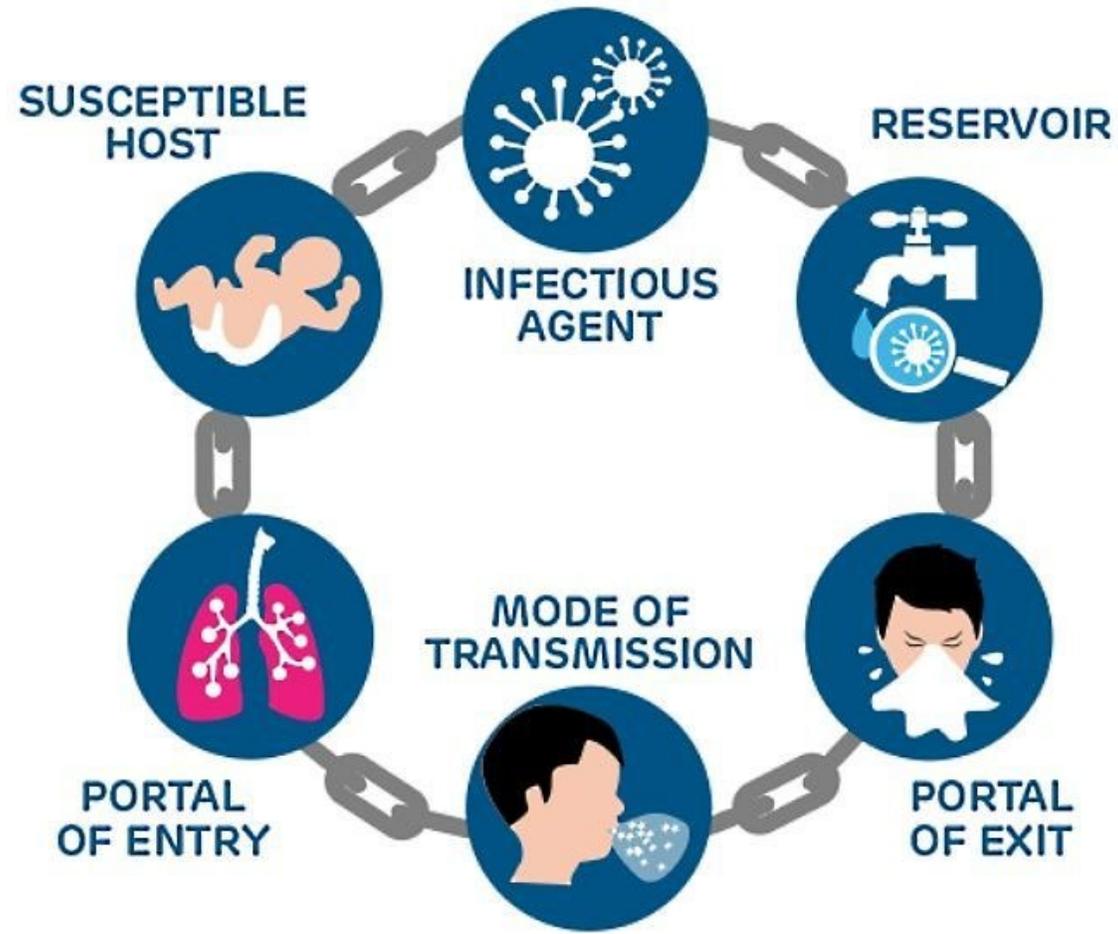


Agenda

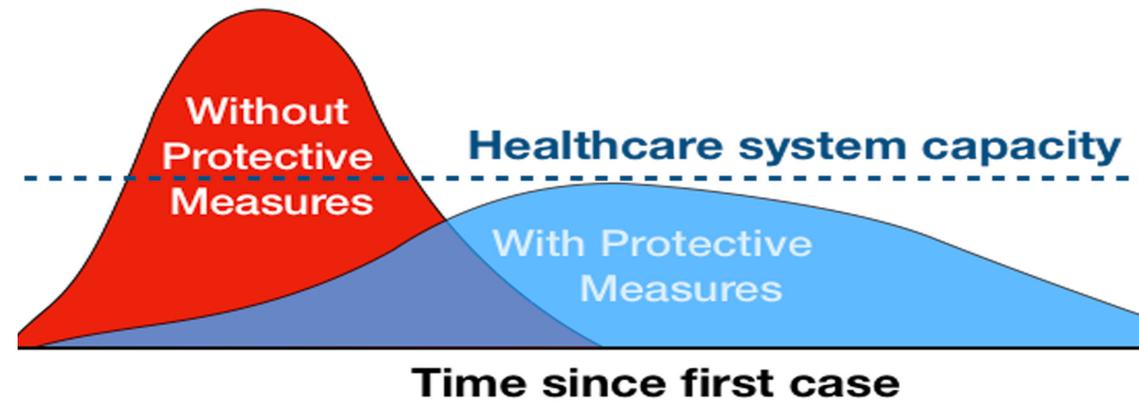
- Chain of Infection
- Background on COVID-19
- Quarantine and Isolation
- Application to COVID-19
- Contact Tracing
- Social Distancing
- Coronavirus on a College Campus
- Conclusions

