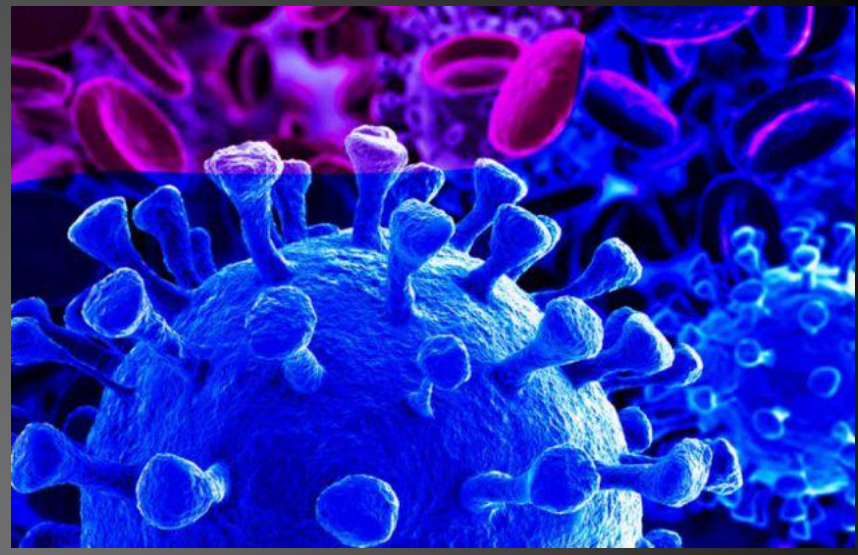


COVID-19 Introduction

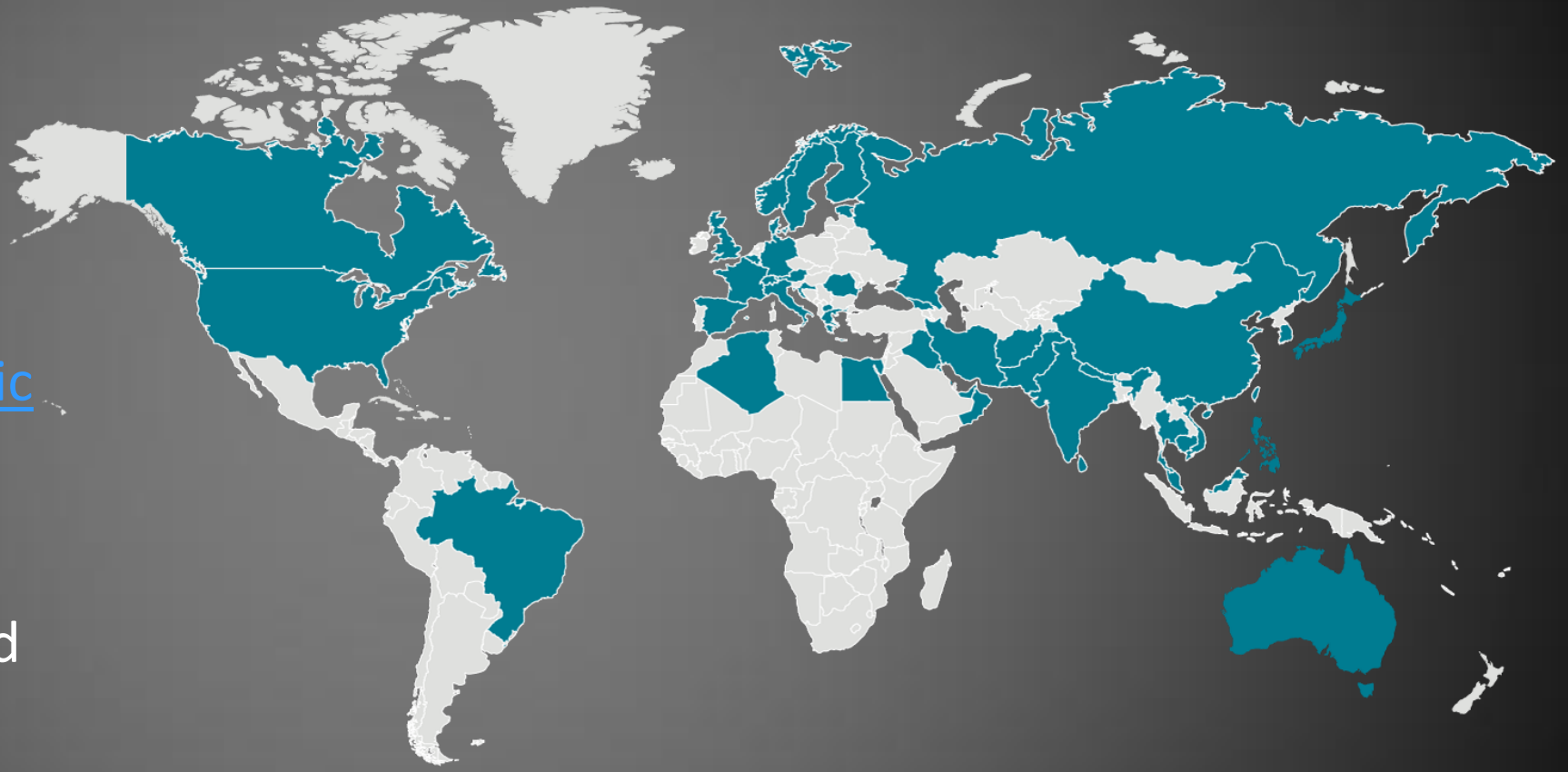
Session 1

Objectives

- Discuss COVID-19 latest updates
- Present clinical course of patients with COVID-19

COVID-19

- SARS-CoV-2 virus is a betacoronavirus, like MERS-CoV and SARS-CoV
- Origins in bats
- January 30, 2020 Public health emergency of international concern
- Over 80 countries
- Over 90,000 confirmed
- Over 3,000 deaths



COVID-19 Risk Assessment

- The risk from the outbreak depends on:
  - Characteristics of the virus
    - How well it spreads between people
    - The severity of resulting illness
  - Medical or other measures available to control the impact of the virus (for example, vaccine or treatment medications)

COVID-19 Spread

- Person-to-person spread
  - Via respiratory droplets among close contacts
- Spread from contact with infected surfaces or objects
- Most contagious when they are most symptomatic (the sickest)
- Less from asymptomatic

Illness Severity

- Mild to severe, including illness resulting in death
  - Fever
  - Cough
  - Shortness of breath
- 2 -14 days after exposure

Clinical Presentation

- Reports for confirmed COVID-19 limited to hospitalized patients with pneumonia
- Incubation period around 5 days (95% CI; 4 - 7 days)
- Fever (83–98%), cough (46%–82%), myalgia or fatigue (11–44%), and shortness of breath (31%) at illness onset
- Sore throat and less commonly sputum production, headache, hemoptysis, and diarrhea
- Gastrointestinal symptoms such as diarrhea and nausea prior to developing fever and lower respiratory tract signs and symptoms

Risk factors for Severe Illness

- Older patients
  - Adults (median age 59 years)
- Chronic medical conditions
  - Diabetes
  - Hypertension
  - Cardiovascular disease

Clinical Course

- Asymptomatic infection or mild illness to severe or fatal illness
- Potential for clinical deterioration during the second week of illness
- Dyspnea (median of 8 days after illness onset (range: 5–13 days))
- Mean time from illness onset to hospital admission with pneumonia of 9 days
- Acute respiratory distress syndrome (ARDS) developed in 17–29% of hospitalized patients
