Airway Triage Application Method

The Core Idea

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The airway triage application method (ATAM) is a structured way to assess a patient's airway using two checklists and an algorithm, implemented in the Airway Triage App on a mobile device. It can be used for risk stratification.

Core idea

ATAM aims to predict whether an airway will be straightforward ("basic") or more challenging ("advanced"), and how complex that advanced airway is, before you start any airway management. It does this in about 60–90 seconds using standardised questions that go far beyond anatomy alone, including context, human factors, and vital signs.

The two checklists: PHASE and HELPET

ATAM is built around two validated, CE-registered checklists called PHASE and HELPET.

PHASE-checklist

- Designed to actively separate basic from advanced airways by checking for factors that would make airway management more than "routine".
- Each capital letter represents a domain (for example, patient history, airway exam, type of surgery, etc.), and within each domain you look for "complexity factors".
- If PHASE finds no relevant complexity factors, the airway is triaged as basic, suitable for basic techniques by a trained provider.

HELPET-checklist

- Used when the airway is advanced, to detect and grade complexity factors more precisely.
- Abnormal findings here trigger the algorithm to classify the airway as low-complexity advanced or high-complexity advanced.
- Multiple or severe complexity factors mean higher risk and a higher need for advanced skills, backup plans, and possibly help from more experienced airway managers.

The basic rule is: the more complexity factors you tick across the PHASE and HELPET domains, the higher the risk of complications.

Triage outcome and what you do with it

Once you run through PHASE and, if needed, HELPET, ATAM gives you three key outputs.

Airway type

- ***Basic airway***: Can be managed with basic tools and techniques (mask ventilation, standard laryngoscopy, supraglottic devices) by a trained person.
- ***Advanced airway***: Requires advanced skills and often special equipment (video laryngoscope, fibreoptic tools, surgical airway capability).

Complexity level (for advanced airways)

- ***Low-complexity advanced***: Advanced techniques needed, but risk manageable with good preparation.
- ***High-complexity advanced****:* Multiple or severe complexity factors; strong recommendation to optimise the environment, involve senior help, and have robust backup plans (including rescue and surgical airway strategies).

Suggested strategy support

- The app supports choosing a "gold standard" technique for that patient and situation and encourages you to plan alternatives and rescue strategies.
- It also provides cognitive aids such as a voice-guided "stop-and-go airway time-out" and a surgical airway drill.

What is different from traditional "difficult airway" prediction?

Traditional airway assessment often focuses heavily on anatomical predictors (Mallampati, neck mobility, mouth opening, etc.) and has a high rate of unanticipated difficulties. ATAM adds several domains that are usually under-recognised.

- Human factors and team issues (experience level, communication, stress, fatigue).
- Clinical context and vital signs (hemodynamic instability, hypoxia, time pressure).
- Procedure and equipment (type/urgency of surgery, device availability).

Because it standardises how all these domains are checked, ATAM can reduce cognitive overload, support teaching, and make unanticipated airway problems less likely.

Where and for whom it is used

- Intended for healthcare professionals who manage airways (anaesthesia, ICU, ED, EMS, pre-assessment clinics, procedural sedation).
- Validated for patients older than 12 years.
- Implemented as the Airway Triage App, available for mobile devices in multiple languages, with additional features for education, documentation, and research/audit.

When to use it

Use it in any case where you anticipate managing the airway in a patient >12 years, for example:

- Pre-assessment clinic before elective surgery.
- In the OR during team briefing or before induction.
- ICU/ED or procedural sedation when planning intubation or deep sedation.

Step 1 – Open PHASE: "Is this airway basic or advanced?"

You start in the app with the PHASE checklist, which you complete in under a minute.

- Go through each PHASE domain (history, physical/airway exam, context, procedure, human factors, etc.) and tap any present complexity factor.
- If PHASE finds no relevant factors, the app triages the airway as "basic", suitable for basic techniques by a trained provider without additional advanced planning.
- If any complexity factor is present, the airway is immediately classified as "advanced" and you proceed to HELPET.

In practice: an ASA II patient for short laparoscopic surgery, normal airway exam, stable vitals, no time pressure, experienced team, often ends as a basic airway.

Step 2 – Open HELPET: "How complex is this advanced airway?"

HELPET is only for advanced airways and is used to grade how challenging they are.

- You again tick present factors across the HELPET domains (more detailed/contextual complexity factors beyond PHASE).
- Few mild factors → low-complexity advanced airway; multiple or severe factors → high-complexity advanced airway
- The more factors you tick across PHASE and HELPET, the higher the predicted risk of intubation or ventilation problems.

Example: obese, hypoxic, septic patient in the ED, hemodynamically unstable, limited neck mobility, junior team, time-critical intubation → high-complexity advanced airway.

Step 3 – Use the triage result to plan your strategy

Once you have "basic vs advanced" and "low vs high complexity", you translate that into a concrete plan.

For basic airway

- Standard induction, mask ventilation, direct or video laryngoscopy, supraglottic device backup.
- You can usually proceed without extra personnel or equipment beyond your usual standard, although good practice still applies.

For low-complexity advanced airway

- Choose an advanced "gold standard" technique (e.g., VL first-line, asleep FOB, awake technique depending on factors).
- Prepare backup devices and rescue strategy (e.g., second-generation SGA, alternative VL blade, guidewire techniques).

For high-complexity advanced airway

- Escalate: involve the most experienced airway anesthesiologist available, secure extra help and equipment, consider awake intubation or alternative location (e.g., OR vs ward).
- Make an explicit front-of-neck/surgical airway plan, ensure ENT or surgical backup if indicated, and minimise attempts.

The idea is that you no longer rely on a vague "difficult airway" label but on a structured complexity grading that directly steers staffing, equipment, and strategy.

Step 4 – Human factors and "fit-to-fly" check

The app explicitly includes human factors and context (experience level, fatigue, time pressure, available equipment) and offers a "Circles of Life" or "fit-to-fly" check.

- This prompts you to ask: with this patient, in this setting, with this team and my current state, am I safe to proceed as planned?
- If the answer is "no", your triage result supports changing plan (e.g., moving to a more controlled environment, calling help earlier).

Step 5 – Use the in-app cognitive aids (optional but useful)

The app also contains:

- A voice-guided or on-screen airway time-out you can run with your team before induction.
- A step-wise surgical airway drill and other cognitive aids that align with your chosen strategy and help reduce cognitive load in crises.

Reference

Huitink JM. Airway triage: a novel application-based method for airway assessment and risk stratification. Br J Anaesth. 2024 May;132(5):987-990

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