Chain of Infection

Chain of Infection



Flattening the Curve

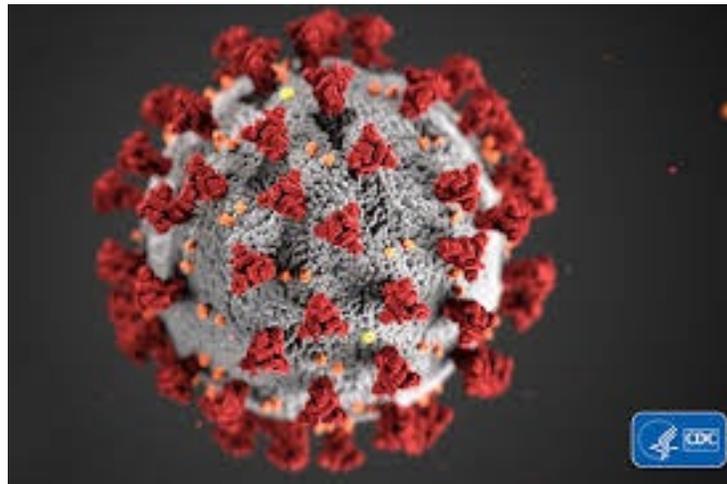


Adapted from CDC / The Economist

Background on COVID-19

How COVID-19 Spreads

- Close contact between people
 - Respiratory droplets that are produced when an infected person coughs or sneezes
- Possibly by touching a surface or object that has the virus on it and then touching the mouth, nose, or eyes



