

Appendix I: Questionnaires

Four data collection forms were designed to assist the analysis of videotapes and they are included in this report:

- Post Trauma Questionnaire (PTQ)
- Intubation Analysis Questionnaire (IA)
- Stressor Collection Form
- Recall Questionnaire

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Intubation Analysis

The object of the intubation sequence analysis is to gather detailed information about emergency and elective tracheal intubation. We will construct a database using the enclosed questionnaire that we will complete for each intubation case (we have about 60-70 such cases).

The database will include:

- 1) Clinical Information (indication for intubation, monitors used, difficulties occurring, drugs used)
- 2) Rules for Intubation (practices that are considered usual for "pre", "during", and "after" phases of intubation management.)
- 3) Assessment of Psychomotor Skills (and factors that impair these skills and some quantification of how much they delayed intubation.)
- 4) Decision-making/cognitive skills/Knowledge based skills (we want to tie this in with:)
a) our subjective ratings of stressors
b) the decision trees
- 5) Precise timing of major events in the intubation sequence (among different cases)
- 6) Psychological aspects of decision-making (Communication / preparation / decision tree issues.)
- 7) Data (to enable a survey of practices and identify subgroups for comparison of decision-making under stress.)

We will start by reviewing the anesthesia record and case summary and OCS summary files. Then start the video tape about 10 min before intubation was thought to occur. Watch the video making mental notes of your overall impression. Complete the intubation sequence analysis questionnaire. You will certainly have to review the 10 min before, during and after intubation sequence several times to complete the form. You must have OCS Tools running to record times.

STATUS:

AIS _____ GCS _____ ASA _____ TAG _____

Check all applicable categories:

- | | | | |
|----------------------|-------|-----------------------------|-------|
| 1. Teaching tape | _____ | 4. Equipment malfunction | _____ |
| 2. Ergonomic issue | _____ | 5. Man/machine problem (eg. | _____ |
| 3. Critical incident | _____ | monitor/ventilator) | |
| | | 6. Error detected | _____ |

Figure I.2: Intubation Analysis Questionnaire (IA)

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Case # _____ Reviewed by: _____ Date: _____

O.C.S. START TIME FOR INTUBATION SEQUENCE: ____:____:____.____
(When anesthesiologist mask is placed on for preoxygenation)I) Indication for Intubation (Check all that apply)

- A) _____ Airway obstruction that cannot be simply relieved
 B) _____ Hypoxemia *
 1) _____ PaO₂ <80 mm Hg (SaO₂ <95) on mask O₂ or
 2) _____ PaO₂ <60 mm Hg (SaO₂ <90) on air
 C) _____ In shock *
 1) _____ Systolic BP <80 mm Hg
 D) _____ Head injury
 E) _____ Unconsciousness
 F) _____ Lung contusion suspected
 G) _____ Surgery highly likely
 1) _____ Obvious Fx/bleeding sites, or
 2) _____ Elective case
 H) _____ Enable placement of monitors / investigations /
 peritoneal lavage, etc. in combative patient:
 AA Protocol implementation necessitates
 intubation. (Combative/patient: lack of
 cooperation appears to be the reason for
 intubation; there should be NONE of the other
 indications present.)
 J) _____ * If not meeting these criteria please identify
 1) _____ PaO₂ _____
 2) _____ SBP _____

II) Monitors (Can be seen or heard.)A) In place at time of intubation (circle below):

- 1) SaO₂ 2) ETCO₂ 3) BP 4) ECG 5) CVP 6) PA
 7) Temp 8) Nerve Stimulator 9) Other

B) During and immediately after intubation (circle below):

- 1) SaO₂ 2) ETCO₂ 3) BP 4) ECG 5) CVP 6) PA
 7) Temp 8) Nerve Stimulator 9) Other

Figure I.2. Intubation Analysis Questionnaire (IA) (continued - p.2 of 11).

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III) Intubation Drugs (Drugs used - circle drug used and write dose.
State if dose not recorded.)

