Outline

- Coronavirus Background
- Coronavirus Disease 2019 (COVID-19)
  - Emergence of COVID-19
  - Transmission
  - Symptoms
- COVID-19 Prevention and Treatment
- Infection Prevention and Control (IPC) for COVID-19
Coronavirus Background
Coronaviruses (CoV)

- Coronaviruses are a large family of viruses that can cause illness in animals or humans.
- In humans, several known coronaviruses can cause respiratory infections:
  - Ranging from the common cold to more severe diseases such as severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS) and coronavirus disease 2019 (COVID-19).
Coronavirus Disease 2019 (COVID-19)
COVID-19: Emergence

- Identified in Wuhan, China in December 2019
- COVID-19 is caused by the virus SARS-CoV-2
- Early in the outbreak, many patients were reported to have a link to a large seafood and live animal market
  - Later, no link to the market indicating person-to-person spread of the disease
- Travel-related exportation of cases reported

https://www.healthpolicy-watch.org/
COVID-19: Transmission

- The primary transmission of COVID-19 is from person to person through respiratory droplets
  - Droplets are released when someone talks, sneezes, or coughs
  - Infectious droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs
- COVID-19 may also be spread if you touch contaminated objects and surfaces
- Recent data suggest transmission by people who are not showing symptoms
COVID-19: Transmission

- Current data do not support long range aerosol transmission of SARS-CoV-2 such as with measles and tuberculosis.
- As with many respiratory pathogens, short-range inhalation aerosols is a possibility for COVID-19 transmission.
  - Particularly in crowded medical wards and inadequately ventilated spaces.
- Certain procedures in health facilities can generate fine aerosols and should be avoided whenever possible.

COVID-19: Symptoms

- Wide range of symptoms reported*
  - Fever or chills
  - Cough
  - Shortness of breath or difficulty breathing
  - Headache
  - Nasal congestion or runny nose
  - Muscle or body aches
  - Sore throat
  - New loss of smell or taste
  - Diarrhea (may be present in some patients)

Estimated incubation period: 2 to 14 days

* https://www.who.int/publications-detail/clinical-management-of-covid-19

44,672 patients

- Mild: 80.9%
- Severe: 13.8%
- Critical*: 4.7%
- Missing: 0.6%

* 1,023 (49%) deaths among 2,087 critically ill patients

COVID-19: People at higher risk for severe illness

- In some cases, people who get COVID-19 can become seriously ill and develop difficulty breathing
  - These severe complications can lead to death
- The risk of severe disease increases steadily as people age
- Those of all ages with underlying medical conditions appear to be at higher risk to develop severe COVID-19 compared to those without these conditions
- As more data become available, additional risk factors for severe COVID-19 may be identified
COVID-19 Prevention and Treatment
COVID-19: Everyday preventative actions

- Avoid touching your eyes, nose, and mouth
- Avoid close contact with people who are sick
  - Remember that people without symptoms can still spread the virus
- Stay at home when you are sick
- Cover your cough or sneeze with a tissue, then dispose of it properly
- Use a face covering when physical distancing is difficult or when going into closed spaces
- Clean and disinfect frequently touched objects and surfaces
- Perform hand hygiene with soap and water or use alcohol-based hand rub
COVID-19: Treatment

- Currently, care for patients is primarily supportive:
  - Relieve symptoms
  - Manage respiratory, and other organ, failure
- There are no specific antiviral treatments currently licensed for COVID-19
  - Many treatments are under investigation
  - Remdesivir, which is also an investigational drug, received Food and Drug Administration (FDA) emergency use authorization for treatment of hospitalized patients*
- No vaccine is currently available

* FDA: https://www.fda.gov/media/137564/download
Infection Prevention and Control (IPC) for COVID-19
What is IPC?

