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## Use of drape/patient covering during potentially aerosolizing procedures



The rise of the novel coronavirus, SARS-CoV-2 or COVID-19, pandemic has illustrated the potential for the rapid spread of a highly infectious disease, both among lay people and healthcare workers. Early evidence of broad aerosolization of the virus in the hospital setting [1], coupled with demonstrated aerosolization with resuscitative and procedural interventions in the hospital setting of the SARS virus [2,3], has raised concern among healthcare workers regarding the use of advanced personal protective equipment (PPE) in the performance of such procedures [4].

Endotracheal intubation [3], bag-valve-mask ventilation [3] and performance of CPR [5] have all been shown to result in some level of aerosolization. Unfortunately, transmission of the SARS virus to healthcare workers during endotracheal intubation and other similar procedures was noted to occur even when the healthcare workers were wearing N95 masks and other PPE [3]. As a result, there have been a large number of groups innovating new potential protective devices for aerosolizing procedures, e.g.: the creation of an “aerosol box” by a Taiwanese team [6,7].

Hunter et al. demonstrated that a simple barrier could decrease the amount of contamination associated with endotracheal intubation and mechanical ventilation in the operating theater setting [8]. Similarly, Canelli et al. demonstrated that the use of a simple, plexiglass barrier device could be used to decrease the amount of potential aerosol exposure by the intubating provider [7]. However, review and evaluation of these devices has illustrated significant limitations to performance of endotracheal intubation. In their current rigid format, these boxes cannot be recommended [9].

Several devices have been proposed that incorporate the use of a plastic drape in addition to any other barrier for provider protection during aerosolizing procedures, and the American College of Chest Physicians has recommended use of such a drape during performance of CPR [10]. In conjunction with appropriate airway management and risk mitigation strategies [11], the use of a plastic barrier over the patient may further decrease the potential for aerosolization and viral particle spread. Here, we present a proposed guideline for the use of a plastic sheet barrier device in the performance of advanced resuscitation and airway procedures in the setting of potential or known SARS-CoV-2 infection.

### Recommendations:

- Use of a protective drape/patient cover does not replace the need for nor decrease the importance of appropriate PPE for all healthcare workers during potentially aerosolizing procedures.
- Ideally, the drape/patient covering should be clear to facilitate continued direct observation of patient status, plastic/water impervious to prevent further patient/healthcare worker exposure to any fluids.
- For maximal protection, the drape/patient covering should be of

sufficient length to cover the entire patient, with excess length to allow the drape to make contact with the patient's bed, even in the case of simultaneous use of a tenting device.

- In order to access the patient and any airway devices, healthcare workers may fenestrate the drape/patient covering using scissors or a scalpel, but efforts should be made to cover said holes with tape after use to prevent escape of aerosolized particles.
- Restrictive interventions should be discontinued prior to placement of the drape over the patient.

### Proposed uses:

Use of a drape/patient covering is recommended during:

- All advanced airway procedures, including pre-oxygenation, placement of a supraglottic airway device and endotracheal intubation,
- Assisted ventilation with a bag-valve-mask,
- Active cardiopulmonary resuscitation.
- Ideally, a tent device or other structure should be used to keep the drape off the patient's airway if it is not secure prior to placement.

### Duration of use:

- When being used during airway management, tenting devices should be used for entire duration of the procedure. Following completion of the airway management procedure, the tenting device may be removed in a manner that allows for the drape/patient covering to remain in place.
- Drape or patient covering should remain in place for the duration of any resuscitative efforts. If resuscitative efforts are unsuccessful, the drape/patient covering should remain over the patient following discontinuation of resuscitative efforts.
- Drape/patient covering should remain in place during patient transitions between care areas, such as transition from the Emergency Department to an Intensive Care Unit, or Operating Room to minimize potential aerosolization in the case of ventilator circuit discontinuity.
- Drape/patient covering should never remain in place over the patient if the patient is not in direct observation by a healthcare worker, even if an advanced airway is in place.

### Removal of drape/patient covering:

- Removal of the drape should be performed whenever the aerosolizing procedure has been completed and the risk of further aerosolization deemed to be low, OR if continued observation by healthcare workers is no longer possible.
- Drape/patient covering should be removed in a slow, controlled fashion, being rolled into itself during removal to minimize any dispersal of potentially present viral particles. Following removal, the drape/patient covering should be disposed of in an appropriate biohazard container in a controlled fashion to decrease potential particle dispersal.

**Prehospital considerations:**

- Patients undergoing assisted ventilation via a bag-valve-mask or supraglottic airway in the pre-hospital arena should have a drape or patient covering placed over them prior to transit from the ambulance into the closed hospital environment.
- Prehospital providers should consider the use of a drape/patient covering while performing cardiopulmonary resuscitation or advanced airway techniques.

**Meetings**

None.

**Grants**

None.

**Author contribution**

NA.

**Declaration of competing interest**

None.

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