Incidence and Outcomes of Emergency Physician-Performed Awake Intubations: A Report From the Airway Interventions Registry and Observational Database

Adam Parks, MD, FRCPC*; J. Adam Law, MD, FRCPC; Nicholas Sowers, MD, FRCPC; George Kovacs, MD, FRCPC

*Corresponding Author. E-mail: a.parks@dal.ca.

Study objective: To determine the incidence, practice patterns, and outcomes of emergency physician-performed awake tracheal intubations in a tertiary-care emergency department (ED).

Methods: In this study of the prospective Airway Interventions Registry and Observational database, we screened all intubations performed at an academic, tertiary-care ED between January 1, 2015, and January 1, 2025, for adults undergoing first-attempt awake tracheal intubation by an emergency physician. We excluded patients undergoing sedation-only or dissociation-only intubation. Our primary outcome was overall success without any of the following major adverse events: critical hypoxemia (SpO_2<80%), critical hypotension (systolic blood pressure<65 mmHg), or cardiac arrest. Our secondary outcomes were the frequencies of first-pass success, adverse events, and conversion to rapid sequence intubation.

Results: Among the 1,213 ED intubations screened during the 10-year study period, 87 (7.2%) were emergency physician-performed awake intubations. Most patients undergoing awake intubation had anatomic (80%) or physiologic (87%) predictors of difficulty, or both (68%). Success without a major adverse event occurred in 80 (92%; 95% confidence interval 86% to 98%) patients. There was first-pass success in 62 (71%) and rapid sequence intubation conversion in 6 (6.9%) patients. Critical hypoxemia, critical hypotension, and cardiac arrest occurred in 3%, 2%, and 2%, respectively.

Conclusion: In this preliminary single-center study, emergency physicians performed awake intubation with relatively high incidence, high overall success, and low rates of major adverse events. [Ann Emerg Med. 2026;■:1-7.]

Please see page XX for the Editor's Capsule Summary of this article.

Keywords: Awake tracheal intubation, Airway, Emergency medicine.

0196-0644/$-see front matter

https://doi.org/10.1016/j.annemergmed.2026.06.007

INTRODUCTION

Background

Awake tracheal intubation is often recommended for patients with significant predicted technical difficulty, adverse physiology, and/or resource- or consultant-limited settings.[1-4] When the clinical context allows, awake intubation may confer multiple benefits over rapid sequence intubation (RSI), including preservation of the patient's intrinsic ventilatory drive, maintenance of a patent and protected airway, and avoidance of the potentially negative physiologic effects of RSI medications and the accompanying sudden transition to positive pressure ventilation.[2-4]

Awake intubation has reported success rates of 88% to 100% and is recommended for patients with physiologically difficult airways.[5-12] Critically ill patients have an increased risk of peri-intubation morbidity and mortality (eg, 2.7% to 3.5% incidence of cardiac arrest), and in this patient population, awake intubation may result in fewer adverse events than RSI.[13-16]

Importance

Emergency physicians face challenging airway anatomy and physiology that may exceed that of patients in an operating room environment,[17] and little is known regarding the use and outcomes of emergency department (ED) awake intubation. Two observational studies report the infrequent use of ED awake intubation.[10,18] Given that our ED is a relatively

Editor's Capsule Summary

What is already known on this topic

Awake intubation is an option when anatomic and/or physiologic abnormalities jeopardize safe rapid sequence intubation.

What question this study addressed

What are the success and outcomes of emergency physician-performed awake intubation in adults?

What this study adds to our knowledge

In this review of a prospective registry, awake intubation without major adverse events was successful in 80 of 87 despite most having predictors of difficult intubation. Six attempts changed to a more traditional rapid sequence intubation and 2 developed cardiac arrest.

How this is relevant to clinical practice

In this sample, awake intubation had a high frequency of success but with a few adverse events.

high-volume center in the use of awake intubation, we wished to report our experience.[19]

Goals of This Investigation

The purpose of this study was to determine the incidence, practice patterns, and outcomes of emergency physician-performed awake intubations.

METHODS

Study Design and Setting

We performed a structured review of data submitted to the Airway Interventions Registry and Observational (AIRO) database, consistent with the recommended methodology of Kaji et al.[20] The AIRO database is a multicenter prospective airway registry that collects tracheal intubation data from a total of 6 Canadian community, regional, and tertiary-care EDs for research and quality improvement purposes.

