

Awake Tracheal Intubation

Intraoperative teaching · CA-3

THE QUESTION

Where the evidence disagrees

Scope and Framing This review examines the indications for awake tracheal intubation (ATI) in the context of modern videolaryngoscopy (VL), synthesizing guidance from the Difficult Airway Society (DAS), the American Society of Anesthesiologists (ASA), the Canadian Airway Focus Group (CAFG), and emerging decision-making tools. It covers both adult and pediatric populations, addresses whether VL has shifted the...

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
Guideline	2025	BMC anesthesiology	Guidelines on awake tracheal intubation agree on the procedure itself and on
Cohort	2015	Canadian journal of anaesthesia =	Awake intubation was used in about 1% of general anaesthetics and that rate did not
Meta-analysis	2022	British journal of anaesthesia	Videolaryngoscopy likely reduces rates of failed intubation compared to direct
Cohort	2016	Anesthesiology	Awake intubation took a median of 24 minutes from entering theatre against 16
Meta-analysis	2024	Journal of clinical medicine	For awake tracheal intubation, videolaryngoscopy shortened intubation time compared
Meta-analysis	2021	British journal of anaesthesia	Optical stylets result in the shortest time to tracheal intubation compared to

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

WHERE THE GUIDANCE SITS

What the guidelines and pooled evidence say

4 findings, each on the slide that follows.

BMC ANESTHESIOLOGY 2025

Guidelines on awake tracheal intubation agree on the procedure itself and on

Guidelines on awake tracheal intubation agree on the procedure itself and on confirming tube position

BRITISH JOURNAL OF ANAESTHESIA 2022

Videolaryngoscopy likely reduces rates of failed intubation compared to direct

Videolaryngoscopy likely reduces rates of failed intubation compared to direct laryngoscopy (Macintosh-style RR=0.41, hyperangulated RR=0.51,...

JOURNAL OF CLINICAL MEDICINE 2024

For awake tracheal intubation, videolaryngoscopy shortened intubation time compared

For awake tracheal intubation, videolaryngoscopy shortened intubation time compared with flexible bronchoscopy and slightly reduced desaturation...

BRITISH JOURNAL OF ANAESTHESIA 2021

Optical stylets result in the shortest time to tracheal intubation compared to

Optical stylets result in the shortest time to tracheal intubation compared to flexible bronchoscopes and videolaryngoscopes during awake tracheal...

WHERE THE GUIDANCE SITS

Guidelines on awake tracheal intubation agree on the procedure itself and on

Guideline · BMC anesthesiology

Guidelines on awake tracheal intubation agree on the procedure itself and on confirming tube position, but conflict on indications and airway local anaesthesia, and only 3 of 7 were rated high quality.

Guideline Recommendations on the Assessment and Management of Awake Airway Intubation: A Systematic Review, BMC anesthesiology 2025 · PMID

WHERE THE GUIDANCE SITS**Videolaryngoscopy likely reduces rates of failed intubation compared to direct***Meta-analysis · British journal of anaesthesia*

Videolaryngoscopy likely reduces rates of failed intubation compared to direct laryngoscopy (Macintosh-style RR=0.41, hyperangulated RR=0.51, channelled RR=0.43).

Videolaryngoscopy Versus Direct Laryngoscopy for Adults Undergoing Tracheal Intubation: A Cochrane Systematic Review and Meta-Analysis Update, British journal of anaesthesia 2022 · PMID 35820934

