



COVID-19 Clinical Care

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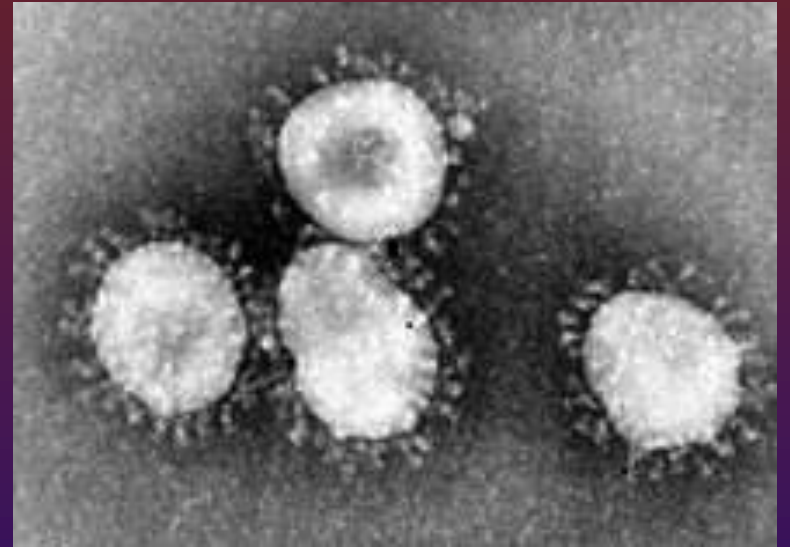
Virology

❖ Coronavirus family

- ❖ Four common cold coronaviruses
- ❖ SARS CoV-1
- ❖ MERS
- ❖ SARS CoV-2

❖ Structure:

- ❖ Single stranded (+) sense RNA virus
- ❖ Host derived nuclear membrane
- ❖ Helical nucleocapsid
- ❖ Glycoprotein spikes on the cell surface form the **corona**





Origin

- ❖ **Zoonotic origin**

- ❖ Bat: Rhinolopus
- ❖ Pangolin??

- ❖ **History:**

- ❖ First appeared in a seafood market in Wuhan, Hubei Province, China at the very end of 2019

- ❖ **Rapid spread worldwide**

- ❖ Now reported in all AZ, NM, CO and UT
- ❖ No reported cases on Navajo





Clinical Manifestations

❖ Transmission

- ❖ Droplet is predominant mode of spread
- ❖ Contact is secondary

❖ Incubation Period (Lauer et al, Ann Intern Med, 2020)

- ❖ **5.1 days** from infection to symptoms [2-14 day range]
- ❖ 97.5% acquire their symptoms within **11.5 days**
- ❖ 101 out of 10,000 cases will develop symptoms after 14 days of quarantine



Clinical Manifestations

(Zhou et al, Lancet, 2020)

❖ Symptoms:	Frequency
❖ Fever (≥ 37.3 C)	94%
❖ Cough	79%
❖ Sputum	23%
❖ Myalgia	15%
❖ Fatigue	23%
❖ Diarrhea	4%



Clinical Manifestations

(Zhou et al, Lancet, 2020)

❖ Lab findings

- ❖ Leukopenia
- ❖ Leukocytosis
- ❖ Lymphopenia
- ❖ Thrombocytopenia
- ❖ ALT > 40

Frequency

17%

21%

40%

7%

31%

❖ Radiology

- ❖ Ground glass opacity on CT
- ❖ Consolidation
- ❖ Bilateral Infiltrates

71%

59%

75%



Clinical Manifestations

❖ Complications: (Zhou et al, Lancet, 2020)

❖ Sepsis	59%
❖ Respiratory failure	54%
❖ ARDS	31%
❖ Heart Failure	23%
❖ AKI	15%

❖ ARDS predictors:

- ❖ age >65, hi LDH, hi D-dimer, neutrophilia (Wu et al., JAMA Int Med 3/13/2020)



Clinical Manifestations

(Zhou et al, Lancet, 2020)

❖ Predictors of Mortality on admission

- ❖ Older Age: Odds Ratio of 1.1 per year increase
- ❖ High SOFA Score: 1 in survivors, 4.5 in non survivors, OR of 5.65
- ❖ D Dimer: > 1 mcg/L

❖ Time Course:

- ❖ Illness onset to discharge 22 days
- ❖ Illness onset to death 18.5 days
- ❖ Illness onset to intubation 14.5 days
- ❖ Viral Shedding 22 days (8-37 days range)



Clinical Manifestations

- ❖ Community cases: 80% are mild
- ❖ Asymptomatic transmission happens
 - ❖ Clinical report of transmission from minimally symptomatic persons
 - ❖ **Serial Interval** between cases is 4.6 days
- ❖ Viral load spikes at the onset of symptoms



COVID-19: Who to test?

- ❖ Hospitalized patient with illness consistent with COVID-19 for **infection control purposes**
- ❖ Symptomatic **elders**, persons with **chronic illnesses** or **immunocompromised state**: (DM, CHF, CKD, COPD, immunosuppressive drug recipients)
- ❖ Contact within 14 days of a **lab confirmed case of COVID-19** or **travel** within 14 days to a **high risk geographic regions**



COVID-19 Diagnosis

❖ State Lab/CDC testing

- ❖ Nasopharyngeal PCR in viral transport medium alone preferred by CDC
- ❖ Oropharyngeal PCR in viral transport medium
- ❖ Sputum specimen (after rinse) in sputum cup

❖ Labcorp/Quest

- ❖ Nasopharyngeal swab for PCR in viral transport medium frozen



COVID-19 Precautions

❖ Airborne and contact isolation for aerosol generating procedures

- ❖ N95 mask, gloves, gowns and goggles or face shield for:
 - ❖ Nasal/Oral Suction
 - ❖ Sputum induction
 - ❖ Nebulized medications
 - ❖ Intubation
- ❖ Airborne Isolation room required

❖ Non aerosol generating procedures

- ❖ Surgical masks, gloves, gowns and goggles or face shield.
- ❖ Single room with door shut is OK if not generating aerosols
- ❖ Use N95 mask when more widely available



COVID-19 Treatment

- ❖ No FDA approved drugs available
- ❖ Experimental drugs:
 - ❖ Remdesivir (NIH trial, University of Nebraska)
 - ❖ Chloroquine
 - ❖ Lopinavir/ritonavir
- ❖ Supportive Care
 - ❖ Mechanical ventilation
 - ❖ ECMO
 - ❖ Home care for mild cases: Public Health Nurses phone call or home visit (with PPE)
- ❖ Methylprednisolone beneficial in ARDS (Wu et al., JAMA Int Med 3/13/2020)



More COVID-19 Training

- ❖ **CDC:** <https://www.cdc.gov/coronavirus/2019-ncov/hcp/index.html>
- ❖ Watch **COVID-19 Ebola Center video**
- ❖ Do **ACP Physician Handbook course**
- ❖ **U of Washington:** <https://covid-19.uwmedicine.org/Pages/default.aspx>

