

# Proposal for the anaesthetic treatment of a patient suspected of or infected with Coronavirus (COVID 19)

REDACTION	VALIDATION	APPROVAL
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<b>Recipients:</b>	<i>Departments of anaesthetics and critical care, operational hygiene teams</i>
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The proposals below are made based on current knowledge and operational experience. It is for each institution to adapt these elements according to the resources available and organisational patterns in place. Due to the changing nature of the situation and the improving knowledge of it, revisions to these recommendations will probably be published in the coming days and weeks.

## Contamination

The majority of COVID-19 infections are non-serious. Those people at risk of its complex forms are the elderly and people suffering from certain chronic illnesses (respiratory ailments and heart problems, etc.). Nonetheless, there are severe forms, basically involving respiratory distress, or even ARDS. Contamination is primarily via airways (risk of “droplets”) The risk of transmission between

humans is high. It is passed via:

- The projection of large droplets, with direct contamination of the mucosal tissue of the face, or indirectly via contaminated hands
- Contamination of the conjunctiva
- Airborne transmission by small droplets is possible when handling patients for critical care procedures (intubation, NIV, tracheal aspiration, etc.). Where this exists, it is probably very rare.
- There are clinical forms which initially present with gastro-intestinal disorders. The virus is found in the diarrhoea. This rarely-occurring situation calls for contact protection which is identical to the protection required for patients who are carriers of multi-resistant enterobacteria as well as the respiratory protection set out in detail below.

The aim of the suggested measures is to avoid the spread of the infectious agent, and the contamination of hospital staff and other sick patients.

## Definitions

The definitions are likely to change over the course of the coming days and weeks due to growing knowledge, the diagnostic resources available, and the COVID rules put in place by the institution’s hygiene teams and infectious diseases specialists.

- A confirmed case is defined as a subject who has a positive nasopharyngeal sample as established by PCR.

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- A potential case is defined as a person with suggestive symptoms (current definitions: temperature  $\geq 38^{\circ}\text{C}$  or cough or dyspnea respiratory rate  $>22/\text{min}$ ) and criteria for hospitalisation (hypoxic pneumopathy or severe comorbidities). The aim of this very broad definition is to avoid missing contaminated patients and spreading the virus between the population and caregivers.

## Treatment organisation:

The anaesthetics team's action plan must be prepared and talked about between professionals with the clear allocation of respective tasks.

Anaesthetics and anaesthetic equipment must be prepared in advance.

Prior staff training for the patient index is very necessary to avoid mistakes.

The disposal of contaminated waste after procedures is done following the rules put in place by the institution's hygiene teams and infectious diseases specialists.

## The equipment for medical staff working with patients in operating theatres

All members of staff involved in treating patients must wear personal protective equipment (PPE) in line with COVID rules put in place by the institution's hygiene teams and infectious disease specialists. This equipment comprises:

- a protective mask (FFP2 or surgical depending on the situation, correctly fitted onto the face)
- protective eye guards
- a surgical gown with cuffs and waterproofed sleeves
- non-sterile gloves

Staff training on dressing and undressing procedures is required to avoid contamination mistakes.

The best way to reduce transmission and contact is to strictly adhere to this protocol and to remain consistently vigilant.

Particular attention should be paid to hand cleanliness before putting on the PPE and when taking it off.

The highest risk of contamination to medical staff occurs when removing clothes at the end of the procedure, which must be carried out under the supervision of a colleague.

## Preparing the patient and the procedure for opening the operating theatre

Transferring a patient to the operating theatre who may have COVID-19 or who is a confirmed case, and returning them to their room after the operation, must be carefully planned due to the risk of aerosolisation generated by the medical procedures.

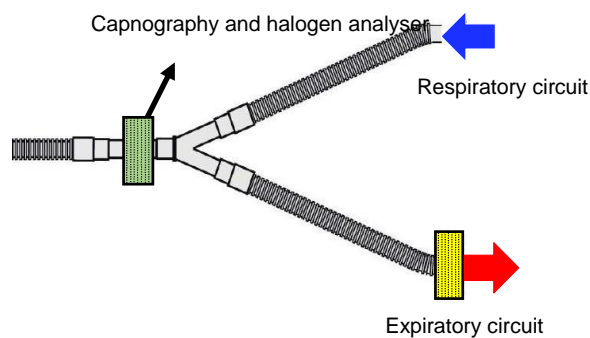
- During the transfer, corridors and lifts must be kept clear of any people.
- The patient must wear a care or surgical mask in the course of the transfer to the operating theatre.
- Members of staff responsible for transferring and taking the patient into the operating theatre must be equipped with PPE including a surgical mask
- The operation is to be performed in a theatre without any modifications to the ventilation.
- The same is true for any procedures performed outside the operating theatre (labour ward, endoscopy suite)
- The operating theatre team all wear PPE including a surgical mask
- It is essential to disinfect your hands before and after contact with the patient by rubbing them together with hydro-alcohol solution
- The number of people involved in treatment must be kept to a bare minimum, ideally without leaving the operating theatre or switching staff during the entire procedure.