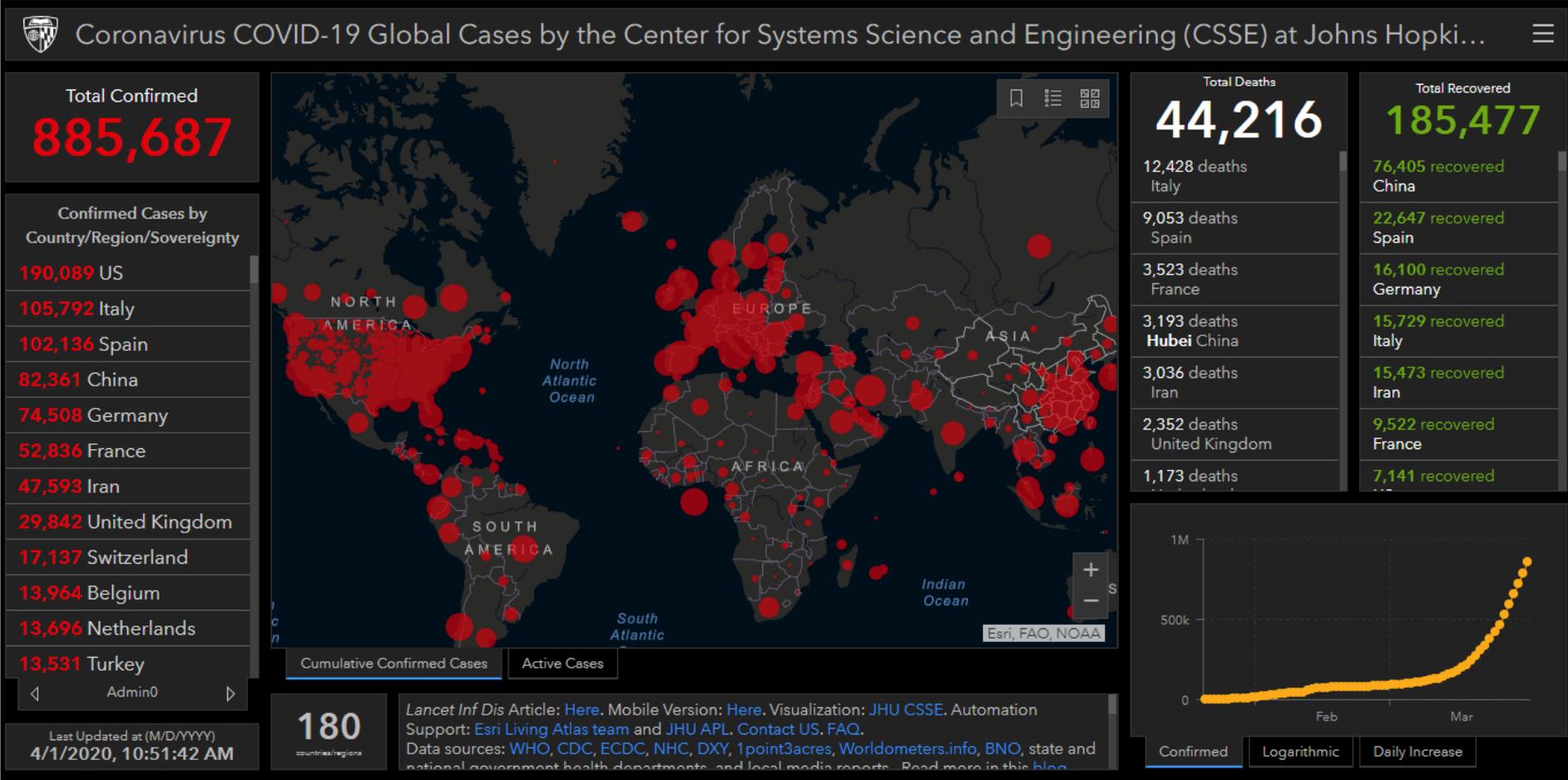
Early Timeline of COVID-19

- Dec 26, 2019: 4 unusual cases of pneumonia noticed in one hospital
- Dec 31, 2019: Chinese officials in Wuhan in China's central Hubei province confirmed dozens of cases of pneumonia from an unknown cause.
- Jan 7, 2020: Outbreak identified as a novel coronavirus (2019-nCoV)
- Jan 11, 2020: China reported its first known death from an illness caused by the coronavirus
- Jan 20, 2020: WHO situation report detailed the first confirmed cases outside China in Thailand, Japan and South Korea.

Early Timeline (continued)

- Jan 21, 2020: USA announced its first confirmed coronavirus case — a man in his 30s in Washington state.
- Jan 23, 2020: China placed Wuhan, a city of 11 million people, under quarantine orders. All flights and trains departing from the city were canceled, and buses, subways and ferries within the city were suspended.
- Jan 24, 2020: Another 15 Chinese cities shut down
- Jan 30, 2020: WHO declared the outbreak a global public health emergency as more than 9,000 cases were reported worldwide, including in 18 countries beyond China.

COVID-19 Cases



Courtesy of Johns Hopkins University: <https://systems.jhu.edu/research/public-health/ncov/>

Quarantine and Isolation

Quarantine vs. Isolation

Quarantine

- To separate and restrict the movement of **well** persons who may have been exposed to a communicable disease
- Monitor to see if they become ill
- These people may have been exposed to a disease and do not know it, or they may have the disease but do not show symptoms
- Quarantine can also help limit the spread of communicable disease.

Isolation

- To separate **ill** persons who have a communicable disease from those who do not have that disease
- Restricts the movement of ill persons to help stop the spread of certain diseases
- Example: Isolation for patients with infectious tuberculosis

Quarantine

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Ethical Considerations with Quarantine

- Quarantine more ethically problematic than isolation
 - Confinement of “healthy” individuals
 - May increase chances of infection
- Quarantine induces physical, cognitive, emotional and spiritual isolation
- Considerations of coercion
- Protections of human and national security
- Moral obligations of individuals

History of Quarantine

- Old Testament:
 - Lepers
- The Middle Ages:
 - Plague epidemics
- Early American Quarantine:
 - Yellow fever outbreaks
- Late 19th Century:
 - Cholera outbreaks
- Public Health Service Act:
 - Established federal government's quarantine authority
- Center for Disease Control and Prevention



