
		Prince Sultan Military Medical City <u>Controlled Document, Not to be Reproduced</u>		 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:	Revision Date:	Page 1 of 6
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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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