CSRC UPDATE
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COVID-19 and keeping HCW's at lower risk during AGP's

Recent publications regarding recommendations for AGP's and COVID:

- All studies that have been conducted regarding exhaled dispersion distance and bacterial count were not differentiated between bioaerosol (generated by patients during coughing, breathing, talking, or laughing) and medical aerosol (MDI, DPI, SVN, HFNC, etc.). (Li, 2020).

- The following expert consensus recommendations on all those high-risk treatments, based on the current evidence as well as the resource limitation in some areas, with the aim to reduce the nosocomial transmission and optimize the treatment for the COVID-19 pneumonia patients from the Respiratory Care Committee of the Chinese Thoracic Society include:

1. Standard prevention and protection, and patient isolation;
2. Patient wearing mask during HFNC treatment;
3. Using dual limb ventilator with filters placed at the ventilator outlets, or using heat-moisture exchanger (HME) instead of heated humidification in single limb ventilator with HME placed between exhalation port and mask;
4. Avoid using mask with exhalation port on the mask;
5. Placing filter between resuscitator and mask or artificial airway;
6. For spontaneous breathing patients, placing mask for patients during bronchoscopy examination; for patients receiving noninvasive ventilation, using the special mask with bronchoscopy port to perform bronchoscopy;
7. Using sedation and paralytics during intubation, cuff pressure should be maintained between 25-30 cmH(2)O;
8. In-line suction catheter is recommended, and it can be used for one week;
9. Dual-limb heated wire circuits are recommended and only changed with visible soiled;
10. For patients who need breathing support during transportation, placing an HME between ventilator and patient;
11. PSV is recommended for implementing spontaneous breathing trial (SBT), avoid using T-piece to do SBT;
12. When tracheotomy patients are weaned from ventilator, HME should be used, avoid using T-piece or tracheostomy mask;
13. Avoid unnecessary bronchial hygiene therapy;
14. For patients who need aerosol therapy, dry powder inhaler metered dose inhaler with spacer is recommended for spontaneous breathing patients; while vibrating mesh nebulizer is recommended for ventilated patients and additional filter is recommended to be placed at the expiratory port of ventilation during nebulization.

Li, J. (2020). Evidence based recommendations on preventing nosocomial transmission for clinicians while taking care of coronavirus infected patients. *ISAM.*

Zhonghua Jie He He Hu Xi Za Zhi. (2020). Expert consensus on preventing nosocomial transmission during respiratory care for critically ill patients infected by 2019 novel coronavirus pneumonia. *Chin Thoac*. 20;17 (0):E020. doi: 10.3760/cma.j.issn.1001-0939.2020.0020. [Epub ahead of print].

HIGH-FLOW NASAL CANNULA (HFNC) EVIDENCE:

- There is VERY LITTLE evidence surrounding this topic.
- In the one systematic review by Tran et al. (2012), I further researched their definition of HFNC and they DID NOT define it, meaning it could be a heated humidified 60 LPM device as we utilize, or a 15 LPM bubble device (Rabound et al., 2010).
- All other studies are in vivo studies, with mouth closed and a tight cannula seal around the nares.
- Current recommendations based on this limited data suggest placing a loop mask on the patient over their HFNC to decrease risk of exhaled dispersion distance (Li, 2020).
- **Based on our findings, at UCD, we continue to recommend HFNC be considered an AGP and require airborne isolation during this therapy.**

Leung, C.C.H., Joynt, G.M., Gomersall, C.D., Wong, W.T., Lee, A., Ling, L., Chan, P.K.S., Lui, P.C.W., Tsoi, P.C.Y., Ling, C.M., & Hui, M. (2019). Comparison of high-flow nasal cannula versus oxygen face mask for environmental bacterial contamination in critically ill pneumonia patients: a randomized controlled crossover trial. J Hosp Infect. 101(1):84-87. https://www.sciencedirect.com/science/article/pii/S0195670118305425?via%3Dihub.

Li, J. (2020). Evidence based recommendations on preventing nosocomial transmission for clinicians while taking care of coronavirus infected patients. *ISAM.*

Tran, K., Cimon, K., Severn, M., Pessoa-Silva, C. L., & Conly, J. (2012). Aerosol generating procedures and risk of transmission of acute respiratory infections to healthcare workers: a systematic review. *PloS one*. 7(4), e35797. https://doi.org/10.1371/journal.pone.0035797.

Raboud, J., Shigayeva, A., McGeer, A., Bontovics, E.,……Green, K. (2010). Risk factors for SARS transmission from patients requiring intubation: a multicenter investigation in Toronto, Canada. *PloS one*. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0010717.

Zhonghua Jie He He Hu Xi Za Zhi. (2020). Expert consensus on preventing nosocomial transmission during respiratory care for critically ill patients infected by 2019 novel coronavirus pneumonia. Chin Thoac. 20;17(0):E020. doi: 10.3760/cma.j.issn.1001-0939.2020.0020. [Epub ahead of print].