

The ASA Difficult Airway Algorithm

Intraoperative teaching · CA-1

THE QUESTION

Where the evidence disagrees

This topic was selected because an evidence synthesis beats a textbook on it: the trials disagree, or the guidance has moved recently.

THE EVIDENCE

What each source contributes, and how strong it is

Study design first — a cohort and a randomised trial do not carry the same weight.

Design	Year	Journal	What it found
Other	2022	Anesthesiology	The difficult airway algorithm you will see on the theatre wall is the 2022 pr
Other	2024	Otolaryngology - Head and Neck Sur	When twelve difficult-airway guidelines were appraised against the AGREE II in
Other	2019	Anesthesia and Analgesia	The first branch of the algorithm is awake or asleep
Other	2022	Cochrane Database of Systematic Re	Make the first attempt the best attempt by choosing the device before you induce
Other	2024	British Journal of Anaesthesia	Every branch of the algorithm is bought with oxygen
Other	2015	Anaesthesia	The supraglottic airway is the rescue that usually works and occasionally does

7 resolved citations behind this deck; every point above traces to one of them.

IN PRACTICE

What the cohorts and reviews add

6 findings, each on the slide that follows.

ANESTHESIOLOGY 2022

The difficult airway algorithm you will see on the theatre wall is the 2022 pr

The difficult airway algorithm you will see on the theatre wall is the 2022 practice guideline of the American Society of Anesthesiologists, written...

OTOLARYNGOLOGY - HEAD AND NECK SURGERY 2024

When twelve difficult-airway guidelines were appraised against the AGREE II in

When twelve difficult-airway guidelines were appraised against the AGREE II instrument by four independent reviewers, the 2022 American Society of...

ANESTHESIA AND ANALGESIA 2019

The first branch of the algorithm is awake or asleep

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COCHRANE DATABASE OF SYSTEMATIC REVIEWS 2022

Make the first attempt the best attempt by choosing the device before you induce

Make the first attempt the best attempt by choosing the device before you induce, because in a Cochrane review of 222 studies and 26,149 patients...

IN PRACTICE

The difficult airway algorithm you will see on the theatre wall is the 2022 pr

Other · Anesthesiology

The difficult airway algorithm you will see on the theatre wall is the 2022 practice guideline of the American Society of Anesthesiologists, written jointly with eleven other airway, paediatric, trauma, critical care and international anaesthesia societies, which is why colleagues trained abroad recognise the same structure you were taught.

Apfelbaum et al., Anesthesiology 2022 · PMID 34762729

IN PRACTICE

When twelve difficult-airway guidelines were appraised against the AGREE II in

Other · Otolaryngology - Head and Neck Sur

When twelve difficult-airway guidelines were appraised against the AGREE II instrument by four independent reviewers, the 2022 American Society of Anesthesiologists document scored highest with a mean quality score of 83.1 per cent, so if you are going to memorise one algorithm's logic this is a defensible one to pick.

Fritz et al., Otolaryngology - Head and Neck Surgery 2024 · PMID 37538005

IN PRACTICE

The first branch of the algorithm is awake or asleep

Other · Anesthesia and Analgesia

The first branch of the algorithm is awake or asleep, and the awake branch is safer than its reputation: across 37 randomised trials and 2045 patients with anticipated difficult airways, awake fiberoptic intubation failed in 0.59 per cent, caused a severe adverse event in 0.34 per cent, and killed nobody.

Cabrini et al., Anesthesia and Analgesia 2019 · PMID 30896601

IN PRACTICE

Make the first attempt the best attempt by choosing the device before you induce

Other · Cochrane Database of Systematic Re

Make the first attempt the best attempt by choosing the device before you induce, because in a Cochrane review of 222 studies and 26,149 patients videolaryngoscopes of every design reduced failed intubation, and the benefit of hyperangulated blades was largest in patients whose airway was already known or predicted to be difficult.