This study was restricted to data from the Queen Elizabeth II Health Sciences Centre (QEII HSC), an urban, academic, tertiary-care institution with approximately 75,000 annual ED patient visits. All resident emergency physicians at QEII HSC undergo mandatory, structured training in airway management, including cadaver- and manikin-based awake intubation training sessions, which total approximately 8 hours annually. In addition, staff emergency physicians at QEII HSC are offered cadaver-based awake intubation training sessions on a biannual basis.[21] These sessions are attended on a voluntary basis and are approximately 3 hours in length.

Research ethics board approval (NSH REB #1031220) waived the requirement for patient consent. We report our study in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology statement.[22]

Selection of Participants

We performed a computerized search of the AIRO database to identify all patients who underwent tracheal intubation at the QEII HSC ED between January 1, 2015, and January 1, 2025. We included patients who underwent an awake intubation attempt (defined as the use of topical airway anesthesia with or without concurrent anxiolysis, sedation, and/or analgesia) performed by an emergency physician on the first attempt. We excluded patients who underwent sedation-only or dissociation-only intubations, and awake tracheal intubations performed by non-emergency medicine specialists.

Two researchers independently reviewed all intubations recorded as "awake," "awake, switch to RSI," or "other/unknown," and showed excellent interrater reliability (κ=0.95) in confirming or refuting that at least one awake intubation attempt had been performed by an emergency physician. The 5 disagreements were adjudicated by the third researcher.

Measurements

During the period from January 1, 2015, to June 30, 2023, the AIRO database entries at the study hospital relied on voluntary completion of the standardized electronic, online data collection form by a member of the ED team (typically the intubating physician), and there was no mechanism to ensure that all ED intubations were tracked. Beginning on July 1, 2023, all ED intubations were prospectively tracked by critical care paramedics, who were present for all intubations in our ED. Intubations identified through this tracking system were cross-referenced with registry entries, and reminder emails were sent to physicians if a data collection form had not been submitted. Using this approach, more than 90% of ED intubations were captured in the AIRO registry after July 1, 2023.

From the database we extracted demographic information, presentation, indication(s) for tracheal intubation, predictors of difficulty, peri-intubation vital signs, medications used (including agent used for topical airway anesthesia), preoxygenation modality, physician characteristics, number of intubation attempts, device(s)

used, outcomes, and adverse events. All study variables were predefined, and the abstractors were trained using these definitions. The abstractors and statistician were blinded to the study's hypothesis. Because the majority of these variables were exported directly from the AIRO database (Appendix E1, available at http://www.annemergmed.com.), we did not assess interrater agreement for each study variable. We calculated the proportion of missing data for each key study variable.

Outcomes

In line with prior studies and consensus recommendations, our primary outcome was overall awake intubation success without major adverse events, defined as peri-intubation critical hypoxemia (SpO_2<80%), critical hypotension (systolic blood pressure [BP]<65 mmHg), and/or cardiac arrest.[13,23] Critical hypoxemia and hypotension qualified only if not present immediately before intubation.[24] Secondary outcomes were the frequencies of first-pass success, adverse events, and conversion to RSI.

Analysis

We performed all calculations using the R Statistical Software (v 4.3.1; R Core Team 2023) and Microsoft Excel (Microsoft Corporation). We performed a sensitivity analysis analyzing our primary outcome after our more robust intubation tracking was in place. We report the incidence of emergency physician–performed awake intubations during the 10-year study period in Figure E1 (available at http://www.annemergmed.com).

RESULTS

Characteristics of Study Participants

Of the 1,213 intubations recorded in the AIRO registry for the hospital and dates studied, we screened 203 records as possibly having occurred in awake patients. Of these, 116 were excluded either because they were not performed by emergency physicians (n=4) or because they used a non-awake technique (ie, sedation-only, dissociation-only, or RSI; n=112).

Patient characteristics of the 87 emergency physician-performed awake intubations are shown in Table 1. Overall, 80% had one or more anatomic predictor(s) of difficulty, 87% had one or more physiologic predictor(s) of risk, and 68% of patients had predictors of both difficult anatomy and physiology. The most common indication for awake intubation was hypoxemic respiratory failure.

Table 1. Patient characteristics.

