Provincial Clinical Knowledge Topic
Anesthesia – Documentation of Difficult Airway, Adults – All Locations
Version 1.0

Revision History

Version	Date of Revision	Description of Revision	Revised By
1.0	August 2017	Topic complete	Dr. Shadhi Henein

Important Information Before you Begin

The recommendations contained in this knowledge topic have been provincially adjudicated and are based on best practice and available evidence. Clinicians applying these recommendations should, in consultation with the patient, use independent medical judgment in the context of individual clinical circumstances to direct care. This knowledge topic will be reviewed periodically and updated as best practice evidence and practice change.

The information in this topic strives to adhere to Institute for Safe Medication Practices (ISMP) safety standards and align with Quality and Safety initiatives and accreditation requirements such as the Required Organizational Practices. Some examples of these initiatives or groups are: Health Quality Council Alberta (HQCA), Choosing Wisely campaign, Safer Healthcare Now campaign etc.

This topic is based on the following guideline(s):

Apfelbaum JL, Hagberg CA, Caplan RA, et al. Practice Guidelines for Management of the Difficult Airway. *Anesthesiology*. 2013;118(2):251-270. doi:10.1097/aln.0b013e31827773b2.

Frerk C, Mitchell VS, Mcnarry AF, et al. Difficult Airway Society 2015 guidelines for management of unanticipated difficult intubation in adults. *British Journal of Anaesthesia*. 2015;115(6):827-848. doi:10.1093/bja/aev371.

Law JA, Broemling N, Cooper RM, et al. The Difficult Airway with Recommendations for Management – Part 1 – Difficult Tracheal Intubation Encountered in an Unconscious/Induced Patient. *Canadian Journal of Anesthesia*. 2013:60:1089-1118. doi:10.1007/s12630-013-0019-3.

Rationale

It is critically important for patient safety throughout the province that physicians have access to reports of previous difficult encounters for patients.

The difficult airway clinical knowledge topic strives to accomplish this awareness through the documentation provided for physicians and patients.

The intent is that this documentation will be adapted electronically into the patient health record thereby providing timely and comprehensive access to physicians to this information throughout the province.

Goals of Management

The goal for this topic is provide the resources necessary for physicians in order to avoid unexpected complications for a patient with a known previous difficult airway encounter by providing easy to access and timely standardized electronic clinical information documentation that is distributed throughout the province thus decreasing the number of future unexpected difficult airway experiences and improve patient safety.

A difficult airway can be defined as one where an experienced provider anticipates or encounters difficulty with any or all of face mask ventilation, direct or indirect (e.g., video) laryngoscopy, tracheal intubation, supraglottic airway device use, or surgical airway (Can J Anesth. 2013:60:1089-1118).

Difficult tracheal intubation can be defined as one or all of the following:

- Multiple attempts or more than one operator required;
- An adjunct such as a tracheal tube introducer (‘‘bougie’’) is required to facilitate tracheal intubation;
- An alternative intubation device is required after unsuccessful use of the primary, ‘‘Plan A’’ device.

A common reason for difficulty with tracheal intubation is a poor laryngeal view; however, if a Cormack-Lehane 1 or 2 view is obtained but difficulty occurs with directing or advancing the endotracheal tube (as may happen with video laryngoscopy), it is reasonable to describe this in some form of narrative. Alternatively, difficulty can be quantified using a scale based on several parameters (Can J Anesth. 2013:60:1089-1118).

