Difficult Airway Management

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Assess anatomy and physiology

Risk area	Key findings
Mask ventilation	Beard; edentulous facial structure; obesity or OSA; facial trauma; edema; limited jaw movement.
Intubation	Limited mouth opening; small or recessed jaw; large tongue; limited neck movement; airway distortion; prior difficult intubation.
Physiologic tolerance	Severe hypoxemia; hypotension; severe metabolic acidosis; right-heart dysfunction.
Progression	Increasing hoarseness, swelling, bleeding, secretions, or obstruction. A normal SpO_2 does not establish airway patency.

Assessment memory aid: dentition, distortion, disproportion, dysmobility. Combine history and examination; Mallampati alone is insufficient.

Preparation checklist

- Identify the primary operator, first technique, backup plans, and team roles.
- Optimize head and torso position; use head-up or ramped positioning when appropriate. Respect cervical restrictions.
- Preoxygenate with an effective seal. Consider CPAP or NIV when positive pressure is needed; plan continued nasal oxygen or HFNO when appropriate.
- Check suction, oxygen, mask and bag, airway adjuncts, capnography, and device function. Prepare second-generation SGA and emergency front-of-neck equipment.
- Address hypotension and anticipate intolerance of apnea or loss of compensatory ventilation.

Consider awake intubation

When difficult intubation is anticipated, consider an awake strategy if ventilation may be difficult, aspiration risk is increased, brief apnea may not be tolerated, or emergency invasive access may be difficult. Provide oxygen and adequate topical anesthesia; use sedation cautiously. Confirm tracheal placement before general anesthesia. [1, 3]

Recognize inadequate mask ventilation

Poor chest rise, weak air movement, minimal or absent exhaled CO_2 when circulation is present, or falling SpO_2 require immediate reassessment. Reposition, improve the seal, add an appropriate airway adjunct, and use two-person technique. One person maintains a two-handed seal and airway opening; the second delivers controlled breaths. Escalate if ineffective.

Devices and failed attempt troubleshooting

Device	Useful role	Key limitation
Video laryngoscope	First-line whenever possible; improves glottic visualization.	Good view does not ensure tube passage; contamination can obscure the lens.
Direct laryngoscope	Alternative according to conditions, anatomy, and operator skill.	Needs a direct line of sight; positioning affects success.
Bougie or stylet	Assists tube trajectory and delivery.	Do not force against resistance; reassess the approach.
Second-generation SGA	Rescue oxygenation; selected devices permit guided intubation.	May not ventilate every airway; avoid blind intubation through it.
Flexible bronchoscope	Awake intubation, difficult anatomy, or guided intubation through a suitable SGA.	Expertise required; blood and secretions impair visualization.

After a failed attempt

Stop and declare failure. Restore oxygenation, identify the cause, and change the conditions or technique. DAS limits tracheal intubation to three attempts plus one final attempt by a more experienced clinician. This is a maximum, not a target; worsening oxygenation or trauma may require earlier escalation. [2]

Failure pattern	Change to consider
Poor view	Position, suction, blade or device, external assistance, operator.
Good view but tube will not pass	Tube shape and trajectory, stylet or bougie, blade position, delivery technique.
Blood or secretions obscure view	Clear contamination; reconsider suction strategy and camera-dependent technique.
Cannot ventilate	Optimize airway opening, mask seal, adjuncts, and two-person ventilation; progress to rescue SGA as indicated.

DAS adult rescue sequence

- Plan A — Tracheal intubation. Optimize the first attempt; recognize failure and limit attempts.
- Plan B — Second-generation SGA rescue. If oxygenation is restored, pause and reassess the next step.
- Plan C — Final optimized facemask ventilation after failed SGA rescue.
- Plan D — If intubation, SGA, and facemask oxygenation fail, declare CICO, call for help, and proceed promptly to emergency front-of-neck access with the trained airway team.

Continue oxygen delivery and reassessment throughout. Use the full algorithm and local protocol. [2]

Confirmation extubation and communication

Confirm tracheal placement

Use visual confirmation when possible and sustained waveform capnography. Chest rise, breath sounds, condensation, and improving SpO_2 do not independently establish tracheal placement. Absent sustained exhaled CO_2 requires immediate evaluation; do not assume the tube is correctly positioned.

Difficult airway extubation checklist

- Assess oxygenation, ventilation, mental status, airway patency, edema, and secretion management.
- Determine whether reintubation will be difficult and what failure would mean.
- Choose appropriate timing, location, experienced help, monitoring, and immediately available reintubation equipment.
- Consider a staged extubation using an airway exchange catheter in selected patients, with trained personnel and monitoring.
- Plan post-extubation support, including HFNO or CPAP when appropriate. Monitor for obstruction, hypoxemia, increasing work of breathing, and need for early reintubation.

Communicate and document

Use specific observations: "SpO_2 is falling," "There is no chest rise," or "There is no sustained exhaled CO_2." Assign actions by name and confirm completion. Declare failure clearly to prevent task fixation.

Document what was difficult, devices and techniques attempted, what worked, effectiveness of mask and SGA ventilation, and complications. Inform the next team and the patient or responsible person as appropriate. [1]

Abbreviations

CICO: cannot intubate, cannot oxygenate. HFNO: high-flow nasal oxygen. NIV: noninvasive ventilation. OSA: obstructive sleep apnea. SGA: supraglottic airway. SpO_2: peripheral oxygen saturation.

Key references

1. Apfelbaum JL, Hagberg CA, Connis RT, et al. 2022 ASA Practice Guidelines for Management of the Difficult Airway. Anesthesiology. 2022;136:31–81. doi:10.1097/ALN.0000000000004002.

2. Difficult Airway Society 2025 guidelines for management of unanticipated difficult tracheal intubation in adults. British Journal of Anaesthesia. doi:10.1016/j.bja.2025.10.006. Algorithms: https://das.uk.com/guidelines/das_intubation_guidelines/

3. Ahmad I, El-Boghdadly K, Bhagrath R, et al. DAS guidelines for awake tracheal intubation in adults. Anaesthesia. 2020;75:509–528. https://pmc.ncbi.nlm.nih.gov/articles/PMC7078877/