Simulation Scenario: Unanticipated Difficult Tracheal Intubation for Novice Anaesthetists (DAS 2025 Guidelines)

Scenario: Cannot Intubate, Cannot Oxygenate in an unanticipated difficult airway

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Learner: Novice Anaesthetists, Anaesthetic Assistants.

Intended Learning Outcomes (ILOs):

By the end of the session the learner should be able to:

1. Demonstrate effective interprofessional communication with confirmation of the airway management strategy prior to induction, ensuring shared understanding of roles, anticipated difficulties, oxygenation plans and escalation criteria.
2. Establish and maintain a shared mental model regarding the evolving balance between difficulty in airway management and effective oxygenation throughout the scenario.
3. Apply the DAS 2025 algorithm for Unanticipated Difficult Tracheal Intubation and demonstrate appropriate transition through Plans A-D of the algorithm in a simulated environment
4. Demonstrate the ability to make timely decisions during the management of the unanticipated difficult airway and understand the importance of effective decision making
5. Apply structured, concise, and appropriately timed communication during handover to arriving help, ensuring minimal interference with ongoing airway interventions.

Faculty: Simulation / educational faculty

Recommended timing: 15 - 20 min scenario + 40 min debriefing

Background & Setup

Background to Scenario:

This scenario is an unanticipated difficult airway in an ASA 1 patient undergoing elective diagnostic laparoscopy. Learners are asked to induce anaesthesia and manage the airway under local supervision from an Anaesthetic Consultant. They will encounter failed intubation (max 3+1 attempts), unsuccessful ventilation and oxygenation with a SAD and facemask. The patient will deteriorate, and they will need to proceed to emergency front of neck airway (eFONA). They are expected to call for help early and follow the DAS 2025 guidelines.

Specific Setup:

- Intubatable Mannikin that allows for Front of Neck Airway (or suitable part task trainer alternative)
- Trolley/patient bed
- Anaesthetic machine with included simulated patient monitor with standard basic monitoring including ETCO2
- Pre and peroxygenation equipment including nasal cannula and high-flow nasal oxygen (HFNO) if available
- Videolaryngoscope (VL) with Macintosh and hyperangulated blades

- Airway trolley set up with standard equipment (ETT, syringe, bougie, stylet, facemask, OPA (Guedel), 2nd generation supraglottic airway (SAD), anglepiece, catheter mount)
- eFONA kit (size 10 scalpel, size 6.0 ETT, caudé tip bougie)
- Labelled syringes (induction agent, opioid, muscle relaxant, emergency drugs)
- IV cannula
- 1000ml crystalloid with giving set
- Copy of DAS 2025 Guidelines for Unanticipated Difficult Airway
- Quick reference handbook
- Sharps bin

Required Roles / Participants:

- Anaesthetist(s)
- Anaesthetic Assistant (learner or embedded faculty)
- Runner (optional faculty)

Patient & Clinical Baseline

You are the anaesthetic resident/allied health professional on an elective gynaecology list. The consultant assigned to this list is having lunch in the canteen and is happy for you to proceed with the next case with local supervision. The next patient on your list is Mrs Harpreet Kaur, a 35-year-old woman who is booked for an elective diagnostic laparoscopy. She had been pre-assessed by your colleague and is appropriately fasted. She is in the anaesthetic room, standard monitoring is applied and the WHO sign in is complete.

Anaesthetic Assessment:

- BMI 24
- ASA 1, no past medical history. No GORD.
- Airway: MP3, good mouth opening and neck extension, jaw slide A.
- No previous anaesthetics

Drug history:

- Nil regular medications
- NKDA

You are not expected to complete any further history or consent. Appropriate IV induction medication was prepared by the consultant prior to patient arrival. Please discuss your plan with the Anaesthetic Assistant and proceed to anaesthetise Mrs Kaur.

Guidance to Faculty

Guidance for Anaesthetic Assistant role:

You are available to support the learner in whichever way they request and perform clinical tasks if specifically instructed to do so. As the scenario progresses, you should monitor attempts and inform the learner of any clinical findings (e.g. desaturation) as they arise. Be prepared to prompt and prepare for next steps.