Patient Characteristics	Emergency Physician-Performed Awake Tracheal Intubation (N=87)
Median age (IQR), y	57 (48.3-68.3)
Sex	
Men	59/81 (73%)
Women	22/81 (27%)
Presentation	
Medical	61/72 (85%)
Trauma	11/72 (15%)
Indication for tracheal intubation	
Respiratory failure	49 (56%)
Airway protection	31 (36%)
Predicted clinical course*	12 (14%)
Airway obstruction	3 (3%)
Other	3 (3%)
Anatomic predictors of difficulty	
Obesity	35 (40%)
Restricted mouth opening	15 (17%)
Large tongue	14 (16%)
Small mandible	11 (13%)
Airway edema	11 (13%)
Soiled airway	10 (11%)
Short neck	9 (10%)
Cervical spine immobility	8 (9%)
Facial/neck trauma	5 (6%)
Other	10 (11%)
None	17 (20%)
Physiologic predictors of difficulty/risk	
Hypoxemia	28 (32%)
Metabolic acidosis	27 (31%)
Hemodynamic instability	20 (23%)
Right ventricular strain	2 (2%)
Other	6 (7%)
None	11 (13%)

IQR, Interquartile range.
*Defined as anticipated acute worsening in clinical trajectory and/or the imminent need for an invasive procedure requiring anesthesia and advanced airway management.

Preintubation SpO_2 and BP measurements were missing in 32 (37%) and 43 (49%) patients, respectively, and for our analyses, we assumed that these values were within normal limits. We had no missing data for procedural details, outcomes, and adverse events, and as such, no records were excluded from our primary outcome analysis.

Physician and Procedural Characteristics

Forty-two different emergency physicians performed the awake intubations during our study period (Table E1, available at http://www.annemergmed.com), with resident physicians involved in 32% of intubations (Table 2).

Main Results

Our primary outcome of overall awake intubation success without a major adverse event occurred in 80 of 87 patients (92%; 95% confidence interval 86% to 98%), with the 7 major adverse events being critical hypoxemia (n=3), critical hypotension (n=2), and/or cardiac arrest (n=2).

For our secondary outcomes, we noted first-pass success in 62 (71%) patients. All 87 patients were ultimately successfully intubated; however, 6 (6.9%) required conversion to RSI (Table E2, available at http://www.annemergmed.com). Adverse events are shown in Table 3.

The 2 patients who suffered cardiac arrest presented with hypoxemic respiratory failure and circulatory shock. Both developed critical peri-intubation hypoxemia (SpO_2<80%) before their cardiac arrest.

Two patients experienced peri-intubation aspiration. The first underwent 2 awake intubation attempts using direct laryngoscopy, with the initial attempt performed by a trainee; this was complicated by possible aspiration without associated hypoxemia. The second patient underwent a single intubation attempt using combined videolaryngoscopy and flexible intubating scope guidance and experienced aspiration associated with critical hypoxemia (SpO_2<70%).

There were also 2 cases of suspected esophageal intubation. In the first case, a trainee performed the initial attempt using direct laryngoscopy. Poor visualization and suspected esophageal placement prompted the supervising physician to subsequently perform a successful RSI using direct laryngoscopy and a styleted endotracheal tube. The second case required 5 intubation attempts: 2 using direct laryngoscopy and 3 using videolaryngoscopy, including the final successful attempt. The first 4 attempts were complicated by poor glottic visualization, with at least 1 attempt involving suspected esophageal intubation.

All major adverse events occurred in patients with a combination of anatomic and physiologic difficulty. In this subgroup, successful intubation without major adverse events occurred in 59 (92%; 95% confidence interval 84% to 99%) patients. In patients with isolated anatomic or physiologic difficulty, successful intubation without major adverse events occurred in 10 out of 11 (91%) cases and 16 out of 17 (94%) cases, respectively.

When considering just patients following our implementation of intubation tracking, 13 of 13 cases of awake intubation were successful without major adverse events.

Table 2. Procedural characteristics of emergency physician-performed awake intubations.

Procedural Characteristics	Emergency Physician-Performed Awake Tracheal Intubation (N=87)
Preoxygenation device(s)	
Nasal cannula	31 (36%)
Non-rebreather	23 (26%)
BVM	22 (25%)
HFNO	44 (51%)
CPAP	7 (8%)
BiPAP	8 (9%)
Duration of preoxygenation	
>5 min	49/52 (94%)
3-5 min	3/52 (6%)
<3 min	0 (0%)
First-attempt device(s)	
Flexible intubating scope	61 (70%)
Videolaryngoscope	16 (18%)
Direct laryngoscope	8 (9%)
Combination videolaryngoscope + flexible intubating scope	2 (2%)
First-attempt route	
Oral	85 (98%)
Nasal (flexible intubating scope)	2 (2%)
Adjunctive medications	
Ketamine	46 (53%)
Propofol	9 (10%)
Vasoactive medications	11 (13%)

BiPAP, Bi-level positive airway pressure; *BVM*, bag-valve mask; *CPAP*, continuous positive airway pressure; *HFNO*, high-flow nasal oxygen.