Alberta Health Services

Difficult Airway Documentation

Provider to Provider Notification of Difficult Airway

Date (*dd-Mon-yyyy*): _____

Re: _____

This patient was found to be difficult to intubate at the (*name of facility*):

_____

Difficulty was:

☐ Unpredicted ☐ Predicted because: _____

Bag/Mask Ventilation was:

☐ Easy ☐ Medium ☐ Hard ☐ Not Possible ☐ OPA / NPA Used

Supraglottic device (SGA) was:

☐ Easy ☐ Difficult ☐ Impossible ☐ Not attempted

Comments: _____

View at Laryngoscopy with _____ blade was (refer to Table 1 on back of form):

☐ Grade 1 ☐ Grade 2 ☐ Grade 3 ☐ Grade 4

Reasons for difficulty include:

☐ Anterior larynx ☐ Airway trauma ☐ Immobile epiglottis ☐ Large tongue
☐ Limited Prognathism ☐ Prominent teeth ☐ Reduced mouth opening
☐ Reduced neck mobility ☐ Other: _____

Indicate all that were tried:

☐ Alternative Blade: _____ ☐ Blind nasal ☐ Cricothyrotomy
☐ Fiberoptic bronchoscope ☐ Laryngeal mask # _____ ☐ Light Stylet
☐ Ramped ☐ Retrograde technique ☐ Stylet/Gum elastic bougie
☐ Tracheostomy ☐ Video assisted laryngoscopy ☐ Other: _____

The patient's airway was ultimately secured:

☐ Awake ☐ Asleep ☐ Could not be secured

The patient's airway was secured using the following technique(s):

_____

Further Comments / Recommendations for future intubations:

_____

_____

☐ I have discussed this event with the patient and provided an information letter for their reference.

_____ Contact: _____

Most Responsible Physician

- ☐ Ensure Provider to Provider Notification of Difficult Airway added to patient health record
- ☐ Provide copy of Provider to Provider Notification of Difficult Airway to facility Anesthesia department

Table 1: Difficult Airway Grading Score (Cormack – Lehane Laryngeal Score)

Grade	Visualized Oral Anatomy	Potential Intubation Implications
1	Entire glottis opening from the anterior to posterior commissure.	Should facilitate an easy intubation.
2	Just the posterior portion of glottis.	Normally not difficult to pass a styleted tracheal tube through the laryngeal aperture.
3a*	Epiglottis only (epiglottis can be lifted using a laryngoscope blade).	Intubation is difficult, but possible using an Eschmann bougie introducer or flexible fiberoptic scope.
3b*	Epiglottis only (but epiglottis cannot be lifted from the posterior pharynx using a laryngoscope blade).	Intubation can be difficult, because insertion of an Eschmann bougie introducer may be impeded. Successful tracheal intubation can be accomplished with optical stylet or a flexible fiberoptic scope.
4	Only soft tissue, with no identifiable airway anatomy.	Difficult intubation, requiring advanced techniques to intubate the trachea.
	**Tracheal Intubation normally requires an advanced airway technique beyond direct larynoscopy.*	

Cormack RS, Lehane JR, Adams AP, et al. Laryngoscopy grades and percentage glottic opening. Anaesthesia 2000;55(2):184.

Difficult Airway Order Set

Order Set Components

Order Set Keywords: Extubation, Difficult Airway, Intubated

Order Set Requirement: Provider access to Provider to Provider Notification of Difficult Airway Form

Patient Care

Pre-Operative for Patient's with Known Difficult Airway

- ☑ Clinical Communication – Obtain previous intubation / anesthetic records
- ☑ Clinical Communication – Update Operating Room Department slate with difficult airway alert / notification

Post Extubation after Difficult Intubation

- ☑ Clinical Communication – Ensure 'Provider to Provider Notification of Difficult Airway' on patient health record
- ☑ Notify – Physician if patient complains of a sore throat, has difficulty swallowing, has upper respiratory distress, neck swelling, stridor or has a fever as the patient experienced a difficult airway intubation

If Patient Remains Intubated

- ☐ Clinical Communication – Ensure Difficult Airway signage visible in patient room
- ☐ Clinical communication – Have Difficult Airway equipment readily available

