

## Electronic supplementary materials

### Measurement of endotracheal tube secretions volume by micro computed tomography (MicroCT) scan: an experimental and clinical study.

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#### Methods

The same five gel aliquots were used to assess airway resistances to airflow in a 7.5 mm ETT. We connected flow and pressure transducers to an acquisition system (Respironics CO2SMO plus!, Philips Healthcare, Andover, MA) calculating airway resistances at 30, 45 and 60 L/min of airflow by measurement of pressure drop across the ETTs. Three measurements were obtained for each combination of flow and gel aliquots.

#### Results

We then evaluated the impact of our model of secretions on resistance to airflow in a 7.5mm ETT, resembling quiet assisted breathing (30 L/min), controlled mechanical ventilation (45 L/min) and increased respiratory effort during assisted breathing (60 L/min). As expected, resistances increased by increasing the amount of injected gel and airflow ( $p < 0.001$  for both, Figure E1). The resistance increase was more pronounced at higher airflows ( $p < 0.001$  for interaction), i.e. doubled at 30 L/min and increased almost three times at 60 L/min of airflow after injection of 1 ml of gel.