A) Induction

- 1) Pentothal _____
- 2) Ketamine _____
- 3) Etomidate _____
- 4) Propofol _____
- 5) Other (Identify) _____

B) Muscle Relaxant

- 1) Succinylcholine _____
- 2) Pancuronium _____
- 3) Vecuronium _____
- 4) Atracurium _____
- 5) Curare _____
- 6) Other (Identify) _____

IV) Intubation Route (from record - circle below):

A)

- 1) ORAL 2) NASAL 3) CRICOTHYROID 4) TRACHE

B) Cervical Collar Used? Y / N

V) Intubation Assist

- A) Gum Elastic Bougie Y / N
- B) Stylet Used Y / N
- C) Laryngeal Mask Y / N
- D) Other _____ Y / N (Identify)

VI) Status

A) Identify Whether: (Circle)

- 1) Elective
- 2) Semi-Emergency (not time critical but urgent)
- 3) Real-Emergency (Precipitous requirement for Intubation)

Figure I.2. Intubation Analysis Questionnaire (IA) (continued - p.3 of 11).

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B) Identify location: (Circle)

- 1) OR 2) AA

C) Instrumentation:

1) Tube size Recorded _____

2) Number of Attempts _____

3) Difficulty: (Circle)

- a) Not Difficult b) Normal c) Very Difficult

4) Blade Size _____

D) Was there a critical Incident?

(vomit / esoph intubation / hypotension etc...)

1) Y / N (Circle)

(If YES, explain) _____

VII) Rules of Intubation: State whether followed or not (circle)

- | | | | |
|---------------|---|---|---|
| | 1) Pre-oxygenate. | Y | N |
| | 2) Head positioned before intubation | Y | N |
| | 3) In-line stabilization used | Y | N |
| | 4) Suction ready? | Y | N |
| A) <u>Pre</u> | 5) SaO ₂ monitored pre-induction? | Y | N |
| | 6) ETCO ₂ monitored pre-induction? | Y | N |
| | 7) BP monitored pre-induction. | Y | N |
| | 8) HR monitored pre-induction. | Y | N |
| | 9) Cricoid pressure indicated. | Y | N |
| | 10) Cricoid pressure correctly applied. | Y | N |
| | 11) Cricoid pressure maintained until
cuff up and ventilated. | Y | N |
| | 12) IV running pre-intubation. | Y | N |
| | 13) Drugs given satisfactorily? | Y | N |
| | 14) Did anesthesiologist and/or CRNA have
stethoscope? | Y | N |
| | 15) Was this sequence exactly followed:
preox, monitors, cricoid, drugs. | Y | N |

-
- | | | | |
|--|---|---|---|
| | 1) Intubation equipment ready? | Y | N |
| | 2) Check neuromuscular block before DL? | Y | N |

Figure I.2. Intubation Analysis Questionnaire (IA) (continued - p.4 of 11).

			5	
B) <u>During</u>	3) If 3 attempts fail is pt re-oxygenated?	Y	N	
	4) Is cuff inflated to just seal?	Y	N	
	5) Is tube insertion distance checked?	Y	N	
	6) Is left and right side of chest auscultated by anesthesiologist, CRNA, or other?	Y	N	
	7) Is upper abdomen auscultated by anesthesiologist, CRNA, or other?	Y	N	
	8) If cuff not inflated to just seal, is cuff inflation re-checked?	Y	N	
	9) Is tube taped or tied in position?	Y	N	
	10) Was timeliness of intubation appropriate?	Y	N	
	<hr/>			
	C) <u>After</u>	1) Is the chest listened to after connected to ventilator?	Y	N
2) Is ETCO ₂ monitored within 2 min after intubation?		Y	N	
3) Is ETCO ₂ monitored within 4 min after intubation?		Y	N	
4) Is NM block checked before giving non-depol block?		Y	N	
VIII) <u>Logistics of Intubation</u>				
A) <u>Tasks</u>	1) Was there appropriate assistance?	Y	N	
	2) Was it an efficient intubation?	Y	N	
	3) Did anesthesiologist specifically delegate tasks?	Y	N	
IX) <u>Psychomotor Skills</u>				
A) <u>During Intubation Sequence</u> (mark the analog scale)				
1) Mask Ventilation	Best _____	Worst		
2) Laryngoscopy	Best _____	Worst		
3) Equipment Handling	Best _____	Worst		
4) Intubation	Best _____	Worst		
5) Post intubation checks	Best _____	Worst		
B) <u>Overall score Psychomotor Skills</u> (circle score)				

Figure I.2. Intubation Analysis Questionnaire (IA) (continued - p.5 of 11).

