



Prince Sultan Military Medical City

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وزارة الدفاع
MINISTRY OF DEFENSE

Departmental Policy	Dept.: Intensive Care Services	Policy No: 1-2-9451-01-034 Version No: 02		
Title: Endotracheal Intubation		JCI Code: COP		
Supersedes 1-2-9451-01-034 Version No: 01; 30 September 2019	Issue Date:	Effective Date: 27 SEP 2023	Revision Date: 26 SEP 2026	Page 1 of 6

1. INTRODUCTION

- 1.1 Endotracheal Intubation is an invasive procedure which is frequently performed in the Department of Intensive Care Services (**ICS**). This procedure most of the times are done in urgent or emergent situation.
- 1.2 It causes a significant risk of morbidity & mortality.
- 1.3 It can be painful and may cause discomfort to the patient.
- 1.4 Difficult intubation poses a significant risk of complication to this procedure including death.

2. PURPOSE

- 2.1 To provide the staff with the basic procedure guideline for patient safety and to prevent the pain and discomfort associated with the procedure.
- 2.2 It will also delineate the procedure for the difficult airway.

3. APPLICABILITY

- 3.1 It is applicable to all healthcare worker involved in the care of ICS patients.

4. RESPONSIBILITIES

- 4.1 Director & his designee along with the Head of Respiratory Care Division of ICS is responsible for the implantation and compliance of this policy.

5. POLICY

- 5.1 The ICS staff should obtain patient/relative consent for the procedure of intubation except in emergent or life-threatening situation.
- 5.2 All intubation done in the ICS coverage areas should be done by the trained staff who has the clinical privilege for this procedure.



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- 5.3 All ICS staff should be taught and trained for intubation in critical ill patient by lectures, workshops & courses.
- 5.4 The patient's airway should always be assessed for difficulty of intubation.
- 5.5 Adjunct medications that facilitate intubation should be arranged and prepared by bedside/ICU nurse as per physician request.
- 5.6 Difficult Airway Society (DAS) algorithm in critical patient will be followed in case of unexpected difficult airway. (Appendix III).
- 5.7 Difficult intubation should be done by the Team leader of ICS or in his direct presence, and clear back-up plan should be arranged.
- 5.8 Respiratory Therapist (RT) is responsible for preparing & arranging the equipment necessary for the procedure as requested by the physician including laryngoscope, video laryngoscope, and bronchoscope. (See standard intubation kit, and difficult intubation kit bags, appendices II & IV).
- 5.9 Difficult intubation is defined as 3 failed attempts, and the type of difficult should be categorized as the following: difficult laryngoscopy, difficult ETT insertion, and difficult intubation and oxygenation (CICO).
- 5.10 Procedure documentation is mandatory including the difficulties. Intubation form is to be completed by the physician. (Appendix XI)

6. PROCEDURES

6.1 Indications

- 6.1.1 Hypoxemic Respiratory failure.
- 6.1.2 Hypercapnic Respiratory failure.
- 6.1.3 Decreased level of consciousness.
- 6.1.4 Unable to protect the airway.
- 6.1.5 Bronchial toileting.
- 6.1.6 Need for hyperventilation.



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- 6.1.7 Relief of obstruction.
- 6.1.8 Shock.
- 6.1.9 Respiratory distress (work of breathing).

6.2 Assessment

- 6.2.1 The patient should be assessed for airway difficulty before the procedure.
- 6.2.2 **MACOCHA Score** is recommended for critical patient, and LEMON score is an alternative. (Appendices V & VI)
- 6.2.3 If MACOCHA score is <3 , difficult intubation is unlikely, and it is considered as regular preparation and guidelines are to be followed.
- 6.2.4 If MACOCHA score is ≥ 3 , difficult intubation is anticipated and special preparation (difficult intubation kit) and back-up plan are recommended.
- 6.2.5 Mallampati classification can be done in supine position if sitting position is not possible.