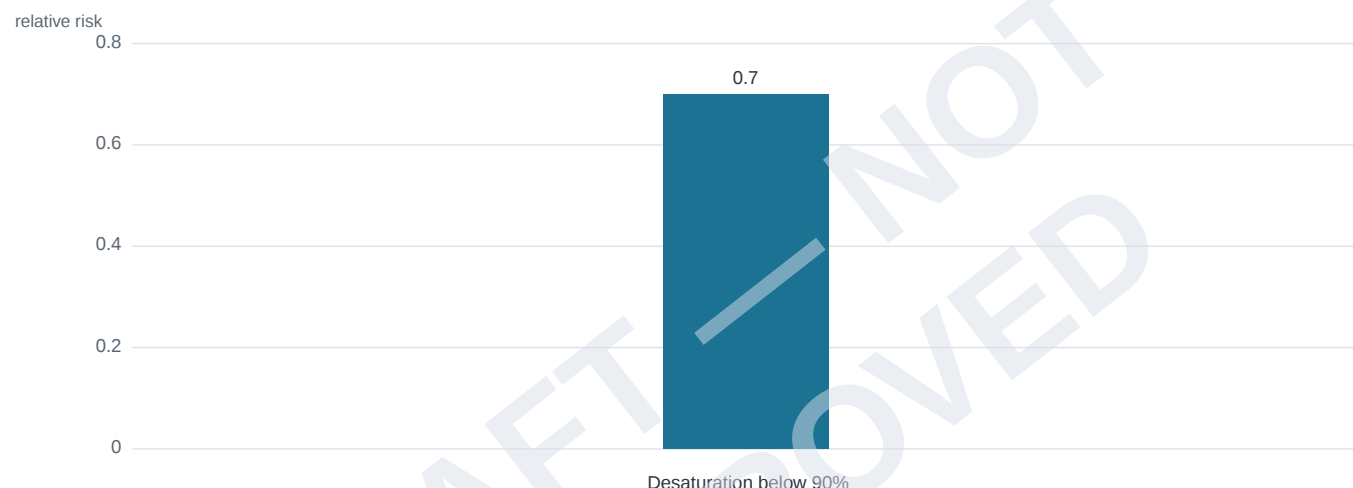
WHERE THE GUIDANCE SITS**For awake tracheal intubation, videolaryngoscopy shortened intubation time compared***Meta-analysis · Journal of clinical medicine*

For awake tracheal intubation, videolaryngoscopy shortened intubation time compared with flexible bronchoscopy and slightly reduced desaturation below 90%, with no difference in failure or first-attempt success.

Videolaryngoscopy Versus Fiberoptic Bronchoscopy for Awake Tracheal Intubation: A Systematic Review and Meta-Analysis of Randomized Controlled Trials, Journal of clinical medicine 2024 · PMID 38892899

THE NUMBERS**Videolaryngoscopy is faster for awake intubation**

11 trials, 873 patients, versus flexible bronchoscopy.



Shorter intubation time and slightly less desaturation, with no difference in failure or first-attempt success.

Videolaryngoscopy Versus Fiberoptic Bronchoscopy for Awake Tracheal Intubation: A Systematic Review and Meta-Analysis of Randomized Controlled Trials, Journal of clinical medicine 2024 · PMID 38892899

WHERE THE GUIDANCE SITS**Optical stylets result in the shortest time to tracheal intubation compared to***Meta-analysis · British journal of anaesthesia*

Optical stylets result in the shortest time to tracheal intubation compared to flexible bronchoscopes and videolaryngoscopes during awake tracheal intubation.

Airway Devices for Awake Tracheal Intubation in Adults: A Systematic Review and Network Meta-Analysis, British journal of anaesthesia 2021 · PMID 34303493

IN PRACTICE**What the cohorts and reviews add**

2 findings, each on the slide that follows.

Awake intubation was used in about 1% of general anaesthetics and that rate did not

Awake intubation was used in about 1% of general anaesthetics and that rate did not fall over 12 years despite a large rise in videolaryngoscopy,...

Awake intubation took a median of 24 minutes from entering theatre against 16

Awake intubation took a median of 24 minutes from entering theatre against 16 minutes for intubation after induction, with a 1% failure rate and 1.6%...

IN PRACTICE

Awake intubation was used in about 1% of general anaesthetics and that rate did not

Cohort · Canadian journal of anaesthesia =

Awake intubation was used in about 1% of general anaesthetics and that rate did not fall over 12 years despite a large rise in videolaryngoscopy, with 2% of attempts failing.

The Incidence, Success Rate, and Complications of Awake Tracheal Intubation in 1,554 Patients Over 12 years: An Historical Cohort Study, Canadian journal of anaesthesia = Journal canadien d'anesthesie 2015 · PMID 25907462