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- At the end of the procedure, gloves must be removed instantly and hands are to be disinfected immediately by rubbing them together with hydro-alcohol solution before undressing.
- After undressing, the member of the medical team must avoid any contact between their hands and their hair and face before rubbing their hands together again with hydro-alcohol solution.
- Disposal of the PPE at the end of the procedure (DASRI channel) must be done without touching contaminated areas.
- Anaesthetic equipment is to be cleaned using the usual detergent products for decontamination.

## Equipment required for ventilation and aspiration.

- A water-repellent filter (in green on the figure below) with high filtration capacity must be fitted between the ventilatory circuit and the facial mask on the patient side, and/or between the tracheal tube and the Y-shaped piece in the respiratory circuit (tubes). The anaesthetic apparatus' gas sampling line must be attached before the filter on the apparatus side, in order to avoid contaminating the gas measurement unit, and, as a result, the complete anaesthetics equipment. It is strongly recommended to place an extra filter (shown in yellow in the figure) at the expiratory valve (between the patient circuit and the expiratory valve) due to the risk of contaminating the patient's operating theatre when disconnecting and replacing the filter in the Y-shaped piece every day.



- There is no proof that a mechanical filter is more effective than electrostatic filters with regard to COVID-19. Filters need to be changed every day and after every COVID+ patient. The second filter placed in the breathing circuit should be exchanged prior to replacing the Y-piece filter.
- A closed endotracheal suctioning system must be used, fitted with a disposable filter system to reliably protect the suctioning instrument and the patient's environment against any contamination.

## Anaesthetic procedures on airways

Particular attention needs to be paid to the risk associated with aerosols and droplets.

- Management of the airways must be carried out by the most experienced senior member of staff.
- Techniques on airways must be systematically performed by the care team wearing an FFP2-type mask, protective eye guards and gloves. Other staff are to wear surgical masks.
- Pre-oxygenation with pure oxygen and a rapid induction sequence could be suggested to avoid manually ventilating the patient, which may encourage contaminated aerosols in the patient's airways.
- If manual ventilation is performed, the anaesthetic mask must be fitted using two hands to keep leaks to a minimum.
- In cases of hypoxemia, high A-a gradient, the inability to hold one's breath for 30 seconds or a contraindication for succinylcholine, low flow rates can be used.

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- In all of the above cases, the lowest possible flows of gas should be used to maintain oxygenation
- Awake intubation by fibroscope must be avoided where there is no specific indication, due to the risk of coughing and aerosolisation when spraying local anaesthetic which encourages the virus to spread in aerosol form.
- Video-laryngoscopy, where the operator is kept at a distance from the patient, can be used as a first-line option
- The use of tracheal intubation is preferable to a laryngeal mask
- Mechanical positive pressure ventilation can only be started after the intubation tube balloon tube has been inflated.
- It is preferable to curarise the patient to avoid coughing and hence the spreading of contaminated aerosol.
- When treating respiratory distress associated with a coronavirus-based respiratory infection outside the operating theatre, it is essential to avoid the use of non-invasive ventilation or high-flow oxygenation, in order to prevent the creation of an aerosol of the virus in the room. Early intubation should be considered in patients who present with rapid deterioration.
- When treating a patient who has been transferred from critical care having already been intubated, the mobile ventilation circuit used for transport must not be disconnected to avoid contamination. If it has to be disconnected, the patient filter must be left on the tube. It is recommended to take an expiratory pause in ventilation together with clamping of the intubation tube.
- Following the procedure, all the equipment which is not protected by the water-repellent filter used for ventilation and the intubation equipment are to be disposed of, or disinfected with a standard detergent disinfectant (surfa safe , etc.) (sleeve of the laryngoscope).

## Precautions for local regional anaesthetics and spinal anaesthetics

- The instructions relating to Coronavirus infection shall apply in full.
- The patient must wear a surgical mask, and the medical team must all wear full PPE.
- Local regional anaesthetics and spinal anaesthetics must be carried out by the most experienced senior doctor.
- Where there are signs of severe clinical symptoms (hypoxemia, reduced consciousness, agitation, organ failure, etc.), local regional or spinal anaesthetics is not recommended.

## Post-operative monitoring

The elements of the PPE (mask, gloves, eye guards, apron) are identical for the staff in charge of post-operative monitoring as the PPE worn in operating theatres.

- In cases of illness where there are low-level symptoms (no need for oxygen) and where a stay in the recovery room of under 60 minutes is expected, and/or where there has been local regional or spinal anaesthetics, the patient is brought round in the operating room then directly transferred to their room at the end of monitoring in line with the rules given for the transfer to the operating theatre.
- In cases of illness where there are low levels symptoms (no need for oxygen) and where a stay in the recovery room of over 60 minutes is expected, the patient is to be transferred to a recovery room wearing a surgical mask, ideally in a separate room or isolated by screens at the very least. The patient is transferred to their room at the end of monitoring as soon as is possible.
- Where the patient has been in critical care (or an intensive care unit), or has a potential or confirmed case of Coronavirus, after treatment in an operating theatre, the patient is directly transferred to their recovery room after their operation.

## Frame of reference

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## Glossary

COVID-19: Corona Virus Disease 2019 ARDS: Acute Respiratory Distress Syndrome NIV: Non-Invasive Ventilation	PPE: Personal Protective Equipment HEPA Filter: High Efficiency Particulate Air
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Date and subject of the amendment: 11.03.2020  
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