6.3 Preparation

- 6.3.1 Preparation checklist is recommended to be used. (Appendix I).
- 6.3.2 All necessary equipment and should be arranged before time using standard intubation kit. (Appendix II).
- 6.3.3 Difficult intubation kit bag/trolley should be kept near the patient if difficult intubation is anticipated (Appendix IV), including videolaryngoscope and fiberscope.
- 6.3.4 5 standard intubation kit bags, and 3 difficult airway bags should be available and regularly checked by respiratory therapist in charge to cover all buildings in PSMMC.

6.4 Preoxygenation

- 6.4.1 All patient should be preoxygenated. (Appendix VII).
- 6.4.2 In case of uncooperative patient, delayed sequence intubation method is advised. (Appendix VIII).



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6.5 Induction and intubation method

- 6.5.1 Head-up position 20-30° is recommended in all critical patients once possible.
- 6.5.2 Modified rapid sequence induction is recommended in critical patient once possible
- 6.5.3 Adjunct medications for intubation (especially sedatives and analgesics) should be used cautiously and in low doses in critical ill unstable patients. (Appendix IX).
- 6.5.4 Bedside / ICU nurse should administer the adjunct medications on the order of physician.
- 6.5.5 Cricoid pressure is optional, but if used it should be aborted once there is problem in ventilation or intubation.
- 6.5.6 Video laryngoscope is encouraged to be used as the first laryngoscopy method.
- 6.5.7 Early call for help is mandated after the first failed attempt & not more than 3 attempts should be made by the first physician & fourth attempt should be left for the senior member of the team.
- 6.5.8 Awake intubation technique is indicated in some critical ill patient, e.g. cervical spine injury, or known difficult airway (Appendix X).
- 6.5.9 If supraglottic airway is indicated (failed intubation), second generation is recommended to be used if available.
- 6.5.10 In case of can't intubate can't oxygenate (CICO) scenario, surgical scalpel cricothyrotomy is recommended, and cricothyrotomy kit is optional.

6.6 ETT confirmation

- 6.6.1 ETT confirmation is mandatory before securing the tube.
- 6.6.2 ETT should be confirmed by physician using wave capnography as the gold standard if available, or CO2 colorimetric detector, in addition to clinical methods like auscultation and chest movement.
- 6.6.3 Ultrasound confirmation of ETT is an option and depends on the physician experience.



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6.7 Post-intubation care

- 6.7.1 Once ETT position is confirmed, tube should be secured and tied by RT at the level of the lips.
- 6.7.2 CXR should be done to confirm the level of ETT.

6.8 Complications

- 6.8.1 Upper airway trauma.
- 6.8.2 Trauma to teeth.
- 6.8.3 Bleeding.
- 6.8.4 Pneumothorax / surgical emphysema.
- 6.8.5 Infection.
- 6.8.6 Aspiration pneumonitis.
- 6.8.7 Hypotension.
- 6.8.8 Arrhythmias.
- 6.8.9 Oesophageal intubation.

6.9 Documentation

- 6.9.1 The procedure should be documented including the type of difficult intubation and complications by the physician in the intubation documentation form. (Appendix XI)

7. REFERENCES

- 7.1 Guidelines for the management of tracheal intubation in critically ill adults, difficult airway society (DAS), 2017.

8. APPENDICES

- 8.1 Appendix I (Preparation checklist)
- 8.2 Appendix II (Standard intubation kit bag)
- 8.3 Appendix III (Difficult Airway Society algorithm in critical patient)



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- 8.4 Appendix IV (Difficult Airway kit bag/trolley)
- 8.5 Appendix V (MACOCHA score)
- 8.6 Appendix VI (LEMON score)
- 8.7 Appendix VII (Preoxygenation methods)
- 8.8 Appendix VIII (Delayed sequence intubation method)
- 8.9 Appendix IX (Adjunct medications for intubation)
- 8.10 Appendix X (Awake intubation technique)
- 8.11 Appendix XI (Intubation documentation form)

9. ORIGINATING DEPARTMENT/S

9.1 Department of Intensive Care Services

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