# Failed Adult Intubation in the Pregnant Women

## PROFILE

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# Failed Adult Intubation in the Pregnant Women

## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Introduction</td>
<td>3</td>
</tr>
<tr>
<td>2.0</td>
<td>Objectives</td>
<td>3</td>
</tr>
<tr>
<td>3.0</td>
<td>Scope</td>
<td>3</td>
</tr>
<tr>
<td>4.0</td>
<td>Definitions</td>
<td>3</td>
</tr>
<tr>
<td>5.0</td>
<td>Procedure</td>
<td>3</td>
</tr>
<tr>
<td>6.0</td>
<td>Equality</td>
<td>6</td>
</tr>
<tr>
<td>7.0</td>
<td>Review</td>
<td>6</td>
</tr>
<tr>
<td>8.0</td>
<td>Training and Awareness</td>
<td>6</td>
</tr>
<tr>
<td>9.0</td>
<td>Monitoring</td>
<td>6</td>
</tr>
<tr>
<td>10.0</td>
<td>References</td>
<td>6</td>
</tr>
<tr>
<td>11.0</td>
<td>Further enquiries</td>
<td>7</td>
</tr>
<tr>
<td>12.0</td>
<td>Appendix 1 Failed Intubation / Ventilation Drill Algorithm</td>
<td>8</td>
</tr>
</tbody>
</table>
1.0 Introduction

Almost every pregnant woman will have some degree of oedema including laryngeal oedema and as such failed intubation is more common in obstetric anaesthesia compared with the non pregnant population (approx. 1 in 300 cf. 1 in 2230). It is a potentially life threatening situation and as the condition of both mother and baby can deteriorate rapidly requires a well rehearsed drill to ensure correct management.

2.0 Objectives

- To ensure that there is clear identification of the appropriate equipment for failed intubation.
- To ensure that oxygenation is maintained.
- To ensure that alternative methods of anaesthesia are used where appropriate.

3.0 Scope

To provide an algorithm for the management of failed intubation that allows the anaesthetist and the rest of the theatre team to proceed in the safest manner for the patient. The prime objective of the drill must be to ensure maternal oxygenation which should take preference over other considerations such as fetal well-being and risk of regurgitation.

4.0 Definitions

Failed intubation: the inability to intubate during general anaesthesia.

5.0 Procedure

5.1 Failed Laryngoscopy / Intubation Drill

Appropriate equipment should be identified in the delivery suite theatre. If laryngoscopy or intubation is deemed impossible, a failed intubation drill must be initiated without delay. Whilst instituting one change in technique (head position, change of laryngoscope, use of gum elastic bougie) is acceptable, time should not be wasted with repeated attempts as these are more likely to be detrimental than of benefit.
5.1.1 If Still Unable to Intubate;

- **CALL FOR HELP** - Midwives in theatre to contact senior anaesthetist (2nd on call and/or consultant on call).
- Do not give a second dose of suxamethonium.
- Maintain cricoid pressure and keep mother supine with left lateral uterine displacement.
- Attempt to maintain oxygenation at all times. Maternal oxygenation is the main priority taking preference over fetal concerns and the risk of regurgitation. It is important to ventilate the lungs with 100% oxygen via bag and mask as soon as possible. Two hands should be used. The seal should be broken intermittently (Triple manoeuvre) and different head positions attempted. If this is successful, consideration must then be given to the urgency of the procedure (see Urgency of procedure section). However, should ventilation not be possible, even with optimal maternal positioning, a **Failed Ventilation Drill** must be instituted.

5.2 Failed Ventilation Drill

5.2.1 If ventilation of the lungs is impossible with bag and mask, the simplest initial procedure is to ease cricoid pressure, as if excessive force is applied it can obstruct the airway. Simply easing the pressure may make ventilation possible without greatly increasing the risk of regurgitation. If this is ineffective the problem is probably anatomical.

5.2.2 Insertion of a Guedel airway may aid the situation but the laryngeal mask airway (LMA) is generally considered to be the most useful device if ventilation fails. A Jet Ventilator and Trans-Tracheal device are also available. Cricoid pressure should be released to allow correct insertion of the LMA. Once in place it may be possible to reapply cricoid pressure but if this compromises ventilation it should again be released as the need for oxygenation outweighs the risk of regurgitation. If the patient begins to breathe at any point transfer her to the left lateral position.

5.2.3 If ventilation is still impossible, a transtracheal airway must be inserted. Cricothyrotomy is performed using the specific cricothyrotomy kit (Cooke airway set or minitrach set, depending on which is most familiar) which can be connected to the anaesthetic breathing system or with a 14G venflon using high pressure ventilation. Correct placement must be confirmed by aspirating air as a misplaced tube will lead to surgical emphysema. The Cooke airway is on the wall behind the anaesthetic machine whilst all other kit is contained in the “Difficult Airway” box on top of the machine(City site) and on the difficult airway trolley (Sandwell site).