LIMITATIONS

Given our observational design and relatively small sample size, no causal inferences can be made and our findings are hypothesis generating. Registry data are subject to multiple biases, including self-reporting and recall bias.

Although we had no missing data for key outcomes, a large proportion of our records were missing preintubation

Table 3. Outcome data for emergency physician-performed awake intubations.

Outcomes	Emergency Physician-Performed Awake Tracheal Intubation (N=87)
First-pass success	
Flexible intubating scope (n=63)	49 (78%)
Videolaryngoscope (n=18)	12 (67%)
Direct laryngoscope (n=8)	3 (38%)
Adverse events	
Hypoxemia	
Lowest SpO_2 80%-89%	5 (6%)
Lowest SpO_2 70%-79%	0 (0%)
Lowest SpO_2<70%	3 (3%)
Hypotension	
SBP<90 mmHg	10 (11%)
SBP<65 mmHg	2 (2%)
Cardiac arrest	2 (2%)
Cardiac arrhythmia	1 (1%)
Lens contamination	10 (11%)
Esophageal intubation	2 (2%)
Aspiration	2 (2%)
Dental injury	0 (0%)
Laryngospasm	0 (0%)
No complications/adverse events	54 (62%)

SBP, Systolic blood pressure.

SpO_2 and BP measurements. Our assumption of normality in these cases risks underestimating the severity of illness and overestimating the adverse event rate for our patient cohort.

Last, given that our study represents data from a single, tertiary-care ED with significant experience and expertise in awake intubation, our findings may not be generalizable to other ED settings.

DISCUSSION

In this single-center review of a prospective airway registry, our preliminary data suggest that emergency physicians can perform awake tracheal intubation with relatively high incidence, high success rates, and relatively low adverse event rates in critically ill patients with a high prevalence of anatomic and/or physiologic predictors of difficulty.

A prior registry-based study reported awake intubation in 0.4% (82 of 19,071) of intubations, 91% of which were performed by emergency physicians. Their frequencies of first-pass and overall success were 85% and 98.7%, respectively, with adverse events (most commonly hypoxemia) in 16%.[10] A second observational study reported awake intubation in 1.5% (7 of 456) of intubations, with first-pass and overall success in 57% and 100%, respectively. Of the 7 awake intubation cases in this study, 2 experienced hypoxemia, one developed a cardiac dysrhythmia, and one suffered cardiac arrest.[18]

Several studies have highlighted poor outcomes when intubating critically ill patients with physiologically difficult airways in an ED and/or critical care setting. When using RSI, the reported incidences of critical hypotension (systolic BP<65 mmHg or mean arterial pressure <55 mmHg) ranged between 13.5% and 59.8%, critical hypoxemia (SpO_2<80%) between 9.3% and 22%, and cardiac arrest between 2.7% and 3.5%.[13-16] We found lower rates of critical hypotension and critical hypoxemia in our awake intubation sample, although 2 of our 87 patients suffered cardiac arrest. An observational study by Kriege et al. of critically ill patients intubated reported fewer adverse events with awake intubation compared with RSI.[15] Physiologic advantages of awake intubation include maintenance of the patient's own intrinsic ventilatory drive, potentially diminished ventilation/perfusion mismatch during the procedure, and the avoidance of relatively higher bolus doses of RSI medications with abrupt transition to positive pressure ventilation.[11,12]

Our physicians used flexible intubating endoscopes more commonly than either videolaryngoscopy or direct laryngoscopy and these appeared to show greater first-pass success. This contradicts operating room systematic reviews and meta-analyses of randomized controlled trials reporting similar success rates between flexible intubating endoscopes and videolaryngoscopes,[25–27] but mirrors results from another observational study.[5]

Our study adds to the existing body of evidence demonstrating the proficiency of emergency physician-performed awake intubation.[10,18] There are not yet specific competency-based standards for emergency medicine residents for awake intubation as there are for laryngoscopy and intubation,[28–31] with training likely heterogeneous between settings. Given the known barriers and facilitators to awake intubation,[19,32] robust educational programs are needed.[21]

In summary, in this preliminary single-center study, we found that emergency physicians performed awake intubation with relatively high incidence, high success rates, and relatively low rates of major adverse events. Awake intubation may offer improved outcomes and safety relative to RSI for select, high-risk critically ill ED patients.

