Appendix A. "Recommended safety measures for emergency intubation in General/Isolation Wards during COVID-19"

Measures for Intubation in General Ward/AIIR during the Novel Corona Virus (nCoV) Period Department of Anaes & OTS, QEH (as at 4 Feb 2020)

Attention to all levels of staff in Dept of Anaes & OTS

1 Background:

1.1 Standard Precautions should be undertaken for all patients.

1.2 All intubation procedures are labeled as high risks aerosol - generating procedures, hence Air Borne, Droplet, Contact Precautions and Full PPE should be undertaken.

2 When will the following measures be adopted or stand down:

2.1 The following measures should be followed when:

2.1.1 HKSAR Government /HA declares/activates **S1 (Serious Response Level)** level or above

2.1.2 **OR** the patient's clinical conditions suggest a serious respiratory disease possibly of infective origin.

2.2 The following measures can stand down when HKSAR Government /HA declares the response level to **"Alert Response level"** or below.

3 Indications and Location of Intubation:

3.1 Airborne Infection Isolation Room (AIIR)

3.1.1 Parent team consults Intensivist to access patient if oxygen requirement reaches 4L/min through nasal cannula but clinically stable.

3.1.2 Parent team consults Anaesthetist through "911" activation to intubate the patient in AIIR if oxygen requirement reaches 4L/min through nasal cannula and clinically indicated. Parent team should inform Anaesthetist about patient's nCoV infection status (e.g. suspected/ confirmed/ enhanced surveillance done). After intubation, parent team consults Intensivist to assess for ICU admission.

3.1.3 If patient develops cardiac arrest, parent team should start CPR in AIIR first and consult Anaesthetist through "911" activation for intubation. Parent team should inform Anaesthetist about patient's suspected/confirmed nCoV infection status. Parent team consults Intensivist for ICU assessment.

3.2 General Ward

3.2.1 No intubation should be performed in general ward for patient with suspected nCoV infection. Parent team should arrange AIIR admission.

3.2.2 Intubation should be performed in AIIR.

3.2.3 Other cases should be intubated in a controlled environment like single room or side room.

3.2.4 Anaesthetist may call back ward or contact parent team doctor for further clinical details.

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4 Steps to be undertaken when an intubation request is received:

4.1 When intubation procedures are to be performed for patients who are confirmed or suspected with air borne / droplet transmission diseases, all staff has to comply with infection control practice, including eye protection, face shield, suitable N95 mask, AAMI level 3 protective gown and gloves. Refer to recommended sequence by Infection Control.

4.2 PPE should be done in the designated "Gown Up" area of the ward.

4.3 All staff must wear N95 mask, the model of which should has been verified by prior Fit Test.

4.4 **Upon arrival to the ward making the request for intubation:**

4.4.1 The OTA/AA should leave the intubation case and the DRUG BOX OUTSIDE the main ward proper e.g. ward corridor to prevent contamination.

4.4.2 The OTA/AA should prepare at "Gown Down" area

4.4.2.1 A big pink plastic bag for placement of contaminated / used equipment (e.g. laryngoscope blade, bougie) that are to be send to CSSD for disinfection

4.4.2.2 A big transparent plastic bag for placement of contaminated / used equipment (e.g. laryngoscope handle, TuoRen video laryngoscope, Capnograph monitor) that are to be brought back to OT sluice room for disinfection

4.4.3 OTA/AA should communicate with attending Anaesthetist for additional airway items (e.g. Videolaryngoscope / Capnograph), otherwise standard items consisting of:

4.4.3.1 Laryngoscope and blade, usually McCoy size 3,

4.4.3.2 COETT size 7.0mm/8.0 mm or 6.0mm/7.0mm,

4.4.3.3 Intubation stylet,

4.4.3.4 Bougie,

4.4.3.5 Oropharyngeal airways size 2 and 3,

4.4.3.6 Syringe for cuff inflation,

4.4.3.7 Plain gauze,

4.4.3.8 Durapore,

4.4.3.9 Two packs of single use sterile lubricant.

The above items will be brought to the bedside of the patient to avoid contamination of the intubation case. They are to be placed in a clear plastic bag with Zip Lock for transport into the ward

4.4.4 The DRUG BOX is to be left OUTSIDE the main ward proper together with the intubation case. A Zip-Lock bag, with drug labels, containing the following drugs will be brought along:

4.4.4.1 Propofol 200mg x 1

4.4.4.2 Etomidate 20mg x 1

4.4.4.3 Suxamethonium 100mg x 2

4.4.4.4 Rocuronium 50mg x 1

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4.4.4.5 Cisatracurium 10mg x 1

4.4.4.6 Atropine 1.2 mg x 1

4.4.4.7 Ephedrine 30mg x 1

4.4.4.8 0.9% NS injection, 10mL x 3

The Anaesthetist should arrange extra drugs if required.

