

# **LSU ENT Guidelines for COVID-19+**

## **Tracheostomy**

### **Recommendations for Primary Team Regarding Consultations**

- All trach consults will be staffed by a single designated “COVID Trach” faculty member and will be performed by a pair of “COVID Trach Team” faculty
- In general, tracheostomy will not be considered prior to 2 weeks after intubation and often not performed until the 3<sup>rd</sup> week
  - Patient should be showing signs of recovering/have a more clearly defined favorable prognosis
  - Should be afebrile, not on pressors, and have low ventilator settings
  - However, individual cases/extenuating circumstances will be discussed
- Ideally, patient should no longer be virus shedding
  - Should have a recent COVID-19 test prior to surgery
  - If test is positive, tracheostomy may be delayed until they are negative
- The surgery will be an open tracheostomy in the OR (ideally negative pressure) with full PAPR/CAPR
- After tracheostomy placed, try to minimize manipulation/breaking circuit
  - No trach change until COVID-19 negative
  - When no longer on ventilator, place a HME filter with viral filter

## Summary of COVID-19 Tracheostomy Literature and Suggestions as of 4/15/20

### General considerations:

Spread occurs through respiratory secretions so health care personnel that manage patients with disease of the aerodigestive tract, including otolaryngologist, are the most susceptible. Once a patient has a tracheostomy, there is increased potential for virus exposure to the team who perform evaluations, suctioning, dressing changes and other post-tracheostomy care. General consensus among otolaryngologists is to delay tracheostomy until the prognosis of the patients is more clearly defined, likelihood of recovery is high, and viral load is reduced.

### Timing:

- For those treated in the ICU, mortality rate of 30-70% is expected<sup>1</sup>
- In SARS-1, mean time from onset to death was 23.7, suggesting low benefit of tracheotomy prior to this<sup>2</sup>
- Patients who died in ICU, median LOS is 7 however 81% of ventilated patients died by day 28.<sup>3</sup>

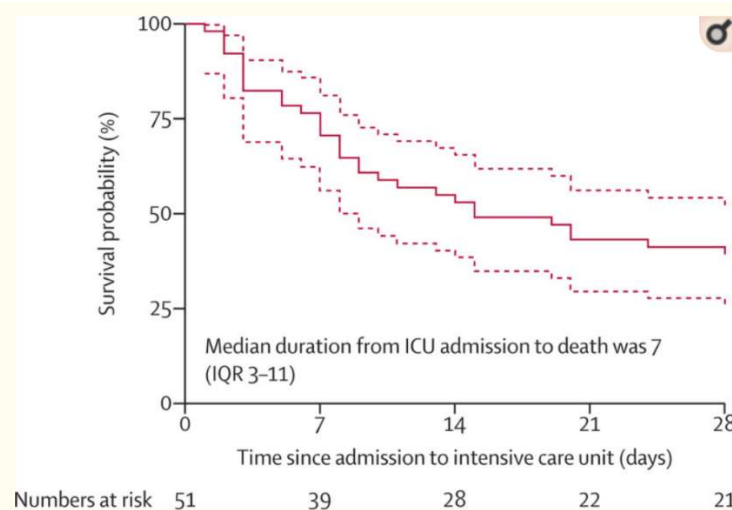


Figure 2

Survival of critically ill patients with SARS-CoV-2 pneumonia

Dashed lines represent 95% CIs. One patient died within 24 h after admission to the intensive care unit (ICU).

- - *Personal interpretation: Looks like change in survival starts to slope less at the 2-3 week mark with little change after 3 weeks*
- Viral secretions were found in hospitalized patients for 8-37 days, with a median of 20 days<sup>4</sup>

### Things to consider at initial consult:

- If justifiable, wait for negative PCR<sup>1,5</sup>
  - AAO-HNS statement “unless emergent, surgical procedures should only be undertaken after ascertaining the COVID-19 status”
- Avoid trach in those with respiratory instability or heightened ventilator dependence
- AAO-HNS consensus says that overall, trachs in COVID patients should not be performed sooner than 2-3 weeks
- Percutaneous versus open

- ENT UK says the data comparing the risk of these are limited , however several studies stated that they felt that percutaneous trachs have increased risk of aerosolization <sup>6-8</sup>