Spanish Flu Pandemic 1918-19

- Inconsistent measures:
 - Mass graves
 - Suspension and closure of public gathering places
 - Prohibitions on public gatherings
 - Ordinances
 - Quarantines and isolations

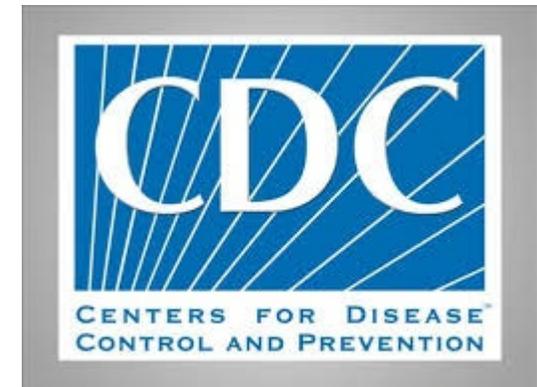


21st Century Quarantine Measures

- SARS:
 - Timely quarantine and isolation practices reduced spread
 - Travel restrictions
 - Contact Tracing
- Ebola in West Africa:
 - Sella Kafta in Sierra Leone:
 - Village of 1000 inhabitants placed under quarantine for 3 weeks after death of one villager from Ebola
 - Curfew in place
 - No movement between houses
 - Enforced by soldiers and police

Legal Authorities for Quarantine in the US

- Police Power
- US: Federal Law
- CDC's Role
- State and Local Law
- Enforcement
- Federal Quarantine rarely used



Quarantinable Diseases

- Determined by Executive Order
- List of diseases:
 - Cholera
 - Diphtheria
 - Infectious Tuberculosis
 - Plague
 - Smallpox
 - Yellow Fever
 - Viral Hemorrhagic Fevers
 - **Severe acute respiratory syndromes**
 - Influenza caused by novel or re-emergent influenza viruses that are causing, or have the potential to cause, a pandemic

Legal Rights under Quarantine

- Right of Habeas
 - Determines whether there is sufficient cause to justify detention
 - Constitutional right, cannot be infringed by federal or state entities
- Right to Counsel
 - Federal – right to counsel at medical review
 - State – varies, only 23 states explicitly allow for the right to counsel in the state regulations
- Right to Food, Medicine, and Other Necessities
 - Federal – Provides adequate food and water, appropriate accommodation, appropriate medical treatment, and means of necessary communication
 - State – Varies, some states require individuals to pay for their own needs
- Right to Lost Compensation
 - Federal – no provision
 - State – Varies, 20% of states provide employment protection for quarantined individuals

Model Public Health Act

- Least restrictive means necessary to prevent the spread of a contagious or possibly contagious disease to others
- Isolated individuals must be confined separately from quarantined individuals
- The health status must be monitored regularly
- How to move from quarantine to isolation
- How to terminate isolation or quarantine
- Addressing needs of those in isolation or quarantine
- Safe and hygienic maintenance of facilities
- Respect for cultural and religious beliefs

Range of Quarantine Strategies

- Short-term, voluntary home curfew
- Restrictions on the assembly of groups of people
- Cancellation of public events
- Suspension of public gatherings
- Closings of public places
- Restrictions on travel
- Closure of mass transit systems
- Restrictions on passage into and out of an area

Combine with other public health tools, and does not have to be absolute to be effective

Isolation

Different Types of Isolation

- Varies with the mode of spread and severity of the disease
- Hospital isolation
 - Standard isolation
 - Strict isolation
 - Contact isolation
 - Protective isolation
 - High security isolation
- Home isolation



Home Isolation Criteria

- Primary caregiver is available to provide necessary care that the patient is unable to provide for their self as well as help monitor the person's condition.
- Household members not providing care can be re-located. If relocation of household members is not possible, their contact with the patient should be minimized. Persons at risk of serious complications should not have contact with the patient.
- Telephone is available.
- A separate bedroom is available.

Support Needed for Home Isolation

- Surgical masks for the patient to wear (if possible) when caregiver is present
- Food and water
- Daily cleaning of patient's room and bathroom, as well as any bodily fluids spilled during the day
- Medicines and medical consultations
- Mental health and psychological support services
- Other supportive services, i.e. day care, etc.
- Transportation to medical treatment, if required



Application of Isolation and Quarantine Policies to COVID-19 in the US

Quarantine for Returning Travelers

- Jan 31, 2020: The White House announced that it would ban entry for most foreign nationals who had traveled to China within the last 14 days.
- Also impose quarantine to US citizens returning from impacted areas.
- Repatriation of US citizens and mandatory quarantine
- Repercussions for breach of quarantine

How did it work?

