

Some Additional COVID Airway Management Thoughts

March 10, 2020 by Scott Weingart [13 Comments](#)

I recently did a [COVID Airway Management Episode](#) with [Brian Wright](#) (now located at the bottom of this post). Since then, I have given a good think to the issue and here is where I stand as of today:

What to Wear

- ☞ N95 (PAPR if bearded)
- ☞ Surgical Mask over N95
- ☞ Goggles that surround eyes with facial contact, face shield, or full joint-replacement-hood with visor
- ☞ Bunny suit, preferably with hood or disposable fluid-proof gown
- ☞ If no hooded suit available, sterile disposable cap
- ☞ 2 pairs gloves, 1 under sleeves of bunny suit or gown and 1 over, under-layer gloves would ideally be long cuffed

Preoxygenation

All of this is based on no evidence (there are no evidence-based strategies out there)

Non-Rebreather

This has been the most recommended strategy in articles/write-ups, but in my mind, it may be the worst of the viable options. To get a decent FiO₂, you will need to crank it up to flush rate and I am not sure what effect that will have on the patient's exhalations becoming aerosolized.

NIPPV

This has been panned for potential to increase risk to providers—however, that is predicated on passive exhalation systems (i.e. vents exhalation goes to the environment and has only 1 tube). However, a 2-tube system is a closed circuit. With the addition of 2 viral filters, this may be acceptable in a **negative pressure room**. It can also be left on during the apneic period with a jaw thrust. Place on CPAP/PSV, leave the PSV at 0, dial up PEEP **only** if patient's saturations do not come up with 100% fiO₂.



BVM with Viral Filter

- ☞ If you don't have a vent available
- ☞ Turn BVM flow up to flush rate, **higher flows do not translate to patient end of the bvm**
- ☞ Place **viral filter** between BVM stem and mask
- ☞ Ideally, a NIPPV mask should still be placed to allow good seal with you away from the patient
- ☞ Addition of nasal cannula underneath will allow CPAP with PEEP valve if needed. I would only turn NC up to 4-6 lpm if this used. Often NC fits with no mask leak
- ☞ If you are using BVM mask, it will require 2 hand seal

<https://emcrit.org/emcrit/covid19-intubation-packs-and-preoxygenation-for-intubation/>

Intubation Strategy

- ☞ RSI with high-dose paralytic
- ☞ BVM or Vent for Reoxygenation (only if needed!) with viral filter at the wye of vent or stem of BVM, can be by mask or LMA. EtCO₂ monitoring should be behind the viral filter to allow monitoring of mask/LMA seal, both for REOX efficiency and team safety—i.e. a crappy seal puts you and the patient at risk



- ☞ Highest-Level Physician (attending level) should do the Intubation
- ☞ Use CMAC or Glidescope with new bougies to maximize 1-attempt success
- ☞ Visualize black line to avoid having to auscultate for depth
- ☞ Cuff fully inflated and viral filter on the ETT prior to bagging/hooking to vent
- ☞ Confirm with ETCO₂

Vent Settings and Post-Intubation Management

- ☞ Strict ARDSnet settings
- ☞ Call ED Critical Care Staff and/or MICU Fellow/Attending if PEEP required hits 20 cm H₂O
- ☞ Tube should be clamped or have the viral filter on for any vent disconnects
- ☞ If suction is used, it should be closed circuit suction

Miscellaneous

How to Nebulize if we really, really think it is a good idea

- ☞ **Don't use NEBs in any situation that MDI can be used!**
- ☞ Appropriate only if you think the patient is low-risk for COVID, i.e. an asthmatic or COPD patient with a cough, but no other worrisome signs
- ☞ Should only be done in neg-pressure room

☞ Equipment needed:

- NIPPV masks (unvented)
- Multi-Adapter – 15mm ID X 22mm OD (resp has these)
- Nebulizer set-up
- **Viral filter**



Update: Now the COVID is going endemic, I really don't think nebs are a great idea!

Viral Filters

- ☞ All of the above sections mentioned viral filters.
- ☞ The high-efficiency version we use at Janus General is the **Intersurgical Filta-Guard** rated for 99.999% filtration of viruses
- ☞ Your respiratory department should have similar filters available

Doffing PPE

- ☞ This is a potentially high-risk moment. Follow ED Policy with a spotter to avoid contamination after successful airway management

Resources

- ☞ <https://emcrit.org/ibcc/COVID19/>
- ☞ <https://jamanetwork.com/journals/jama/pages/coronavirus-alert>
- ☞ <https://www.esicm.org/resources/coronavirus-public-health-emergency/>
- ☞ <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance>
- ☞ [https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-\(ncov\)-infection-is-suspected](https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected)

- 🔗 <https://criticalcarereviews.com/index.php/covid-19>
- 🔗 https://www.nejm.org/coronavirus?query=main_nav_lg
- 🔗 <https://www.cdc.gov/coronavirus/2019-ncov/hcp/index.html>
- 🔗 <https://emergencymedicinescases.com/biohazard-preparedness-protected-code-blue/>
- 🔗 <https://litfl.com/covid19-airway-management-better-care-through-simulation/>