- Median time from symptom onset to ARDS was 8 days
- Secondary infection developed in 10%

Critically Ill

- 23–32% of hospitalized patients with COVID-19 and pneumonia require intensive care for respiratory support
- 11% received high-flow oxygen therapy
- 42% received noninvasive ventilation
- 47% received mechanical ventilation
- Advanced organ support with endotracheal intubation and mechanical ventilation 4–10%

Critically Ill

- Extracorporeal membrane oxygenation (ECMO) 3–5%
- Other reported complications include acute cardiac injury, arrhythmia, shock, and acute kidney injury
- Among hospitalized patients with pneumonia, the case fatality proportion has been reported as 4–15%

Diagnostic Testing

- RT PCR (rRT-PCR) assays for the in vitro qualitative detection of 2019-Novel Coronavirus (2019-nCoV)
- Respiratory specimens including: nasopharyngeal or oropharyngeal aspirates or washes, nasopharyngeal or oropharyngeal swabs, broncheoalveolar lavage, tracheal aspirates, and sputum.

Laboratory and Radiographic Findings

- Laboratory abnormalities reported among hospitalized patients with pneumonia on admission included:
  - Leukopenia (9–25%)
  - Leukocytosis (24–30%)
  - Lymphopenia (63%)
  - Elevated alanine aminotransferase and aspartate aminotransferase levels (37%)
- Chest CT images have shown bilateral involvement in most patients (multiple areas of consolidation and ground glass opacities)

Clinical Management and Treatment

- Prompt implementation of recommended infection prevention and control measures
- Supportive management of complications, including advanced organ support if indicated
- Investigational
  - Intravenous remdesivir
  - Combination lopinavir-ritonavir
  - Choloroquine

Pregnant Women

- No clear information about susceptibility of pregnant women to COVID-19
- Unclear adverse pregnancy outcomes
  - Pregnancy loss, including miscarriage and stillbirth
  - Better to test exposed pregnant women
- No reported vertical transmission (passing the virus to their fetus or newborn)
- No evidence of virus in the breast milk of women with COVID-19

Questions?