- 195 people evacuated from Wuhan under federal order
- At that time, only 6 infections known in US
- Held at Californian Airforce Base
- Tested for virus
- Twice daily temperature checks
- Prevents transmission should they develop symptoms
- Allows rapid identification of early symptoms
- Initiated given concerns for asymptomatic transmission



Cruise Ships

- Coronavirus appears to spread more easily between people in close quarters aboard ships and boats
- Cruise ships house many travelers from many countries
- Often have travelers >65 years of age
- >800 cases of COVID-19 on 3 cruise ships; 10 deaths
- Social distancing and quarantine difficult to maintain on cruise ships
- CDC and US government recommend avoiding cruise travel



Person to Person Transmission

- January 30, 2020: CDC announces limited person to person spread in the US
- Guidelines developed to reduce transmission
- Quarantine for known close contacts



Quarantine “Rules”

- Stay home until 14 days after arrival and maintain a distance of at least 6 feet (2 meters) from others
- Self-monitor for symptoms
 - Check temperature twice a day
 - Watch for fever, cough, shortness of breath
- Avoid contact with people at higher risk for severe illness (unless they live in the same home and had same exposure)
- Follow CDC guidance if symptoms develop

Isolation Practices for COVID-19

- Identify patients with symptoms of respiratory illness as soon as possible and place in mask
- If patient has traveled to areas of interest or has been in contact with a confirmed case or another PUI
 - Isolate patient as safely possible without causing alarm or disruption to clinical areas
 - Maintain adherence to hand hygiene (both HCWs and patient)
 - Provided appropriate PPE to HCWs

Discontinuation of Isolation

- **Persons with COVID-19 diagnosed clinically:**
 - At least 3 days (72 hours) have passed *since recovery* defined as resolution of fever without the use of fever-reducing medications **and** improvement in respiratory symptoms (e.g., cough, shortness of breath); **and**,
 - At least 7 days have passed *since symptoms first appeared*
- **Persons who have COVID-19 where testing is available:**
 - Resolution of fever without the use of fever-reducing medications **and**
 - Improvement in respiratory symptoms (e.g., cough, shortness of breath) **and**
 - Negative results of two COVID-19 tests collected ≥ 24 hours apart

Isolation and Quarantine Scenarios

Scenario	Plan for Care
Contact with known patient	Quarantine for 14 days
Recent travel to high risk area	Quarantine for 14 days
Symptoms, not yet diagnosed	Isolate in clinical setting
Symptomatic, mild symptoms not requiring inpatient care	Isolate at home
Symptomatic, severe disease/critically ill	Hospital isolation

Contact Tracing

What is Contact Tracing?

- Part of the epidemiological investigation
- Identifies source of infection
- Identifies factors influencing spread
 - Geographical situation
 - Climatic conditions
 - Social, cultural and behavioral patterns
 - Character of agent
 - Reservoirs for vectors
 - Susceptible host populations



Close Contact

- Being within approximately 6 feet (2 meters) of someone with COVID-19 for a prolonged period of time.
- Living with, visiting or sharing a healthcare waiting area or room with someone with COVID-19.
- Coughed on by someone with the disease.

Contact tracing done by health departments

Social Distancing

What is Social Distancing?

Deliberately increasing the physical space between people to avoid spreading illness

- Avoidance of large gatherings
- Keep 6 feet (2 meters) between people
- Avoid shopping centers, movie theaters, stadiums
- Work from home
- Close schools or switch to online classes
- Visit loved ones by electronic devices instead of in person
- Cancel conferences and large meetings

How Do We Know If It Is Working?

