

## MMG COVID Key Clinical Points

this has been excerpted from a combination of anecdotal clinical accounts from front-line caregivers as well as multiple on-line resources including the CDC

(<https://www.cdc.gov/coronavirus/2019-ncov/index.html>) and UW COVID-19 Resource guide (<https://medicine.uw.edu/news/covid-19-resources>)

**Clinical Course:** typically, 2-11 days after exposure (avg day 5); approx. 80% mild symptoms, 15% severe requiring hospitalization, 5% critical

- **Presenting symptoms** – typically flu-like:
  - fever (45%)
  - non-productive cough (50-80%)
  - dyspnea (20-40%)
  - URI symptoms (15%)
  - GI symptoms/diarrhea (10%)
  - anosmia, anorexia
  - Labs: leukopenia & lymphopenia (80%)
  - myalgia, fatigue, headache
  - presentation may be varied
    - 75% hypoxic without dyspnea, does NOT correlate with CXR (lungs do not sound sound bad – skip the stethoscope, watch the pulse ox)
    - Has also presented as encephalopathy, renal failure with dehydration, DKA
    - 20% cardiac injury, myocarditis, pericarditis, CHF, afib (<https://jamanetwork.com/journals/jamacardiology/fullarticle/2763524>); in suspected COVID pts with MI, many centers using TPA in the ED and rescue PCI only for TPA failure
- Day 5:
  - ↑ SOB
- Day 10:
  - Cytokine storm: ARDS, MSOF (indicated by elevated IL-6)
- **Labs**
  - Leukopenia, lymphopenia, may have thrombocytopenia
  - ↑ BUN/Cr
  - ↑ AST/ALT/Tbili/LDH
  - ↑ D-dimer (\*\*\*) be very cautious with CT and giving contrast to these patients – go into renal failure and on the vent sooner)
  - ↑CRP, ↑Ferritin
  - ↑ IL6
  - ↓ Procalcitonin (95% normal)

- **Imaging**
  - CXR: bilat peripheral opacities (most often starts in the RLL)
  - CT: peripheral ground glass opacities
- **Predictors of poor outcome**
  - **Ratio: absolute neutrophil/absolute lymphocyte > 3.5 predictor of poor outcome**
    - UK automatically intubating these pts regardless of clinical presentation
  - Thrombocytopenia
  - LFTs 5x nl

Key quotes from frontline providers:

- “if you have bilateral pneumonia with normal to low WBC, lymphopenia, normal procalcitonin, elevated CRP and ferritin – you have COVID-19. Do not need a nasal swab to tell you that”
- An elevated IL-6 is an indicator of their cytokine storm. Watch these pats closely with both eyes”

- **Oxygenation/Vent Management:**

Worldwide 86% pts requiring vent die; Seattle approx. 70%

- COVID-19-positive patients requiring oxygen should receive, in order:
  1. Nasal cannula, then
  2. Non-rebreather (NRB) mask if > 6 LPM of oxygen is required, then
  3. Intubation
- **Note: A non-rebreather mask is the ONLY option for escalation prior to intubation**
- AVOID any nebulizers, HFO2, NIV (CPAP/BiPAP), bag-mask ventilation, or bronchoscopy. Nebulizer treatments can generate viral aerosol, thus bronchodilator treatments via MDI’s (which patients can self-administer) should be used instead if needed.
- Consider transfer to ICU in preparation for controlled intubation if requiring escalation from 6L NC to NRB

### **Intubation of COVID-19-Positive Patients**

- Protective Gear:
- Full airborne precautions are required for all intubations, including properly fitting N95 and face shield or PAPR.
- Intubation personnel (limit number of people in the room during procedure) should include only:
  - Intubating physician (ED, PCCM, or anesthesia), single RT, single RN
- Intubation criteria guidelines:
  - PO2 < 65 or SaO2 < 92% on NRB mask OR

- Labored breathing with RR > 35-40, or PCO<sub>2</sub> > 50 (in patient w/o hx of chronic CO<sub>2</sub> retention) with pH < 7.30
- Do *not* wait for these criteria to be present before notifying the ICU physician if your patient is worsening; there may be cases in which intubation is performed before all these criteria are met.
- DO NOT INTUBATE without proper PPE (Aerosol generating procedure)
- Intubation with Rapid Sequence Intubation (RSI) recommended.
- Preoxygenate and *avoid bagging* both before and after intubation.
- Glidescope or Video Laryngoscopy with disposable blades should be used to minimize operator exposure to droplets
- Once intubated, avoid breaking the circuit for any reason including bagging. Use in-line suction.
- Other considerations:
  - ARDSnet protective lung ventilation
  - **DO NOT routinely give corticosteroids or NSAIDs (potential harm with COVID-19)**
  - Prone Position and Neuro-muscular blockers, as per ARDS considerations
  - Conservative fluid management if patient is not in shock
  - If ventilator supply is limited, consider mitigation or multiple pt use:
    - <https://www.youtube.com/watch?v=uClq978oohY>
    - <https://onlinelibrary.wiley.com/doi/epdf/10.1197/j.aem.2006.05.009>