4.4.5 After procedure is completed

4.4.5.1 The syringe for cuff inflation and ALL single-use items (used or unused) should be discarded appropriately in the ward.

4.4.5.2 Reusable items that will be sent to CSSD (mainly the laryngoscope blade and bougie) should be placed in the original plastic bag with Zip Lock and then placed in the big pink plastic bag WITHOUT touching any parts of the pink bag.

4.4.5.3 Reusable items that will be brought back to OT for disinfection (mainly the laryngoscope handle, VL and Capnograph monitor) should have the protective shields removed and then placed into the big transparent plastic bag WITHOUT touching any parts of the transparent bag.

4.4.6 The drugs, used or unused, should be discarded appropriately in the ward by the Anaesthetist before leaving.

4.4.7 **Gown Down** - can only be done in the designated "Gown Down" area.

Procedures of Gown Down:

4.4.7.1 Take off the gloves

4.4.7.2 Wash hands

4.4.7.3 Take off the goggle/ face shield

4.4.7.4 Take off the protective gown

4.4.7.5 Wash hands

4.4.7.6 Take off N95 mask

4.4.7.7 Wash hands

4.4.7.8 Put on surgical mask

4.4.8 Put on gloves and then seal / tie the opening of the pink and transparent plastic bags tightly. Remove the gloves and WASH HANDS before leaving the ward.

5 After care upon returning to OT:

5.1 Inform Duty Nursing Officer / APN of arrival and return of contaminated equipments so that nobody will enter the sluice room without PPE.

5.2 Put the transparent bag in the sluice room.

5.3 Bring the large pink bag containing contaminated items to CSSD.

5.4 Go back to OT, gown up full PPE according to proper sequence.

5.5 Clean the intubation case and drug box with large alcohol wipes.

5.6 Go into sluice room and carefully open the transparent bag. Use special disinfection wipes to disinfect the items e.g. laryngoscope handle, TuoRen VL, Capnograph monitor etc.

5.7 Put the disinfected items into a plastic box.

5.8 Use large alcohol-wipe to clean the table surface where the transparent bag has been

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placed.

5.9 Take off PPE according to recommended sequence as above and put on surgical mask.

5.10 Return the disinfected items to their respective locations.

5.11 The OTA/AA should replenish stocks in the intubation case.

5.12 The drugs in the DRUG BOX should be refilled by Nursing Staff

Labels for use

Airway items placed in Zip Lock bag:
1. Laryngoscope + blade, McCoy size 3
2. Cuffed ETT, 2 sizes
3. Intubation stylet
4. Airways, size 3 and 4
5. Bougie
6. Syringe for ETT cuff inflation
7. Plain gauze
8. Durapore
9. Two packs of single use lubricant
The Anaesthetist should arrange extra items if required.

DRUGS placed in Zip Lock bag:
1. Propofol 200mg x 1
2. Etomidate 20mg x 1
3. Suxamethonium 100mg x 2
4. Rocuronium 50mg x 1
5. Cisatracurium 10mg x 1
6. Atropine 1.2 mg x 1
7. Ephedrine 30mg x 1
8. 0.9% NS injection, 10mL x 3
The Anaesthetist should arrange extra drugs if required.

6 Intubation Procedure:

6.1 Plan ahead

6.2 Anaesthetist and OTA/AA wear full PPE

6.3 One Ward Nurse wears full PPE and assists Anaesthetist for drug administration

6.4 One Parent Team Doctor wears full PPE and standby to perform aftercare of patient after intubation

6.5 Preoxygenation with oxygen through Laerdal bag or nasal cannula

6.6 Anaesthetist performs rapid sequence induction

6.7 Avoid manual bagging (manual bagging without a filter and a tight fit face mask to

prevent air leak will result in high risk of disease transmission to staff)

6.8 Intubate and confirm correct position of tracheal tube

6.9 Administer one dose of medium acting muscle relaxant

6.10 Institute mechanical ventilation

6.11 Anaesthetist handovers patient to Parent Team Doctor

6.12 Anaesthetist and OTA/AA perform proper gown down in designated "Gown Down" area before packing up the used items.

6.13 Anaesthetist should perform proper documentation after gown down.

6.14 Anaesthetist and OTA/AA should go back to D3 changing room to take shower as soon as possible after leaving the AIIR/general ward

7 Cardiopulmonary Resuscitation:

7.1 Follow ACLS algorithm, avoid manual bagging

7.2 Apply Oxygen 6L/min through a nasal cannula during CPR before intubation.

8 Recommendations to Parent Team:

8.1 Sedation: ensure adequate sedation to prevent patient agitation, tube buckling and accidental self extubation. This is crucial for patient safety and avoid disease transmission to staff.

8.2 Use close suction system

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