

OHSU COVID-19 Brief Summary

Disease = COVID-19; **Virus** = SARS-CoV-2

- Incubation time from exposure to illness 4-14d
- Viral shedding, median ~3 weeks
- Asymptomatic carriers may transfer virus
- Current estimates: ~80% mild disease
 - ~14% requiring hospitalization, ~5-8% ICU

Transmission: Droplet

- Person→person; surface→person (hand to face)
- Cough droplets, ~6 foot radius
- Aerosolization can lead to airborne virions x3 h
- Virus can survive on hard surfaces for 3 days
- Cover your cough (tissue, inner arm)
- Wash your hands thoroughly
 - Soap + water, >20 sec; hand sanitizer
- Social Distancing→ Flatten the Curve

Signs/Symptoms

- **Cough**: 68-82%; **Dyspnea**: 19-64%
- Runny Nose: 4-24%
- **Fever**: 43-86% (higher % in critically ill)
 - Absence of fever does not exclude COVID-19
- GI: Nausea/vomiting/diarrhea: 1-10%
- Myalgias/malaise: 11-15%

Lab Findings

- CBC: normal WBC, lymphopenia in 80%.
 - thrombocytopenia common
- Coags: Generally normal. DIC may evolve.
- CMP: increased BUN, CR, AST, ALT, Tbili
- Elevated LDH, CRP; low procalcitonin

Imaging

- CXR: bilateral Patchy ground glass opacities (GGO), basal and peripheral predominance.
- CT: bilateral GGO, consolidation, crazy paving, Very rarely unilateral.
- Lung Ultrasound: B-lines, consolidation, air bronchograms, pleural thickening.
- Significant pleural effusions *uncommon*

Diagnosis

- RT-PCR from nasopharyngeal swab, nasal lavage, tracheal aspirate or BAL
 - Avoid bronch for dx -> incr transmission risk
 - Specificity of test high: Low false positives
 - Sensitivity unclear, likely 70-80%.
- For high risk patients, may repeat test if initial negative. Continue isolation/precautions and Consult with ID.

Isolation/PPE

- Place patient in negative/neutral airflow room.
- **Contact + droplet precautions + eye protection** for all confirmed and pending COVID patients
 - Use COVID 19 isolation order in EPIC
- During and 3 hours after *aerosol-generating procedures* → airborne precautions (**N95/PAPR**)
 - Intubation, extubation, HFNC, bronchoscopy, NIPPV, sputum induction, BMV, CPR, etc
- Limit staff who enter room to minimum required for necessary care
- PPE removal equally important! Careful, deliberate doffing minimizes droplet spread/ exposure.
<https://o2.ohsu.edu/covid-19/faq.cfm#PPE>

Support of oxygenation and ventilation

- Nonbreather Mask (NRB) first line > HFNC. Avoid NIPPV if possible to decrease risk of virus transmission
- Early threshold for intubation due to potential for abrupt decline; avoiding crash intubation.

Airway management

- RSI with video laryngoscope by most experienced provider
- BMV has been linked to aerosolization and infection spread during 2003 SARS. Consider supraglottic airway device if necessary
- Avoid open ETT circuit (eg ambu-bag ventilation after intubation). Clamp ETT or leave viral filter in place during swap to vent.

Mechanical Ventilation

- Lung protective ARDS ventilation; Vt<6 cc/kg IBW, high PEEP, permissive hypercapnia.
- Italy reports good response to proning*.

Medications

- Steroids NOT generally indicated. Early administration may increase viral shedding
 - Consider steroids if indicated for other conditions e.g. refractory septic shock, asthma/COPD
- Empiric Antibiotics if concern for superimposed bacterial pneumonia

Antivirals (work with ID Consult):

- Remdesivir: Adenosine analogue antiviral. First line for ICU patients, obtained from Gilead on compassionate use basis. Work with pharmacy!
- Hydroxychloroquine/Chloroquine: if remdesivir can't be obtained. Interferes with receptor and impairs virus trafficking. ID approval needed.
 - Hydroxychloroquine: QT prolongation; p450 inhibitor, risk of neurotoxicity; narrow therapeutic index. Consult with pharmacy.
- Lopinavir/ritonavir (Kaletra): limited data, studies pending, not first line.
- OHSU will be part of clinical trials of other drugs

Complications

- Adaptive immune phase may lead to pathologic inflammatory state and/or virus induced HLH.
- Multiorgan failure: AKI, acute liver injury, late fulminant cardiomyopathy appears to be major contributor to mortality (7-33%).

Prognostication

- Mortality for patients admitted to ICU ~ 61.5%
 - Recommend early GOC discussion.
- Risk factors for severe disease: older age, CAD, HTN, DM, baseline pulmonary disease.
- Worse prognosis with worsening lymphopenia, increased trop, CRP, ferritin, d-dimer > 1ug/L