One of the most critical issues regarding 2019 nCoV patients is the transitory phase between initial symptoms and potentially severe evolution requiring critical care, while taking into account the comorbidities. The adoption of early warning scores (EWS), shared and predefined strategies, multidisciplinary team training and simulation of possible scenarios are highly recommended, taking also into account the available levels of care and feasibility of critical care levels of assistance in a non-ICU environment. The decisional elements for airway management, oxygenation and invasive ventilator support thus include competencies and organisation and available human and environmental resources. Vigilance in prevention, strict adhesion of donning/doffing of PPE, preparedness for the care of infected patients remain priority and of utmost importance.

**TUBE POSITION CONTROL - PROTECTIVE VENTILATION**

- CAPNOGRAPHIC CURVES repeated and with standard morphology (if in doubt take it out)
- AVOID unseal circuit disconnections (if needed: ventilator on stand-by/clamp endotracheal tube)
- CONSIDER indications for advanced techniques: ECMO - experts advise

**PPE DOFFING**

- During and after PPE doffing, hands hygiene mandatory
- Donning/doffing observer externally checking, individual doffing
- Waste disposal

**TRANSPORT**

- Follow bio-containment regulations
- Secure airway: anticipated intubation
- Team briefing
- Organize (competencies - team - pathways)
- Prepare (devices)
- Checklist - controls - crisis management
- Optimize (hemodynamics - oxygenation)
- Vigilated doffing/doffing
- Invasive airways - evaluation and integrated airway management
- Debriefing

Reference


Jansson M, Liao X, Rello J. Strengthening ICU health infrastructure and human and environmental resources.


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**HIGHLIGHTS**

- INTEGRATED COMPETENCIES FOR EVERY PHASE/STEP
- AIRBORNE PROTECTION FOR EVERY PHASE/STEP
- ANTICIPATE NEEDS, MAXIMIZE FIRST-PASS SUCCESS

**DOUBLE-CHECK INDICATIONS FOR ENDOTRACHEAL INTUBATION**

- Adopt Early Warning Scores for intubation/quot vitam monog (consider DNR cases)
- Identify negative pressure environment
- Balance benefits of CPAP/BIPAP/NIV/HFNO versus risks of airborne diffusion
- If INTUBATION is required, prefer ELECTIVE procedure (in emergency > patient risk)

**TEAM PREPARATION**

- Minimize the number of team members:
  - The most expert team member should perform the intubation and advanced airway control/ventilation (with donned PPE) [INSIDE the chamber]
  - EXPERT assistant on protocols and devices (doctor/nurse with donned PPE) [INSIDE the chamber]
  - Second doctor with donned PPE if complex maneuvers/difficult airway is expected/planned [INSIDE the chamber]
  - Doctor available with donned PPE [OUTSIDE the chamber]
  - PPE donning/doffing Observer [OUTSIDE]

**CARRY OUT PRELIMINARY ROLE DEFINITION, STRATEGY DEFINITION, IDENTIFICATION OF DONNING/DOFFING OBSERVER**

**PPE DONNING**

- Second level PPE (airway management)
  - FFP3, facial shield, long sleeve fluid-resistant scrubs, double gloves, overshoes
  - Third level PPE (aerosol generating procedures - bronchoscopy, awake endotracheal intubation, etc..) helmet in place of FFP3, facial shield, long sleeve fluid-resistant scrubs, double gloves, overshoes

**DONNING/DOFFING OBSERVER EXTERNALLY CHECKING, INDIVIDUAL DONNING**

**CLINICAL CHECKLIST (wearing PPE)**

- COMPLETE EVALUATION OF AIRWAYS AND OXYGENATION (accept difficult airway management risk overestimation)
- HEMODYNAMIC EVALUATION • PRE-EMPTIVE HEMODYNAMIC OPTIMIZATION

**AIRWAY INSTRUMENTATION**

- HME FILTER ON EVERY OXYGEN INTERFACE
- SUCTION: CLOSED SYSTEM
- ANTIFOGGING
- MEDICATIONS: PREPARED AND DOUBLE-CHECKED
- EMERGENCY CART READY (DISPOSABLE devices preferable)

**AwAKE INTUBATION NOT INDICATED:**

- PREOXYGENATION (according to respiratory and hemodynamic status)
  - 3min’ at TV FiO2=100%
  - 1min’ at FVC 8 breaths FiO2=100%
  - CPAP/PSV 10 cm H2O + PEEP 5 cm H2O FiO2=100%
- RSI in all patients (limit BMV unless unavoidable and apply Cricoid Pressure only in case of ongoing regurgitation)
- NASAL PRONGS 3 LT/MIN FiO2=100% for APNOIC PHASE (NODESAT)
- FULL DOSE NEUROMUSCULAR BLOCK
- RESPECT onset time for laryngoscopy

**AwAKE INTUBATION INDICATED:**

- 1° LARYNGOSCOPY:
  - PREVENT LAERAGOLNOSCOPE with separate screen
  - endotracheal tube pre-loaded on introducer
  - Re-oxygenate with low TV/pressure between attempts - Early switch [after failed second attempt] to supraglottic airway devices [prefer second generation - intubable SADs]
- INTUBATION THROUGH SUPRAGLOTTIC AIRWAY DEVICES: flexible endoscope with separate screen (prefer DISPOSABLE)
- EARLY CRICOTHROTYMOT IF CI-CON

**AWAKE INTUBATION INDICATED** (only if really mandatory):

- AIRWAY TOPOLOGICAL: no aerosol/vaporization
- TITRATED SEDATION (INFUSION PUMP) - sedation depth monitoring
- FLEXIBLE ENDOSCOPE WITH SEPARATE SCREEN
- RESCUE: INTUBATION THROUGH SUPRAGLOTTIC AIRWAY DEVICES (see above)
- EARLY CRICOTHROTYMOT IF CI-CON

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