



CORRESPONDENCE

## Difficultintubationapp.com – A difficult airway electronic record

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### To the Editor,

Inability to secure the airway during general anesthesia can have devastating consequences for the patient. Measures improving the care of patients with a known difficult airway would be beneficial. One area that offers room for improvement is documentation and communication of the difficult airway among healthcare providers. As Benumof tells us “...the patient’s responsible doctor must guarantee communication of this difficult airway experience to future care takers so that the near death experience does not become a future death.”

Current recommendations from the Difficult Airway Society<sup>1</sup> and the American Society of Anesthesiologists<sup>2</sup> include documenting the findings in anesthetic and medical records, enter the patient in an in-hospital and national database/alert system, inform the family doctor, verbally communicate the problem to the patient, and issue them a letter describing the difficulty encountered, instructing them to present this letter at the time of their next anesthetic experience.

Unfortunately, at least 20% of patients do not recall receiving a letter, and 50% do not recall the postoperative conversation.<sup>3</sup> Some institutions do not have a standardized letter containing the pertinent details of the event to issue to patients. Old anesthetic records are also not always readily available at the time patients are seen

preoperatively, particularly when treated at different institutions. In addition, a physical letter may be easily lost, or the patient may not remember to bring the letter to his/her appointment. However, the ubiquity of smartphones in our patient population offers an opportunity for clear, accurate, and highly portable communication. To address this communication gap, we developed a website and accompanying smartphone application (Android version currently available; iOS version due for completion in July 2016). The process for its use as follows.

1. The anesthesiologist goes to the website ([www.difficultintubationapp.com](http://www.difficultintubationapp.com)) and selects the ‘create patient letter’ option.
2. The anesthesiologist enters the patient’s airway management details as prompted and, when finished, generates a hard copy, printable patient letter. The patient is counselled about their difficult airway and given this letter. A copy may be placed in the patient’s medical record.
3. The patient’s letter includes a URL where the smartphone application can be downloaded and a QR code that contains the information in the letter.
4. When downloading the app, the patients agree to a disclaimer that they own these data and are responsible for its dissemination.
5. The patient can then scan the QR code and its information into the app.
6. On the next occasion of a general anesthetic or preoperative consultation the patient opens the app and the anesthesiologist can read the information (Figure). The patient also has the ability to export their data as a text file (.txt) which could be emailed and printed or saved on the patients’ personal computer, a hard disk, or a cloud storage facility.

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**Figure** Screen capture of information displayed on the difficultintubationapp.com app

Difficult Intubation	
<b>Difficult Intubation Information</b>  Date : 6/17/2016 Institution : Vancouver General Hospital Department : Anaesthesia  <b>Contact</b>  Name : Dr A N Other Telephone Number : (604) 875-4111 Email : DrANOther@gmail.com Indication for Airway Management : Elective Laparotomy  <b>Pre-OP Physical Characteristics</b>  Mallampati Score : IV Thyromental Distance < 6 cm : Yes Mouth Opening < 3 Fingerbreadths? : Yes Large Tongue? : No Neck Mobility Reduced? : No Radiation/Surgery to Head or Neck? : No Congenital Abnormality? : No Increased Aspiration Risk? : No Raised BMI? : Yes Bag Mask Ventilation : Two Person Technique	<b>Difficult Intubation</b>  <b>Sequence of events</b>  <b>Attempt 1</b>  Device Used : Macintosh Laryngoscope Blade #4 Comments : Poor view. Cormack and Lehane Grade IV Successful? : Unsuccessful  <b>Attempt 2</b>  Device Used : McCoy Laryngoscope Comments : Persistent poor view C/L grade III Successful? : Unsuccessful  <b>Attempt 3</b>  Device Used : Intubating LMA with endotracheal tube placed fibroscopically Comments : Easy oxygenation and ventilation with LMA. Tube inserted with fibroscope Successful? : Success  Further Comments : consider awake fibroscope  <div>EXPORT</div>

It is important to note that the difficultintubationapp.com does not store patient information, thus decreasing the risk of a third party obtaining personal health information. To ensure that there were no unforeseen data protection issues, we sought the advice of the VCH Information Privacy Office, who responded that they do not have “any specific privacy concerns with the application of the difficult intubation app with respect to its general application.” We remind users to observe best practices regarding the appropriate storage and safekeeping of medical information. Specifically we recommend that patients add password protection access to their mobile devices.

With this simple piece of technology, available free of charge, we hope to improve transfer of this important information.

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**Conflicts of interest** None declared.

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## References

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