### Performing the tracheostomy:

- Should be in a negative pressure OR.
  - Per ENT UK, ideally there should be an antechamber and the laminar flow should be turned off
    - Gowns/gloves removed in antechamber, PAPR removed outside antechamber<sup>9</sup>
- Same room and same anesthesia machine for all COVID cases<sup>10</sup>
- Only experienced staff<sup>1</sup>
- Donning/doffing to be done with a spotter <sup>6</sup>
  - 79.2% of providers self-contaminate while removing respirators<sup>11,12</sup>
- Designated “runner” outside OR with PPE during case in case additional drugs/equipment needed<sup>10</sup>
- Patient should be completely paralyzed to prevent coughing<sup>6,8</sup>
- Reduce use of suction and if used, use within a closed system with a viral filter<sup>6,8</sup>
- Avoid diathermy<sup>8</sup>
  - Bloodborne transmission has not been documented, but aerosolization of blood through the use of energy devices has been documented. <sup>13</sup>
- Stop ventilation when moving ETT or opening airway<sup>6</sup>
  - Consider clamping ETT when ceasing ventilation or moving ETT to decrease aerosolization<sup>9</sup>
  - Advance ETT cuff below planned trach window and inflate, cease ventilation again before entering airway
- Consider making a simple horizontal intercartilagenous incision to maximize speed (University of Chicago pending manuscript)
  - Role to not do Bjork flaps to make a smaller stoma/possibly decreased peristomal secretions? (Also mentioned in Givi et al. paper)
- Consider preloading HME onto inner tube
  - In general, there should be an additional HME filter in the expiratory limb of anesthesia circuit for COVID patients<sup>9</sup>
- Use only cuffed, non-fenestrated trachs
  - Use smaller trachs to minimize stoma size (Shiley 6)<sup>4</sup>
- Minimum of 1 hour between cases to allow time for decontamination/cleaning (although with negative pressure, aerosolized particles should be gone in 20-30 minutes)
  - All staff should shower before resuming normal duties<sup>9</sup>

### Post-operative care:

- Delay trach change until COVID-19 negative (ENT UK)
- Try to minimize breaking the circuit
- Once off vent, place HME with viral filter
- (China recommends all personnel involved in COVID operative case should have postop PCR test and CT chest every 2 weeks<sup>10</sup>)



## Resources:

1. Thomas-Ruddel D, Winning J, Dickmann P, et al. Coronavirus disease 2019 (COVID-19): update for anesthesiologists and intensivists March 2020. *Anaesthetist*. 2020.
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4. Zhou F, Yu T, Du R, et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. *Lancet*. 2020;395(10229):1054-1062.
5. Givi B, Schiff BA, Chinn SB, et al. Safety Recommendations for Evaluation and Surgery of the Head and Neck During the COVID-19 Pandemic. *JAMA Otolaryngol Head Neck Surg*. 2020.
6. Tay JK, Khoo ML, Loh WS. Surgical Considerations for Tracheostomy During the COVID-19 Pandemic: Lessons Learned From the Severe Acute Respiratory Syndrome Outbreak. *JAMA Otolaryngol Head Neck Surg*. 2020.
7. Chee VW, Khoo ML, Lee SF, Lai YC, Chin NM. Infection control measures for operative procedures in severe acute respiratory syndrome-related patients. *Anesthesiology*. 2004;100(6):1394-1398.
8. Tien HC, Chughtai T, Joglekar A, Cooper AB, Brennehan F. Elective and emergency surgery in patients with severe acute respiratory syndrome (SARS). *Can J Surg*. 2005;48(1):71-74.
9. Ti LK, Ang LS, Foong TW, Ng BSW. What we do when a COVID-19 patient needs an operation: operating room preparation and guidance. *Can J Anaesth*. 2020.
10. Kowalski LP, Sanabria A, Ridge JA, et al. COVID-19 pandemic: effects and evidence-based recommendations for otolaryngology and head and neck surgery practice. *Head Neck*. 2020.
11. Suen LKP, Guo YP, Tong DWK, et al. Self-contamination during doffing of personal protective equipment by healthcare workers to prevent Ebola transmission. *Antimicrob Resist Infect Control*. 2018;7:157.
12. Lim SM, Cha WC, Chae MK, Jo IJ. Contamination during doffing of personal protective equipment by healthcare providers. *Clin Exp Emerg Med*. 2015;2(3):162-167.
13. Zheng MH, Boni L, Fingerhut A. Minimally Invasive Surgery and the Novel Coronavirus Outbreak: Lessons Learned in China and Italy. *Ann Surg*. 2020.