IN PRACTICE

Awake intubation took a median of 24 minutes from entering theatre against 16

Cohort · Anesthesiology

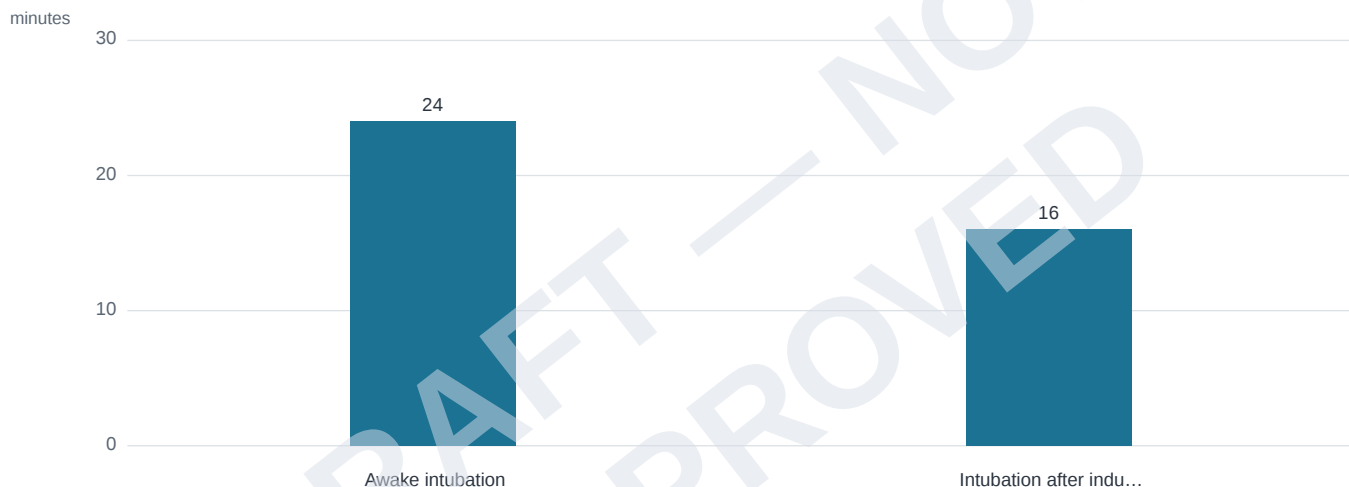
Awake intubation took a median of 24 minutes from entering theatre against 16 minutes for intubation after induction, with a 1% failure rate and 1.6% complications — it costs time, not safety.

A Retrospective Study of Success, Failure, and Time Needed to Perform Awake Intubation, Anesthesiology 2016 · PMID 27111535

THE NUMBERS

Awake intubation adds about eight minutes

Median time from entering theatre to intubation, 1,085 awake cases vs 2,170 matched controls.



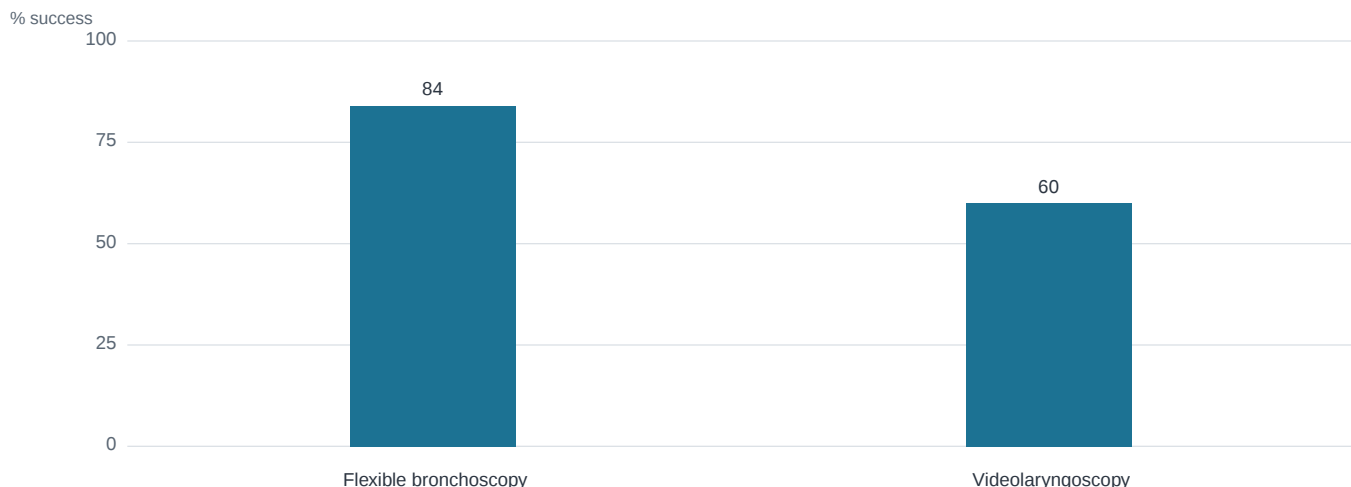
Failure was 1% and complications 1.6% among the awake cases; the study did not measure those outcomes in the comparison group, so this is a statement about time, not relative safety.

