Master algorithm – obstetric general anaesthesia and failed tracheal intubation

Algorithm 1
Safe obstetric general anaesthesia

Pre-induction planning and preparation
Team discussion

Rapid sequence induction
Consider facemask ventilation ($P_{max}$ 20 cmH$_2$O)

Laryngoscopy
(maximum 2 intubation attempts; 3rd intubation attempt only by experienced colleague)

- Success
  - Verify successful tracheal intubation and proceed
  - Plan extubation

- Fail
  - Declare failed intubation
  - Call for help
  - Maintain oxygenation
  - Supraglottic airway device (maximum 2 attempts) or facemask

Algorithm 2
Obstetric failed tracheal intubation

- Declare CICO
  - Give 100% oxygen
  - Exclude laryngospasm – ensure neuromuscular blockade
  - Front-of-neck access

- Fail
  - Success
    - Is it essential / safe to proceed with surgery immediately?*
      - Yes
        - Proceed with surgery§
      - No
        - Wake§

Algorithm 3
Can’t intubate, can’t oxygenate

*See Table 1, §See Table 2

Algorithm 1– safe obstetric general anaesthesia

Pre-theatre preparation
- Airway assessment
- Fasting status
- Antacid prophylaxis
- Intrauterine fetal resuscitation if appropriate

Plan with team
- WHO safety checklist / general anaesthetic checklist
- Identify senior help, alert if appropriate
- Plan equipment for difficult / failed intubation
- Plan for / discuss: wake up or proceed with surgery (Table 1)

Rapid sequence induction
- Check airway equipment, suction, intravenous access
- Optimise position – head up / ramping + left uterine displacement
- Pre-oxygenate to $F_{ET}O_2 \geq 0.9$ / consider nasal oxygenation
- Cricoid pressure (10 N increasing to 30 N maximum)
- Deliver appropriate induction / neuromuscular blocker doses
- Consider facemask ventilation ($P_{max} 20 \text{ cmH}_2\text{O}$)

1st intubation attempt
- If poor view of larynx optimise attempt by:
  - reducing / removing cricoid pressure
  - external laryngeal manipulation
  - repositioning head / neck
  - using bougie / stylet

Fail
- Ventilate with facemask
- Communicate with assistant

2nd intubation attempt
- Consider:
  - alternative laryngoscope
  - removing cricoid pressure

3rd intubation attempt only by experienced colleague

Success
- Verify successful tracheal intubation
- Proceed with anaesthesia and surgery
- Plan extubation

Follow Algorithm 2 – obstetric failed tracheal intubation
Is it essential / safe to proceed with surgery immediately?*

Yes

Proceed with surgery³

No

Wake³

Follow Algorithm 3
Can’t intubate, can’t oxygenate

Is adequate oxygenation possible?

No

Facemask +/- oropharyngeal airway
Consider:
• 2-person facemask technique
• Reducing / removing cricoid pressure

Supraglottic airway device
(2nd generation preferable)
Remove cricoid pressure during insertion (maximum 2 attempts)

Yes

Declare failed intubation
Theatre team to call for help
Priority is to maintain oxygenation

*See Table 1, ³See Table 2

Declaration of emergency to theatre team
Call additional specialist help (ENT surgeon, intensivist)
Give 100% oxygen
Exclude laryngospasm – ensure neuromuscular blockade

Perform front-of-neck procedure

Is oxygenation restored?

No

Maternal advanced life support
Perimortem caesarean section

Yes

Is it essential / safe to proceed with surgery immediately?*

No

Wake§

Yes

Proceed with surgery§

*See Table 1, §See Table 2

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<thead>
<tr>
<th>Factors to consider</th>
<th>WAKE</th>
<th>PROCEED</th>
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<td>• Laryngeal oedema</td>
<td>• Bleeding</td>
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### Table 2 – management after failed tracheal intubation

**Wake**

- Maintain oxygenation
- Maintain cricoid pressure if not impeding ventilation
- Either maintain head-up position or turn left lateral recumbent
- If rocuronium used, reverse with sugammadex
- Assess neuromuscular blockade and manage awareness if paralysis is prolonged
- Anticipate laryngospasm / can’t intubate, can’t oxygenate

**After waking**

- Review urgency of surgery with obstetric team
- Intrauterine fetal resuscitation as appropriate
- For repeat anaesthesia, manage with two anaesthetists
- Anaesthetic options:
  - Regional anaesthesia preferably inserted in lateral position
  - Secure airway awake before repeat general anaesthesia

**Proceed with surgery**

- Maintain anaesthesia
- Maintain ventilation - consider merits of:
  - controlled or spontaneous ventilation
  - paralysis with rocuronium if sugammadex available
- Anticipate laryngospasm / can’t intubate, can’t oxygenate
- Minimise aspiration risk:
  - maintain cricoid pressure until delivery (if not impeding ventilation)
  - after delivery maintain vigilance and reapply cricoid pressure if signs of regurgitation
  - empty stomach with gastric drain tube if using second-generation supraglottic airway device
  - minimise fundal pressure
  - administer H₂ receptor blocker i.v. if not already given
- Senior obstetrician to operate
- Inform neonatal team about failed intubation
- Consider total intravenous anaesthesia