- Timing
- Case Reports
- Hospitalizations
- Impacts on healthcare system
- Traffic
- Transit
- Telecommuting



Social Distancing for COVID-19 - China

Timing is imperative

- Wuhan shut down the city when they had 500 cases for a population of 10 million
- Shutdown occurred 4 weeks before predicted peak of ICU need
- Likely resulted in a lower peak of cases given time for implementation and length of shutdown
- No new cases for 5 consecutive days
- Question of resurgence: **Gradually relax** restrictions

USA: 15 Days to Slow the Spread

- Work or school from home
- Avoid social gatherings of more than 10 people
- Use drive-thru, pick up or delivery food options
- Avoid discretionary travel
- Do not visit nursing homes
- Practice good hygiene



Travel Restrictions

- International restrictions
- Domestic Restrictions



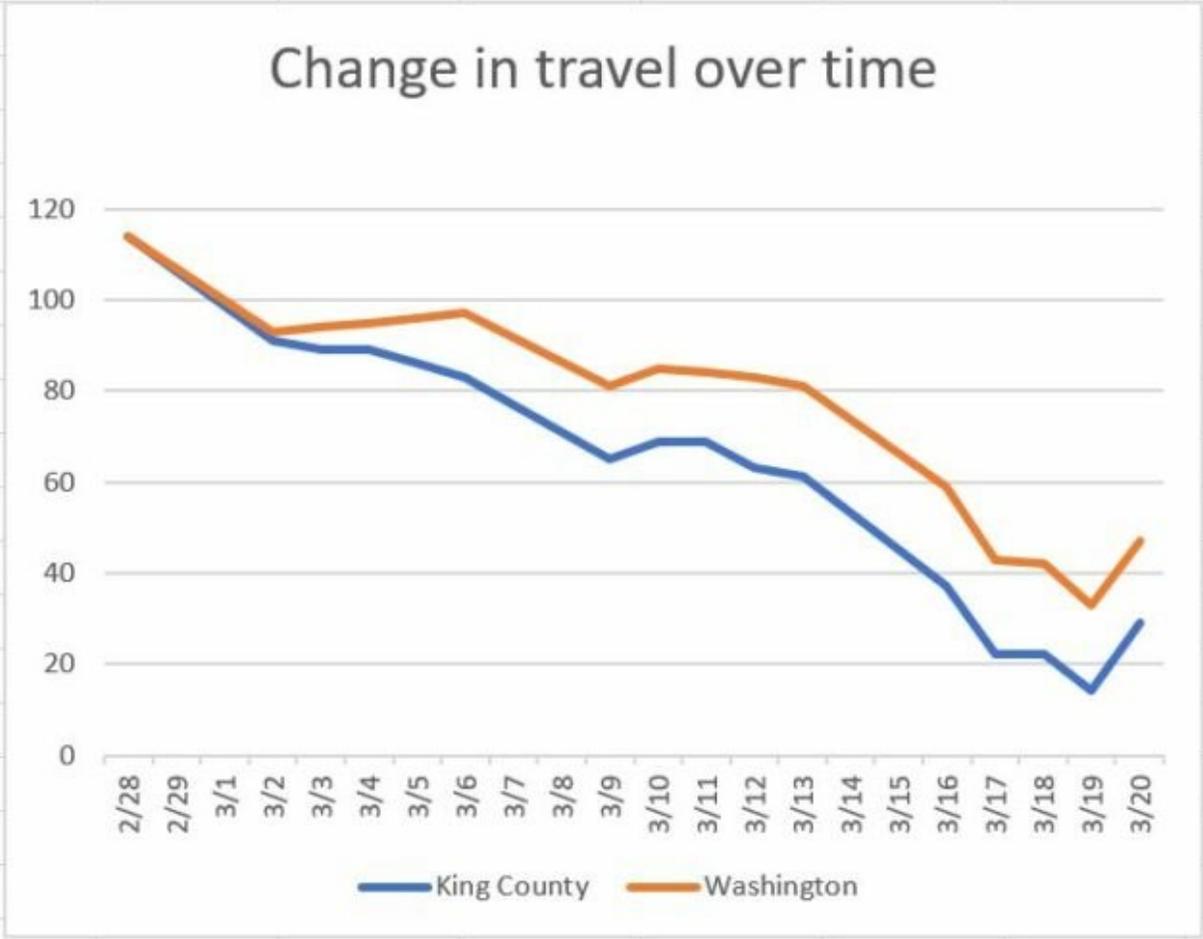
TEMPORARY TRAVEL BAN
AS OF 26 FEBRUARY 2020

In compliance with the direction from Malasakit, as recommended by the Inter-Agency Task Force for the Management of Emerging Infectious Diseases.