Post-Operative Monitoring

- ☐ Vital Sign monitoring for patients experiencing difficult airway at time of procedure – Monitor as follows: heart rate, blood pressure, pain score and respiratory rate every _____ minutes for 4 hours, then every _____ hours x 24 hours. Increase monitoring frequency as patient condition indicates.
- ☐ Vital Sign for patients experiencing difficult airway at time of procedure – Oxygen Saturation Monitoring to maintain oxygen saturation _____ % – continuous, as needed

Transitions and Referrals

- ☐ Consult _____
- ☐ Notify – Anesthesiolgogist for reassessment prior to discharge from facility
- ☑ Clinical Communication – Send copy of Provider to Provider Notification of Difficult Airway Form to patient's primary community healthcare provider with instructions to include with future referral.
- ☑ Discharge Instructions – Ensure anesthesiologist has provided teaching regarding difficult intubation encounter and copy of Difficult Airway Patient Notification Letter to the patient. If not previously completed, nursing or responsible physician to contact Anesthesiologist.

Clinical Decision Support

Difficult Airway Notification:
To be added to the patient electronic health record to track difficult airway encounters. Clinicians should be notified or alerted of a previous documented difficult airway encounter

Vital Sign Monitoring:
Ensure vital sign monitoring orders submitted by other clinicians include consideration for difficult airway prior to acceptance of vital sign monitoring orders in this order set. Ensure vital sign monitoring orders are not duplicated.

Disposition Planning

It is common after receiving anesthetic to have an imperfect recollection of events thus, after a patient experiences a difficult intubation, it is important to discuss the event with the patient and / or family and provide the patient letter which summarizes information about why it is important for the patient to tell the health care providers of this event at future health care encounters.

It is recommended that the discussion with the patient include providing indications of when the patient should receive further assessment including:

- Sore throat that does not go away or gets more painful
- Difficulty swallowing
- Fever

Difficult Airway Patient Notification Letter

Date (*dd-Mon-yyyy*): _____

To Whom It May Concern:

Patient: _____

Date of Birth (*dd-Mon-yyyy*): _____

Alberta Health Number: _____

To the Patient:

During your recent surgery, you required a breathing tube in your windpipe (trachea) to provide oxygen flow to the lungs, heart, brain, and other vital organs. It is harder to place a breathing tube in your windpipe than expected.

If you require a breathing tube in the future it is very important that your anesthesiologist, surgeon or other physician know of this difficulty. It is **VERY IMPORTANT** that you tell or show this letter to any physician taking care of you in the future. Your physicians will be in a much better position to take good care of you if warned of this situation.

Please get and wear a Medic-Alert bracelet that states "Difficult Airway Intubation"

Complications:
A mild sore throat is common after having a breathing tube.

If you have a sore throat that does not go away or gets more painful, difficulty swallowing, or a fever, **immediately** go to the **closest emergency room** and let the staff know you had a breathing tube inserted with difficulty during your recent hospital stay.

If you have any questions regarding this matter, please do not hesitate to contact the physician listed below.

Sincerely,

_____

Physician Name

_____

Contact Information

Analytics

Outcome Analytic 1

Name of Measure	Difficult Airway Documentation
Definition	Measure of the number of times the Difficult Airway Clinical Documentation is used throughout Alberta to inform clinicians of a patient's previous difficult airway encounter.
Rationale	Currently, there is a gap in the communication to subsequent clinicians of a previous difficult airway encounter limited by access to the patient's health record. This clinical knowledge topic strives to minimize that gap by providing a communication tool that can be included in the patient's electronic health record facilitating communication to all clinicians throughout Alberta Health Services of documentation of a difficult airway encounter. This communication will provide the knowledge physicians require to adequately anticipate and plan for subsequent difficult airway encounters and increase patient safety.
Notes for Interpretation	The implementation of the provincial clinical information system will allow thorough dissemination and utilization of the communication tools and guiding principles within this clinical knowledge topic thereby decreasing risk for a patient who is at known risk of difficult intubation.
Cited References	Apfelbaum JL, Hagberg CA, Caplan RA, et al. Practice Guidelines for Management of the Difficult Airway. Anesthesiology. 2013;118(2):251-270. doi:10.1097/aln.0b013e31827773b2. Frerk C, Mitchell VS, Mcnarry AF, et al. Difficult Airway Society 2015 guidelines for management of unanticipated difficult intubation in adults. British Journal of Anaesthesia. 2015;115(6):827-848. doi:10.1093/bja/aev371. Law JA, Broemling N, Cooper RM, et al. The Difficult Airway with Recommendations for Management – Part 1 – Difficult Tracheal Intubation Encountered in an Unconscious/Induced Patient. Canadian Journal of Anesthesia. 2013:60:1089-1118. doi:10.1007/s12630-013-0019-3.