Supervising editor: Steven M. Green, MD. Specific detailed information about possible conflict of interest for individual editors is available at https://www.annemergmed.com/editors.

Author affiliations: From the Department of Emergency Medicine, (Parks, Sowers, Kovacs) Pain Management and Perioperative Medicine, Dalhousie University, Halifax, NS, Canada; Department of Anesthesia (Law), Pain Management and Perioperative Medicine, Dalhousie University, Halifax, NS, Canada.

Author contributions: AP conceived the study and obtained research funding. All authors provided advice and support on study design and data analysis. AP drafted the manuscript, and all authors contributed to its revision. AP takes responsibility for the paper as a whole.

Data sharing statement: The data that support the findings of this study are available from the corresponding author, AP, on reasonable request.

All authors attest to meeting the four ICMJE.org authorship criteria: (1) Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND (2) Drafting the work or revising it critically for important intellectual content; AND (3) Final approval of the version to be published; AND (4) Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Funding and support: By *Annals'* policy, all authors are required to disclose any and all commercial, financial, and other relationships in any way related to the subject of this article as per ICMJE conflict of interest guidelines (see www.icmje.org). This study was supported through the Queen Elizabeth II Foundation's Emergency Medicine Young Researcher's Grant program (Halifax, Nova Scotia, Canada).

Publication dates: Received for publication February 2, 2026. Revisions received March 20, 2026; May 13, 2026, and May 23, 2026. Accepted for publication June 2, 2026.

Trial registration number: Not applicable.

Disclaimer: AP, JAL, NS, and GK have all received honoraria for teaching Airway Interventions and Management in Emergencies courses. JAL and GK have received airway equipment donations from various airway manufacturers to facilitate airway courses. JAL has received royalties from Wolters-Kluwer for authoring UpToDate chapters on videolaryngoscopy and confirmation of tracheal intubation.