[immigration-helpdesk.ph](https://www.dfa.gov.ph/immigration-helpdesk)

	BAN ON ARRIVING PASSENGERS	BAN ON DEPARTING PASSENGERS	TRANSITING PASSENGERS
CHINA	All foreign nationals Exemptions: - Filipinos and their spouse or children	All Filipinos	
MACAO	- Foreigners with Philippine permanent resident visas - Members of the diplomatic corps	All Filipinos	Not allowed
HONG KONG	All foreign nationals coming from North Gyeonggi province, Daegu and Cheongdo	Exemptions: - Filipino holders of permanent resident visas, student visas, or work visas in said countries	Allowed as long as does not transit through North Gyeonggi province, Daegu and Cheongdo
SOUTH KOREA	Exemptions: - Filipinos and their spouse or children - Foreigners with Philippine permanent resident visas - Members of the diplomatic corps		

Social Distancing in the US - Seattle



School Closures

- Issues of school closures
- Decontamination and contact tracing
- Absenteeism due to illness
- Community mitigation strategy
- ? Effectiveness

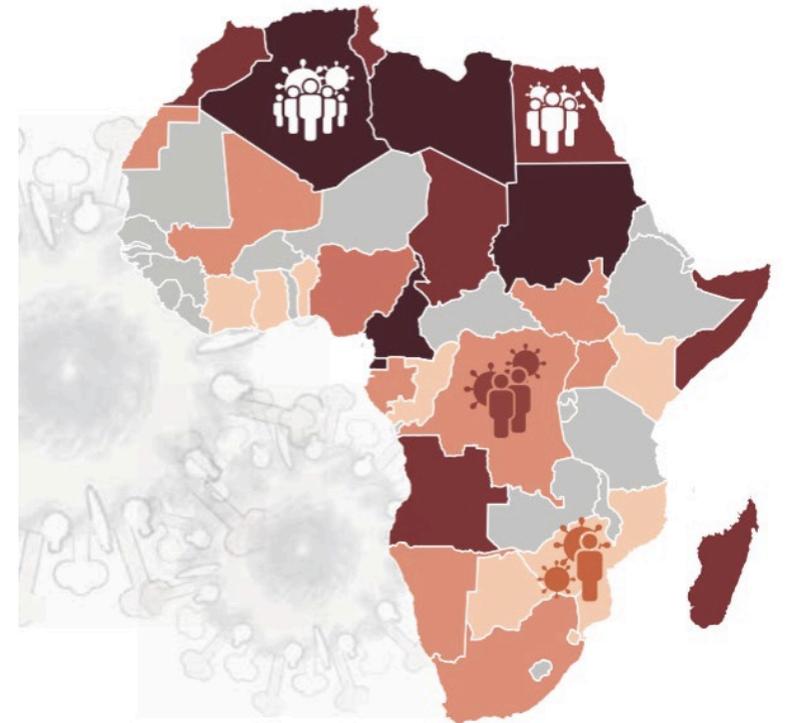


Coronavirus in Africa

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Efforts to Slow the Spread in Africa

- Travel restrictions:
 - Incoming and outgoing
- Border closures
- Bans on entry
- Lockdowns
- Africa CDC has pandemic plans in place to guide response



Coronavirus on a College Campus

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Key Considerations at Columbia University

- Communication:
 - Health advisories to community starting January 23, 2020
 - Preparedness website and FAQs
 - COVID-19 helpline
- Planning:
 - Infectious Disease Working Group
 - COVID-19 Task Force

Campus Operations

- Travel restrictions
- Quarantine for returning travelers
- Study abroad recall
- Class suspension
- Event policy
- Case notifications
- Online instruction
- Undergraduate move out
- Spring semester and campus operations



Conclusions

Modeling

- Estimate number of infections occurring at 80 days after the first 100 cases of community:
 - In a scenario when the virus was least infectious (assuming each case infects another 1.5 people), a median 279,000 infections would occur by day 80.
 - Decreases to 1800 with mitigation measures, when all of the following were enacted: isolation of infected individuals plus family quarantine, workplace distancing, and school closures.
- Of note, assuming a more infectious virus (one case infects another 2.5 people), there would be over 1.2 million infections at day 80 with no social distancing measures — and 258,000 with all measures in place.

The Lancet: Interventions to mitigate early spread of SARS-CoV-2 in Singapore: a modeling study

Final Thoughts.....

- In order to be successful, any of these strategies need to be implemented:
 - At the right time
 - For the right period of time
 - Thoroughly and completely
- Weigh the economic, political, and social costs against the severity of circulating virus.



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