Guidance for senior role:

Based on faculty discretion and scenario progress arrival can be at the point of failed facemask ventilation or following successful eFONA. If arriving following failed facemask ventilation please prompt the learner to perform eFONA themselves (if the decision has not already been made), offering to provide the second attempt if required. You will continue delivery of oxygen to upper airway. If arriving after completion of eFONA please take handover and prompt next steps to complete e.g. ENT review and maintenance anaesthesia.

Scenario Progression & Actions

Phase	Trigger	Status/Observations	Expected learner behaviours
Baseline		The patient, Mrs Kaur, should be on the patient trolley/bed. IV access should be in situ with a 1L bag of crystalloid fluid freely flowing. The IV induction medication should be prepared and placed on the anaesthetic machine alongside a tray of 'emergency drugs'. The anaesthetic assistant should have an airway trolley set up with expected plan A airway equipment immediately available. **The observations are:** **SpO2 98%, self ventilating in air with a respiratory rate of 12.** **HR 80 bpm, BP 115/70 mmHg.** **Alert and orientated with eyes open.** **As preoxygenation is started the spO2 should rise to 100%, the FiO2 should rise to 0.98 and EtO2 to 0.85.**	Mrs Kaur will be able to provide relevant history if requested. The learner will be expected to introduce themselves to the patient, communicate the induction/airway plan to the anaesthetic assistant, optimise patient position and start preoxygenation.

1	Induction of anaesthesia	After induction of anaesthesia: **Eyes close** **HR 60 bpm** **BP 110/50 mmHg** **SpO_2 100%** **RR 0** Manikin settings: Airway resistance 100% Airway compliance 0% Difficult airway features activated if available. Airway resistance should be increased to 100%, airway compliance to 0% and difficult airway features available e.g. neck stiffness, pharyngeal obstruction should be activated. Reminders to participants may be required if features are not available to achieve a difficult airway.	Clear communication re airway plan. Adequate preoxygenation guided by ETO_2/$ETCO_2$. Optimisation of position.
2	Failed attempts at laryngoscopy using VL with choice of blade.	Failed attempts (x3). Patient desaturates after 3rd attempt. **The observations changes include:** **Dropping of spO2 to 92% over 3-4 minutes.** **HR up trends to 80 and increases to 130/90.**	- Call for early senior help. - Limit laryngoscopy attempts to a maximum of three in total (the participant is not required to have 3 attempts and can make the decision to progress earlier). - Ensure anaesthesia is maintained throughout. - Declare ***"Failed intubation"*** clearly. - Optimise oxygenation and peroxygenation in line with Plan A. - Progress to Plan B by attempting ventilation via a supraglottic airway device (SAD). - Prime for Plan D by requesting the eFONA kit. - Verbally declare the intended eFONA technique at this stage.

3	Failed ventilation via SAD. Allow up to 3 attempts at ventilation via SAD, but patient desaturating.	Manikin settings: Airway resistance 100% Airway compliance 0% Difficult airway features deactivated to facilitate SAD insertion. Progressive desaturation over 1-2 minutes to: **HR 100 bpm** **BP 150/90** **SpO_2 85%** No $ETCO_2$ when attempting to ventilate via SAD.	- Maximum 3 attempts at SAD ventilation with optimisation (the participant is not required to have 3 attempts and can make the decision to progress earlier). - Declare "***Failed SAD ventilation"*** and ***"Move to Plan C: facemask ventilation".*** - Move to Plan C, commencing facemask ventilation with optimisation. - Request the eFONA kit to be opened and prepared.
4	Failed attempts at facemask ventilation despite optimisation/ adjuncts The senior help (embedded faculty) can arrive at this transition.	**The observations changes include:** **Dropping of spO2 to 80% over 1 minute.** **HR down trends to 40 and decreases to 70/30 over 2 minutes.**	- Failed attempt at facemask ventilation despite: ○ Optimisation of position ○ Ensure paralysis ○ Use of airway adjuncts - Declare **"*Cannot intubate, cannot oxygenate"*** and ***"Move to Plan D: eFONA"*** - Move to Plan D and perform eFONA.