A Retrospective Study of Success, Failure, and Time Needed to Perform Awake Intubation, Anesthesiology 2016 · PMID 27111535

THE NUMBERS

Use halved even as the airway got easier

692 awake intubations, 2014 to 2020, and first-attempt success by device.



Frequency fell by half over seven years; where it is still done, the bronchoscope outperforms the videolaryngoscope.

INDICATIONS

When this is the right block

DAS GUIDELINES FOR AWAKE TRACHEAL INTUBATION IN ADULTS, ANAESTHESIA 2020

Anticipated difficult airway management

The Difficult Airway Society's guidelines open by stating that awake tracheal intubation has a high success rate and a favourable safety profile but is underused in cases of anticipated difficult airway management, and are written explicitly to lower the threshold for performing it when indicated.

PROSPECTIVE COHORT OF AWAKE FIBREOPTIC INTUBATION PRACTICE, ANAESTHESIA 2017

The airways that actually get it

In a prospective cohort of 600 awake fibreoptic intubations at a tertiary centre, the commonest indication was reduced mouth opening (26.8%), followed by previous airway surgery and previous head and neck radiotherapy (22.5% each), with most cases presenting for head and neck surgery. The overall failure rate was 1.0%.

DECLINING INCIDENCE OF AWAKE TRACHEAL INTUBATION, CAN J ANAESTH 2023

Decide for it before the case becomes an emergency

In a seven-year single-centre cohort of 692 cases, awake tracheal intubation use fell by about 50% between 2014 and 2020. Whether that costs patients is unclear, but it certainly costs training opportunities and maintenance of competence — which is a reason to choose it deliberately, not by default.

CONTRAINDICATIONS

When it is not

DAS GUIDELINES FOR AWAKE TRACHEAL INTUBATION IN ADULTS, ANAESTHESIA 2020

Starting without a stated plan for failure

Management of unsuccessful awake tracheal intubation is one of the key areas for which the Difficult Airway Society made specific recommendations, alongside indications, setup, checklists, oxygenation, topicalisation, sedation and verification of tube position. An awake technique that has no declared next step is not a plan.

PROSPECTIVE COHORT OF AWAKE FIBREOPTIC INTUBATION PRACTICE, ANAESTHESIA 2017

An operator early on the learning curve without supervision

In the 600-case cohort, 11.0% of awake fibreoptic intubations were complicated — most often by multiple attempts (4.2%), over-sedation (2.2%) or desaturation (1.5%) — and the only significant association with complications was the number of previous awake intubations the operator had performed. Trainees were primary operator in 78.6% of cases, 86.8% of those directly supervised by a consultant.

Reaching for the videolaryngoscope as the awake device by default

In a 692-case cohort, first-attempt success was significantly higher with flexible bronchoscopy than with videolaryngoscopy for awake intubation (84% versus 60%), while oral and nasal routes were identical at 82%. The route is a free choice; the device is not.

PEARLS

What experience adds

PROSPECTIVE COHORT OF AWAKE FIBREOPTIC INTUBATION PRACTICE, ANAESTHESIA 2017

Oxygen through the nose for the whole procedure

In the 600-case cohort, oxygenation was delivered by high-flow, heated and humidified nasal oxygen in 49.0% of awake fibreoptic intubations, and the commonest sedative technique was combined target-controlled infusions of remifentanyl and propofol.

DAS GUIDELINES FOR AWAKE TRACHEAL INTUBATION IN ADULTS, ANAESTHESIA 2020

Four elements, in that order

The Difficult Airway Society breaks the procedure into sedation, topicalisation, oxygenation and performance, and suggests that treating them as four separate practical problems helps practitioners plan, perform and address complications.

Brief the room and the patient in the same sentence

Before the first spray of local, say aloud who holds the scope, who watches the saturation, who pushes the sedation, and what the patient will feel next. Everyone including the patient should hear the same plan once, calmly, rather than three versions of it under pressure.

IN THE ROOM

What this changes about the next case

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

- 1 Guidelines on awake tracheal intubation agree on the procedure itself and on confirming tube position, but conflict on indications and airway local anaesthesia, and only 3 of 7 were rated high quality.
- 2 Videolaryngoscopy likely reduces rates of failed intubation compared to direct laryngoscopy (Macintosh-style RR=0.41, hyperangulated RR=0.51, channelled RR=0.43).
- 3 For awake tracheal intubation, videolaryngoscopy shortened intubation time compared with flexible bronchoscopy and slightly reduced desaturation below 90%, with no difference in failure or first-attempt success.
- 4 Optical stylets result in the shortest time to tracheal intubation compared to flexible bronchoscopes and videolaryngoscopes during awake tracheal intubation.
- 5 Awake intubation was used in about 1% of general anaesthetics and that rate did not fall over 12 years despite a large rise in videolaryngoscopy, with 2% of attempts failing.