REFERENCES

1. Warwick E, Yoon S, Ahmad I. Awake tracheal intubation: an update. *Int Anesthesiol Clin*. 2024;62:59-71.
2. Law JA, Duggan LV, Asselin M, et al; Canadian Airway Focus Group. Canadian Airway Focus Group updated consensus-based recommendations for management of the difficult airway: part 2. Planning and implementing safe management of the patient with an anticipated difficult airway. *Can J Anaesth*. 2021;68:1405-1436.
3. Apfelbaum JL, Hagberg CA, Connis RT, et al. 2022 American Society of Anesthesiologists Practice Guidelines for Management of the Difficult Airway. *Anesthesiology*. 2022;136:31-81.
4. Ahmad I, El-Boghdadly K, Bhagrath R, et al. Difficult Airway Society guidelines for awake tracheal intubation (ATI) in adults. *Anaesthesia*. 2020;75:509-528.
5. Law JA, Thana A, Milne AD. The incidence of awake tracheal intubation in anesthetic practice is decreasing: a historical cohort study of the years 2014-2020 at a single tertiary care institution. *Can J Anaesth*. 2023;70:69-78.
6. El-Boghdadly K, Onwochei DN, Cuddihy J, et al. A prospective cohort study of awake fibreoptic intubation practice at a tertiary centre. *Anaesthesia*. 2017;72:694-703.
7. Pirlich N, Berk A, Hummel R, et al. Awake tracheal intubation in routine airway management: a retrospective analysis in a tertiary centre. *PLoS One*. 2024;19:e0299071.
8. Karlsen KAH, Gisvold SE, Nordseth T, et al. Incidence, causes, and management of failed awake fibreoptic intubation-a retrospective study of 833 procedures. *Acta Anaesthesiol Scand*. 2023;67:1341-1347.
9. Joseph TT, Gal JS, Demaria S, et al. A retrospective study of success, failure, and time needed to perform awake intubation. *Anesthesiology*. 2016;125:105-114.
10. Kaisler MC, Hyde RJ, Sandefur BJ, et al. Awake intubations in the emergency department: a report from the National Emergency Airway Registry. *Am J Emerg Med*. 2021;49:48-51.
11. Kornas RL, Owyang CG, Sakles JC, et al; Society for Airway Management's Special Projects Committee. Evaluation and management of the physiologically difficult airway: consensus recommendations from Society for Airway Management. *Anesth Analg*. 2021;132:395-405.
12. Mosier JM. Physiologically difficult airway in critically ill patients: winning the race between haemoglobin desaturation and tracheal intubation. *Br J Anaesth*. 2020;125:e1-e4.
13. Russotto V, Myatra SN, Laffey JG, et al. Intubation practices and adverse peri-intubation events in critically ill patients from 29 countries. *JAMA*. 2021;325:1164-1172.
14. Maia IWA, Besen BAMP, Silva LOJE, et al. Peri-intubation adverse events and clinical outcomes in emergency department patients: the BARCO study. *Crit Care*. 2025;29:155.
15. Kriege M, Rissel R, El Beyrouti H, et al. Awake tracheal intubation is associated with fewer adverse events in critical care patients than anaesthetised tracheal intubation. *J Clin Med*. 2023;12:6060.
16. De Jong A, Rolle A, Molinari N, et al. Cardiac arrest and mortality related to intubation procedure in critically ill adult patients: a multicenter cohort study. *Crit Care Med*. 2018;46:532-539.
17. Wong E, Ng YY. The difficult airway in the emergency department. *Int J Emerg Med*. 2008;1:107-111.
18. Sakles JC, Douglas MJK, Hypes CD, et al. Management of patients with predicted difficult airways in an academic emergency department. *J Emerg Med*. 2017;53:163-171.
19. Choi N, Parks A, Qu K, et al. Barriers and facilitators to the use of awake intubation by emergency physicians in Canadian emergency departments: a qualitative study. *CJEM*. 2026;28:452-462.
20. Kaji AH, Schriger D, Green S. Looking through the retrospectoscope: reducing bias in emergency medicine chart review studies. *Ann Emerg Med*. 2014;64:292-298.
21. Parks A, Law JA, Kovacs G. Wake up!: a novel, cadaver-based approach to training emergency physicians in awake intubation. *CJEM*. 2025;27:107-110.
22. STROBE Statement-Checklist of Items That Should Be Included in Reports of Cohort Studies. Accessed March 15, 2026. http://www.epidem.com/
23. Hansel J, Fuchs A, Cornwell B, et al. A core outcome set for airway management research. *Anaesthesia*. 2026;81:373-382.
24. Pacheco GS, Hurst NB, Patanwala AE, et al. First pass success without adverse events is reduced equally with anatomically difficult

airways and physiologically difficult airways. *West J Emerg Med*. 2021;22:360-368.

25. Alhomary M, Ramadan E, Curran E, et al. Videolaryngoscopy vs. fibreoptic bronchoscopy for awake tracheal intubation: a systematic review and meta-analysis. *Anaesthesia*. 2018;73:1151-1161.
26. Desai N, Ratnayake G, Onwochei DN, et al. Airway devices for awake tracheal intubation in adults: a systematic review and network meta-analysis. *Br J Anaesth*. 2021;127:636-647.
27. Merola R, Vargas M, Marra A, et al. Videolaryngoscopy versus fiberoptic bronchoscopy for awake tracheal intubation: a systematic review and meta-analysis of randomized controlled trials. *J Clin Med*. 2024;13:3186.
28. Emergency Medicine Specialty Committee. *Entrustable Professional Activity Guide: Emergency Medicine*. Royal College of Physicians and Surgeons of Canada; 2018:1-59. Accessed May 13, 2026. https://www.royalcollege.ca
29. The College of Family Physicians of Canada. *Priority Topics in Emergency Medicine*. The College of Family Physicians of Canada; 2017:1-36. Accessed June 23, 2026. https://www.cfpc.ca/CFPC/media/Resources/Education/EM_KF-2017_Final_ENG.pdf#page=4
30. Emergency Medicine Milestones The Accreditation Council for Graduate Medical Education. Accessed May 13, 2026. https://www.acgme.org
31. ABEM KSAs & Standards. Accessed May 13, 2026. https://www.abem.org
32. Downey A, Oughton C, Makar T, et al. Awake tracheal intubation: a survey of practices, barriers and skills maintenance. *Anaesth Intensive Care*. 2026;54:250-257.