



# Management of the Difficult Airway: An Appraisal of Clinical Practice Guidelines

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## Introduction

- Difficult airways defined as failure of facemask ventilation, laryngoscopy, supraglottic airway ventilation, tracheal intubation, extubation, or invasive airway placement<sup>1</sup>
- Diagnosis and management of difficult airways is complex, often requiring interprofessional collaboration to ensure oxygenation, ventilation, and protection against aspiration<sup>1</sup>
- Various clinical practice guidelines (CPGs) published to aid in this associated clinical decision-making, yet no systematic reviews assessing their quality have been performed to date<sup>1-12</sup>
- Herein we use the Appraisal of Guidelines Research and Evaluation (AGREE II) tool to address this and provide targeted recommendations to improve future guidelines<sup>13</sup>

## Methods

- Systematically reviewed literature from Scopus, EMBASE, and MEDLINE via PubMed and internet searching
- AGREE II-trained authors (S.M., J.N., D.R., and K.X.) evaluated 12 selected CPGs using following strategy:
  - Scaled domain scores across each CPG and AGREE II domain with associated means and standard deviations
  - Overall quality appraisals of low, average, and high if  $\leq 2$  domains, 3-4 domains, and/or  $\geq 5$  domains had scaled domain scores of  $\geq 60\%$ , respectively
- Quantified interrater reliability via intraclass correlation coefficients (ICC) with classifications of poor ( $< 0.20$ ), fair (0.21-0.40), moderate (0.41-0.60), good (0.61-0.80), or very good (0.81-1.00)

## Results

- Most guidelines published in Europe (i.e. United Kingdom), remaining from North America (USA, Canada), Asia (Japan, India), Australia, and New Zealand
- Domain 4 (clarity of presentation) had highest average of  $77.8 \pm 7.0\%$  domain 6 (editorial independence) had lowest of  $49.8 \pm 24.5\%$
- 8 guidelines classified as high quality, 2 guidelines classified as average quality, 2 guidelines classified as low quality
- Good interrater reliability for domains 1 (scope and purpose) and 3 (rigor of development); domains 2 (stakeholder involvement), 4 (clarity of presentation), 5 (applicability), and 6 (editorial independence) below this threshold

Figure 1: Six Domains of Quality Assessed by AGREE II Instrument

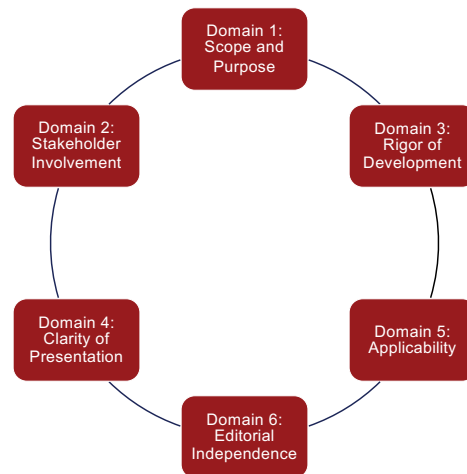
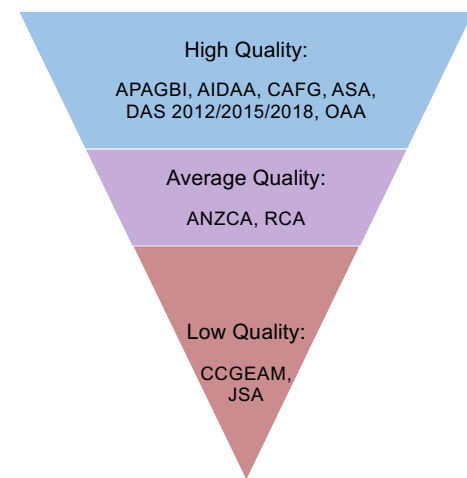


Figure 2: Difficult Airway CPGs Stratified by Quality Appraisal Grade

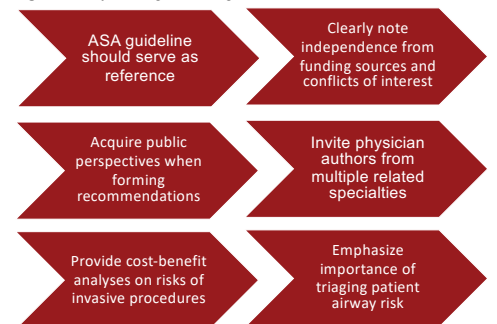


APAGBI = Association of Pediatric Anesthetists of Great Britain and Ireland, AIDAA = All India Difficult Airway Association, CAFG = Canadian Airway Focus Group, ASA = American Society of Anesthesiologists, DAS = Difficult Airway Society, OAA = Obstetric Anesthesiologists' Association, ANZCA = Australian and New Zealand College of Anesthetists, RCA = Royal College of Anesthetists, CCGEAM = Chinese Collaboration Group for Emergency Airway Management, Japanese Society of Anesthesiologists

## Discussion

- Highest-scoring domains of scope and purpose (domain 1: 76.9%) and clarity of presentation (domain 4: 77.8%) show CPGs' strength in highlighting objectives and recommendations
- Lowest-scoring domains of stakeholder involvement (domain 2: 50.7%) and editorial independence (domain 6: 49.8%) reveal CPGs' weakness in representing multiple perspectives and delineating resistance against outside influence
- ASA guideline had highest mean (83.1%) and single domain score (97.2%, domain 1: scope and purpose), showcasing its excellent developmental methodology
- Shared emphasis on predicting patient-specific risks of difficult airway and analyzing necessity of return of spontaneous breathing versus risks from more invasive procedures<sup>1-12</sup>
- Limitations include inherent subjectiveness of AGREE II tool (evidenced by non-uniform interrater reliability) and limited scope of instrument to developmental quality appraisal (all guidelines may have robust evidence and clinical applicability)

Figure 3: Key Findings and Targeted Recommendations of AGREE II



## Conclusion

- Our comprehensive appraisal process revealed the highest proportion of guidelines with high quality content designation ever reported using AGREE II instrument
- ASA guideline published in 2022 objectively outperforms its predecessors with respect to the domains of quality assessed
- The findings presented here may assist clinicians who are seeking quality resources in difficult airway management and our recommendations can positively benefit authors of future CPGs

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## References:



## Additional Information:

If interested in learning more, please reach out or see full paper published in Otolaryngology—Head and Neck Surgery

