Appendix B

**EFFECTIVENESS AND SAFETY OF A NEW HELMET CPAP CONFIGURATION ALLOWING TIDAL VOLUME MONITORING**

 **IN PATIENTS WITH COVID-19**

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**Healthcare workers protection policy in our centre**

In our institution, all the healthcare workers caring for COVID-19 patients wore masks filtering facepiece class 2 (FFP2, according to the European classification system) or N95 (according to the American classification system) [24], double non-sterile gloves, long-sleeved water-resistant gown and goggles or face shield. In our unit all the healthcare professionals were placed internally to the facility without any possibility to see the patients when staying outside from the unit (e.g. no video cameras or glass windows/doors). Once inside the facility, they had to consider the area as entirely contaminated. For this reason, the number of healthcare professionals entering the area and put in direct contact with confirmed case of COVID-19 was limited to the minimum per shift (1 nurse out of 5 patients) to guarantee safety for both the patients and the healthcare workers. The personal protective equipment (PPE) was also rationalised to avoid depletion of stocks, i.e. using the same mask FFP2 for the entire shift of 8 hours. No systematic molecular tests for SARS-COV-2 infection were planned for the healthcare workers. On a daily basis, the measurement of temperature and an evaluation of presence of clinical symptoms were performed.

**Criteria for intubation**

Decision to intubate was based on a multidisciplinary discussion among the attending physician and the critical care physician taking into account one the following parameters: a) risk of respiratory arrest; b) PaO2:FiO2 ratio <150 or reduction of ≥30% of basal PaO2:FiO2 ratio with RR >30 breaths/minute and/or Vt >10 ml/kg ideal bodyweight (IBW) or persistent respiratory distress as use of accessory muscles (palpation of the sternomastoid muscle) [30,31]; c) worsening of alertness with Glasgow Coma Scale (GCS) less than 13 [32] and/or inadequate protection of the airways; d) severe hemodynamic instability (SBP <90mmHg instead of adequate volume resuscitation); e) intolerance to helmet CPAP leading to discontinuation of therapy.