KEY TAKEAWAYS

What to carry into the next case

Guidelines on awake tracheal intubation agree on the procedure itself and on
BMC anesthesiology 2025

Awake intubation was used in about 1% of general anaesthetics and that rate did not

Videolaryngoscopy likely reduces rates of failed intubation compared to direct
British journal of anaesthesia 2022

Awake intubation took a median of 24 minutes from entering theatre against 16
Anesthesiology 2016

Guidelines on awake tracheal intubation agree on the procedure itself and on

QUESTIONS I'LL ASK YOU IN THE ROOM

1. How would you teach this to a CA-1 in two minutes?
2. Where does the evidence for this actually stop?

3. What would you do differently in a resource-limited setting?
4. Defend the alternative you decided against.

ORAL BOARDS STEM

A 55-year-old with a supraglottic tumour, stridor when supine, and previous neck radiation presents for panendoscopy. Mouth opening is 3 cm. The resident proposes inhalational induction with a videolaryngoscope ready.

BOARD QUESTIONS

1. Among the airway devices compared in a network meta-analysis of awake tracheal intubation in adults — flexible bronchoscopes, videolaryngoscopes and optical stylets — which device gave the shortest time to tracheal intubation?
2. A colleague argues against awake tracheal intubation in an anticipated difficult airway on the grounds that it takes too long and is risky. Using the retrospective data on time, failure and complications for awake intubation versus intubation after induction, what is the actual cost of choosing awake intubation?
3. You are choosing between a videolaryngoscope and a flexible bronchoscope for an awake tracheal intubation. Based on the pooled randomised trials comparing these two approaches, which outcomes favour videolaryngoscopy and which outcomes showed no difference?

ANSWER KEY

1. Optical stylets resulted in the shortest time to tracheal intubation compared with flexible bronchoscopes and videolaryngoscopes during awake tracheal intubation.

The network meta-analysis ranks optical stylets fastest for awake intubation — speed is the outcome that separated the devices here. *Airway Devices for Awake Tracheal Intubation in Adults: A Systematic Review and Network Meta-Analysis, British journal of anaesthesia 2021 · PMID 34303493*

2. The cost is time, not safety. Awake intubation took a median of 24 minutes from entering theatre versus 16 minutes for intubation after induction, with a 1% failure rate and 1.6% complications.

Roughly eight extra minutes is the real price of an awake intubation, and that is a cheap thing to spend on an airway you are worried about.

A Retrospective Study of Success, Failure, and Time Needed to Perform Awake Intubation, Anesthesiology 2016 · PMID 27111535

3. Videolaryngoscopy shortened intubation time compared with flexible bronchoscopy and slightly reduced desaturation below 90%. There was no difference in failure rate or in first-attempt success.

Videolaryngoscopy for an awake intubation buys you speed and a little less desaturation, not a better chance of getting the tube in.

Videolaryngoscopy Versus Fiberoptic Bronchoscopy for Awake Tracheal Intubation: A Systematic Review and Meta-Analysis of Randomized Controlled Trials, Journal of clinical medicine 2024 · PMID 38892899

Guidelines on awake tracheal intubation agree on the procedure itself and on

SOURCES

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- [2] The Incidence, Success Rate, and Complications of Awake Tracheal Intubation in 1,554 Patients Over 12 years: An Historical Cohort Study, Canadian journal of anaesthesia = Journal canadien d'anesthesie 2015 · PMID 25907462
- [3] Videolaryngoscopy Versus Direct Laryngoscopy for Adults Undergoing Tracheal Intubation: A Cochrane Systematic Review and Meta-Analysis Update, British journal of anaesthesia 2022 · PMID 35820934
- [4] A Retrospective Study of Success, Failure, and Time Needed to Perform Awake Intubation, Anesthesiology 2016 · PMID 27111535
- [5] Videolaryngoscopy Versus Fiberoptic Bronchoscopy for Awake Tracheal Intubation: A Systematic Review and Meta-Analysis of Randomized Controlled Trials, Journal of clinical medicine 2024 · PMID 38892899
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- [7] DAS guidelines for awake tracheal intubation in adults, Anaesthesia 2020 · PMID 31729018
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- [9] Declining incidence of awake tracheal intubation, Can J Anaesth 2023 · PMID 36289151