5	Successful eFONA.	Following successful completion of eFONA on the manikin or part task trainer, patient stabilises to: **HR 80 bpm** **BP 90/60 mmHg** **SpO_2 96%** Regular square-wave $ETCO_2$ trace 7kPa. Manikin settings: Airway resistance 0% Airway compliance 100%	Learner to display leadership and role clarity with clear communication During this stage the learner would be expected to: • Optimize positioning, ensure paralysis, maintain oxygenation delivery to upper airway, maintain anaesthesia. • Request appropriate equipment for eFONA including suction. • Complete the eFONA technique that was stated during the initial discussion or after failure of plan A. Senior help should arrive if not already provided. The participant should clearly hand over to the senior.

Decision & Escalation Points

Trigger	**Faculty action**
Learner choice of SAD as airway plan for this case.	If learner chooses SAD as airway plan for case can start from failed ventilation via SAD (phase 3) with slower progression of desaturation i.e. after 3rd SAD attempt.
Learner declaration of failed intubation after one or two attempts at laryngoscopy.	Allow learner to proceed to Plan B of DAS 2025 algorithm (attempted ventilation via SAD).
Learner failure to progress to Plan B/Plan C/Plan D when appropriate.	Prompt by faculty to recognise desaturation and attempt peroxygenation. Prompt for senior help.
Learner reluctance to continue airway management once senior help arrives.	Prompt by faculty that learner should continue airway management with support of senior help.

Debrief (faculty to use preferred debriefing tool)

The debriefing approach should be tailored by local faculty based upon experience. It would be recommended to use a validated debriefing model e.g. PEARLS/Diamond. The facilitator/debriefer leading the debrief should have appropriate training and ongoing CPD in simulation faculty development. The debrief should occur in a psychological safe way as described in the risk assessment.

This scenario allows for a broad range of learning objectives that are described as above. It may be appropriate for the facilitator/debriefer to focus on some the following actions during the debrief:

ILO1: Demonstrate effective interprofessional clarification and confirmation of the airway management strategy prior to induction, ensuring shared understanding of roles, anticipated difficulties, oxygenation plans and escalation criteria.

- *How did the team find the discussion of the airway plan before induction?*
- *What makes it difficult in real practice to be clear about roles, failed intubation criteria, escalation triggers, and things like priming the eFONA kit?*

ILO2: Establish and maintain a shared mental model regarding the evolving balance between intubation difficulty and effective oxygenation throughout the scenario.

- *How did the team stay on the same page as intubation became difficult but oxygenation was still effective?*
- *What do people do in real clinical settings when different team members have slightly different pictures of how things are going?*

ILO3: Know and apply the DAS 2025 algorithm for Unanticipated Difficult Tracheal Intubation and demonstrate appropriate transition of through Plans A-D of the algorithm in a simulated environment.

- *How did you recognise and agree that Plan A (intubation) had failed?*
- *What helped or made it harder to recognise failed SAD ventilation and move on through the DAS plans, including readiness for Plan D (eFONA)?*

ILO4: Demonstrate the ability to make timely decisions during the management of the unanticipated difficult airway and understand the importance of effective decision-making.

- *How do you decide whether to make another attempt or move on once failed intubation has occurred?*
- *What do you do if you notice task fixation or repeated attempts without meaningful change?*

ILO5: Apply structured, concise, and appropriately timed communication during handover to arriving help, ensuring minimal interference with ongoing airway interventions.

- *It looked like help arrived right in the middle of a laryngoscopy attempt, how does this affect the handover?*
- *What do you think are the most critical pieces of information to get across in this type of situation?*

Further resources / Feedback

- DAS 2025 guidelines
- Facilitators User Guide
- Human Factors Appendix, DAS 2025
- QR code for feedback