Hansel et al., Cochrane Database of Systematic Reviews 2022 · PMID 35373840

IN PRACTICE

Every branch of the algorithm is bought with oxygen

Other · British Journal of Anaesthesia

Every branch of the algorithm is bought with oxygen, and how you preoxygenate changes how much time you have: in a network meta-analysis of 52 trials and 3914 patients, high-flow nasal oxygen with the patient head-up prolonged safe apnoea time by a mean of 291 seconds compared with a facemask in the supine position.

de Carvalho et al., British Journal of Anaesthesia 2024 · PMID 38599916

IN PRACTICE

The supraglottic airway is the rescue that usually works and occasionally does

Other · Anaesthesia

The supraglottic airway is the rescue that usually works and occasionally does not - difficult ventilation through one occurred in 0.5 per cent and placement failed outright in 0.2 per cent of 14,480 adults - and when it does not work you are at emergency front-of-neck access, where in a wet-lab simulation trained doctors reached oxygen in a median of 65 seconds by cannula and 90 seconds by scalpel-bougie, with far more outright failures in the scalpel arm.

Saito et al., Anaesthesia 2015 · PMID 26052860

IN THE ROOM

What this changes about the next case

Colour is the strength of the evidence behind each step, not the urgency.

- 1**
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- 2**
When twelve difficult-airway guidelines were appraised against the AGREE II instrument by four independent reviewers, the 2022 American Society of Anesthesiologists document scored highest with a mean quality score of 83.1 per cent, so if you are going to memorise one algorithm's logic this is a defensible one to pick.
- 3**
The first branch of the algorithm is awake or asleep, and the awake branch is safer than its reputation: across 37 randomised trials and 2045 patients with anticipated difficult airways, awake fiberoptic intubation failed in 0.59 per cent, caused a severe adverse event in 0.34 per cent, and killed nobody.
- 4**
Make the first attempt the best attempt by choosing the device before you induce, because in a Cochrane review of 222 studies and 26,149 patients videolaryngoscopes of every design reduced failed intubation, and the benefit of hyperangulated blades was largest in patients whose airway was already known or predicted to be difficult.

Every branch of the algorithm is bought with oxygen, and how you preoxygenate changes how much time you have: in a network meta-analysis of 52 trials and 3914 patients, high-flow nasal oxygen with the patient head-up prolonged safe apnoea time by a mean of 291 seconds compared with a facemask in the supine position.

KEY TAKEAWAYS

What to carry into the next case

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Anesthesiology 2022

When twelve difficult-airway guidelines were appraised against the AGREE II in
Otolaryngology - Head and Neck Surgery 2024

The first branch of the algorithm is awake or asleep
Anesthesia and Analgesia 2019

Make the first attempt the best attempt by choosing the device before you induce
Cochrane Database of Systematic Reviews 2022

The algorithm is not a list of devices, it is a sequence of decisions made before induction - awake or asleep, how many attempts, who is coming, and what the exit is - and its central discipline is that you commit to the next step rather than repeat the last one.

QUESTIONS I'LL ASK YOU IN THE ROOM

1. What would push you to intubate this patient awake rather than asleep?
2. You have had two good attempts and the view is grade 3. What has to change before attempt three, and who else is in the room by now?
3. You can neither intubate nor ventilate. Say out loud, in order, what you do in the next sixty seconds.
4. If your plan is to wake her up, what has to have been true about the induction drug you chose forty minutes ago?

ORAL BOARDS STEM

A 58-year-old woman with a thyroid goitre, a Mallampati IV view, a thyromental distance of five centimetres and a hoarse voice is scheduled for a hemithyroidectomy. You are the CA-1 assigned to the room. Before you draw up a single drug, your attending asks you to talk through the decision the difficult airway algorithm asks you to make first, and then to say what your plan A, plan B and plan C are, who you would want in the room, and at what point you would stop trying and wake her up.

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SOURCES

- [1] Apfelbaum et al., Anesthesiology 2022 · PMID 34762729
- [2] Fritz et al., Otolaryngology - Head and Neck Surgery 2024 · PMID 37538005
- [3] Cabrini et al., Anesthesia and Analgesia 2019 · PMID 30896601
- [4] Hansel et al., Cochrane Database of Systematic Reviews 2022 · PMID 35373840
- [5] de Carvalho et al., British Journal of Anaesthesia 2024 · PMID 38599916
- [6] Saito et al., Anaesthesia 2015 · PMID 26052860
- [7] Rees et al., Anaesthesia 2019 · PMID 31165475