- The practice of preventing or stopping the spread of infections during healthcare delivery
  - Hospitals, outpatient clinics, dialysis centers, long-term care facilities, traditional practitioners

- IPC Goal for COVID-19: To support the maintenance of essential healthcare services by containing and preventing COVID-19 transmission within healthcare facilities to keep patients and healthcare workers healthy and safe
COVID-19: IPC Priorities

- Rapid identification of suspect cases
  - Screening/triage at initial healthcare facility encounter and rapid implementation of source control
  - Limiting entry of healthcare workers and/or visitors with suspected or confirmed COVID-19

- Immediate isolation and referral for testing
  - Group patients with suspected or confirmed COVID-19 separately
  - Test all suspected patients for COVID-19

- Safe clinical management
  - Immediate identification of inpatients and healthcare workers with suspected COVID-19

- Adherence to IPC practices
  - Appropriate personal protective equipment (PPE) use
Standard and Transmission-Based Precautions

- **Standard Precautions**
  - Set of practices that apply to care of all patients in all healthcare settings

- **Transmission-Based Precautions**
  - Set of practices specific for patients with known or suspected infectious agents that require additional control measures to prevent transmission
  - Used in addition to Standard Precautions
Standard Precautions

- Hand hygiene
- Personal protective equipment (PPE)
- Respiratory hygiene and cough etiquette
- Cleaning and disinfection of devices and environmental surfaces
- Safe injection practices
- Medication storage and handling
COVID-19: Transmission-Based Precautions

- Wear PPE for contact and droplet precautions*
  - Unless an aerosol-generating procedure is performed, in which case airborne precautions are needed
- Use disposable or dedicated patient care equipment (e.g., stethoscopes, blood pressure cuffs)
  - If equipment needs to be shared among patients, clean and disinfect it between use for each patient by using ethyl alcohol of at least 70%

*WHO recommendations
COVID-19: Transmission-based precautions

- Use adequately ventilated single rooms (preferable) or dedicated COVID-19 ward rooms with dedicated bathrooms
  - Bathrooms should be cleaned and disinfected twice daily
- Avoid transporting COVID-19 patients out of room unless medically necessary
  - Place a mask on COVID-19 suspected or confirmed patients if transport out of a room is medically necessary
  - Healthcare workers should wear appropriate PPE during transport*
- Designate healthcare workers to care for patients with COVID-19
- Restrict the number of visitors allowed

* https://www.who.int/publications-detail/rational-use-of-personal-protective-equipment-for-coronavirus-disease-(covid-19)-and-
considerations-during-severe-shortages
COVID-19: PPE

Healthcare workers should:

- Use a medical mask (i.e., at least a surgical/medical mask)
  - N95 respirator for aerosol-generating procedure
- Wear eye protection (goggles) or facial protection (face shield)
- Wear a clean, non-sterile, long-sleeved gown
- Use gloves

Healthcare workers should be trained on correct use of PPE, including putting on and taking off PPE

- Extended use and re-use of certain PPE items (e.g., mask, gown) can be considered if supply shortage

Risk of self-contamination is high when removing PPE

Instructions for putting on and removing PPE:
https://www.who.int/csr/resources/publications/ppe_en.pdf?ua=1
Aerosol-Generating Procedures

- Endotracheal intubation
- Bronchoscopy
- Non-invasive ventilation
- Tracheostomy
- Manual ventilation before intubation
- Cardiopulmonary resuscitation
- Sputum induction
- Autopsy procedures

PPE Recommendations for aerosol-generating procedures performed on COVID-19 patients:

- A fitted respirator (N95, FFP2, or equivalent) as opposed to surgical/medical masks
- Gloves
- Gown
- Eye protection (goggles/face shield)

Infection Prevention and Control Resources for COVID-19 in non-US Healthcare Settings

- Strategic Priority IPC Activities for Containment and Prevention
- Triage SOP
- Identification of Healthcare Workers and Inpatients with Suspected COVID-19
- Management of Visitors to Healthcare Facilities
- Interim Operational Considerations for Public Health Management of Healthcare Workers Exposed to or Infected with COVID-19
- Operational Considerations in Outpatient Facilities
The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.