Outcome Analytic 2

Name of Measure	Difficult Airway Patient Information Notification
Definition	Measure of the number of times the Difficult Airway Patient Information Notification is used throughout Alberta to provide an overview for the patient of the difficult airway encounter including the importance of sharing this information with their healthcare providers as well as providing indications of when to seek further assessment after a difficult airway encounter.
Rationale	The difficult airway patient information notification provides a standardized document for patient teaching and use after clinicians encounter a difficult airway when providing care for the patient. Currently, there is a gap in the standardized communication of this communication to the patient.
Notes for Interpretation	Use of the difficult airway patient information notification enables clinicians to use of the guiding principles within this clinical knowledge topic to communicate a difficult airway encounter with the patient.
Cited References	Apfelbaum JL, Hagberg CA, Caplan RA, et al. Practice Guidelines for Management of the Difficult Airway. Anesthesiology. 2013;118(2):251-270. doi:10.1097/aln.0b013e31827773b2. Frerk C, Mitchell VS, Mcnarry AF, et al. Difficult Airway Society 2015 guidelines for management of unanticipated difficult airway in adults. British Journal of Anaesthesia. 2015;115(6):827-848. doi:10.1093/bja/aev371. Law JA, Broemling N, Cooper RM, et al. The Difficult Airway with Recommendations for Management – Part 1 – Difficult Tracheal Intubation Encountered in an Unconscious/Induced Patient. Canadian Journal of Anesthesia. 2013:60:1089-1118. doi:10.1007/s12630-013-0019-3.

Outcome Analytic 3

Name of Measure	Order Set Usage for Difficult Airway Order Set
Definition	For all patients in which intubation is difficult, number of times Difficult Airway Order Set is used. Overall, by region and by sites.
Rationale	Intended to measure if the order set cited in the knowledge topic is being used and what percentage of the time for the indicated condition. May indicate areas with adoption issues or gaps in topic.
Notes for Interpretation	Health record to have coding for Difficult Airway Order Set, site capacity, roll out of provincial CIS.

Outcome Analytic 4

Name of Measure	Compliance to clinical standards in Difficult Airway Order Set.
Definition	To determine compliance to clinical standards within the order set.
Rationale	What percentage of the time are the orders within the Difficult Airway Order Set followed for patients in which the Difficult Airway Order Set is ordered? May indicate areas with adoption issues or gaps in topic.

Notes for Interpretation	Health record to have coding for Difficult Airway Order Set.

Clinical Questions and Recommendations

Clinical Question #1: Is it important that future health care providers be informed of a previous encounter to decrease the potential of experiencing an unexpected difficult airway for a patient?
Clinical Recommendation #1: Evidence shows there are important aspects of information that need to be recorded and recommend that the documentation of a difficult airway be accessible in the electronic patient health record (Can J Anesth. 2013:60:1089-1118).
Quality of Evidence: GRADE C
Strength of Recommendation: Strong

Keywords

Airway
Difficult airway
Difficult intubation
Endotracheal intubation
Emergency airway
Failed airway
General anesthetic
Intubation

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