5.2.4 If all these methods have failed the final option is to perform a surgical cricothyrotomy using a scalpel and size 6.0 endotracheal tube.
5.2.5 Once the patient is oxygenated by one of these means, the urgency of the procedure must be considered. If all methods have failed surgery should continue in an attempt to save the fetus.

5.3 The Urgency of the Procedure

Once it is possible to ventilate the lungs and ensure maternal oxygenation, consideration should be given to the degree of urgency of the procedure. The following system can be used to aid the anaesthetist in deciding between continuing general anaesthesia (GA) without the protection of an endotracheal tube and using an alternative technique which will result in a degree of delay.

It gives 5 grades:

- **Grade 1** - Mother’s life depends on completion of surgery e.g. cardiac arrest, massive haemorrhage.
- **Grade 2** - Maternal pathology makes alternative regional techniques impossible e.g. decompensated heart disease or coagulopathy.
- **Grade 3** - Sudden and severe fetal distress not recovering between contractions e.g. in placental abruption or prolapsed cord.
- **Grade 4** - Long standing fetal distress of varying severity with good recovery between contractions.
- **Grade 5** - Elective procedure or maternal distress.

The decision whether to continue GA is more clear for some grades than others:

- **Grade 1** - No alternative but to continue GA.
- **Grade 2** - Probably acceptable to continue GA but should consider awake fibre optic intubation.
- **Grade 3** - Most difficult grade. Abandoning GA may lead to fetal death but it could be argued that maternal well-being is paramount and waking the patient for a regional technique would be appropriate. This decision must be made based on obstetric circumstances and the quality of the maintained airway.
- **Grade 4** - The patient should be woken and a regional technique performed.
- **Grade 5** - Absolutely no indication to continue under GA and the patient should be woken and an alternative technique used.

This is a different grading to that which is currently being used for urgency of caesarean section.

5.4 Subsequent Management

5.4.1 **When GA is discontinued**: Positive pressure ventilation should continue until the mother starts to breath spontaneously. She should then be placed in the lateral position and allowed to recover whilst receiving oxygen. The choice most then be made as to whether a spinal, epidural or awake fibre-optic intubation is most appropriate.
5.4.2 **When Continuing GA:** If it is decided to continue under GA it is important to convert to a spontaneously breathing technique. The depth of anaesthesia must be rapidly increased to ensure safe surgical anaesthesia is achieved before surgical stimulation. This involves giving a high percentage of volatile agent in 100% oxygen. Postoperatively the mother must be counselled about the difficult intubation.

5.4.3 **Appendix 1:** Full algorithm for failed intubation management.

### 6.0 Equality

The Trust recognises the diversity of the the local community and those in its employ. Our aim is, therefore, to provide a safe environment free from discrimination and a place where all individuals are treated fairly, with dignity and appropriately to their need. The Trust recognises that equality impacts on all aspects of its day-to-day operations and has produced and Equality Policy Statement to reflect this. All policies are assessed in accordance with the Equality initial screening toolkit, the results for which are monitored centrally.

### 7.0 Review

This policy will be reviewed in 3 years time. Earlier review may be required in response to exceptional circumstances, organisational change or relevant changes in legislation of guidance.

### 8.0 Training and Awareness

- This guideline should be made available within the ward area and staff made aware of its availability on the Trust intranet.
- Annual training for this emergency should be carried out by the consultant anaesthetist.

### 9.0 Monitoring

All cases of failed obstetric adult intubation to be managed according to this policy, there should be clear documentation in the maternal records as to events and treatment administered.

### 10.0 References

Harmer M. *Difficult and failed intubation in obstetrics* IJOA (1997) 6: 25-31


**11.0 Further enquiries**

Contact Consultant Anaesthetist for further information regarding this policy.
APPENDIX 1

Failed Intubation / Ventilation Drill Algorithm

1st ATTEMPT FAILED

- TRY x1 MANOEURE TO IMPROVE VIEW e.g
  - head position
  - change of laryngoscope
  - bougie

IF STILL UNSUCCESSFUL

CALL FOR HELP
DO NOT WASTE TIME WITH REPEATED ATTEMPTS
DO NOT GIVE SUXAMETHONIUM x2
GIVE OXYGEN
MAINTAIN CRICOID PRESSURE BUT DO NOT TURN

VENTILATION POSSIBLE?

YES

URGENT NEED TO CONTINUE?

YES

Spontaneously breathing technique

Maintain airway with existing method

High concentration of volatile in 100% oxygen

Allow anaesthesia to deepen

NO

Wake

Regional technique possible

Adequate block?

Awake Fibreoptic

PROCEED WITH SURGERY

NO

FAILED VENTILATION DRILL

EASE CRICOID PRESSURE

Ventilation possible?

YES

NO

LMA (combitube)

Ventilation possible?

YES

NO

Cricothyrotomy

Ventilation possible?

YES

NO

Surgical cricothyrotomy only as last resort