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- 1) 5 Very smooth, rapid, no hitches
 4 Smooth, average speed, no hitches
 3 Average smoothness, slower than average, minor hitches
 2 3 attempts or more, takes longer, equipment failure
 1 Multiple attempts, major problems, very slow

C) What were the major psychomotor factors that impaired performance when a score of 1, 2, 3, or 4 (from above) was obtained?
 (List; estimate time delay for successful intubation.)

- | | MIN | SEC |
|----------|-----------|----------|
| 1) _____ | 00:_____: | _____.00 |
| 2) _____ | 00:_____: | _____.00 |
| 3) _____ | 00:_____: | _____.00 |

X) Decision-Making/Cognitive Skills during Intubation Sequence

- A) Were there errors in decision-making? Y N
 If yes, identify: _____
- B) Were drugs used appropriate? Y N
 If no, identify: _____
- C) Were drug doses appropriate? Y N
 If no, identify: _____
- D) Was intubation decision approached appropriately? Y N
 If no, identify: _____
- E) Was equipment preparation appropriate? Y N
 If no, identify: (suggest how it impaired performance)

- F) Were there contingencies present, that may have pointed the anesthesiologist down different branches of the emergency tracheal intubation decision tree? Y N
 If yes, state contingencies: _____
- G) Was patient monitoring appropriate before induction? Y N
 If no, why: _____
- H) What stressors were present in higher than usual levels or levels that would impair your performance if you were doing the intubation (please check)

Figure I.2. Intubation Analysis Questionnaire (IA) (continued - p.6 of 11).

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- 1) _____ Adverse non-anesthesia team interactions
- 2) _____ Adverse anesthesia team interactions
- 3) _____ Noise
- 4) _____ Time pressure
- 5) _____ Task workload
- 6) _____ Uncertainty
- 7) _____ Overall stress levels
- 8) _____ Other stressors (list) _____

XI) Timing of events (Please use: OCS Tools time code/Computer Time)
(If the events are not carried out state NOT DONE)

A) Before Intubation:

- 1) ____:____:____.____ Start time of Pre-oxygenation using anesthesia mask? (do not state time when O₂ given by nasal tube O₂ tent or non-rebreather O₂ mask).
- 2) Y / N Was O₂ being given by other means before anesthesia mask is on?
- 3) ____:____:____.____ Time for positioning of head and neck for intubation?
- 4) ____:____:____.____ Start time(s) for cricoid pressure?
____:____:____.____ , ____:____:____.____
- 5) ____:____:____.____ Stop time(s) for cricoid pressure?
____:____:____.____ , ____:____:____.____
- 6) _____ Number of times cricoid pressure applied?
- 7) ____:____:____.____ Start time of IV induction agent?
- 8) ____:____:____.____ Start time of muscle relaxant?

B) During Intubation:

- 1) ____:____:____.____ Start Time(s) for each suctioning of the airway?
____:____:____.____

Figure I.2. Intubation Analysis Questionnaire (IA) (continued - p.7 of 11).

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____:____:____.____ , ____:____:____.____

2) _____ Number of times suction catheter put in and out of mouth?

3) ____:____:____.____ Start Time(s) for each insertion of laryngoscopy?
 ____:____:____.____
 ____:____:____.____

4) ____:____:____.____ Stop Time(s) for each insertion of laryngoscopy?
 ____:____:____.____
 ____:____:____.____

5) _____ Number of times laryngoscope put in and out of mouth before successful laryngoscopy?

6) ____:____:____.____ Start Time(s) tracheal tube inserted in mouth / into nose?
 ____:____:____.____
 ____:____:____.____ , ____:____:____.____

7) _____ Number of times tube put in and out of mouth before successful intubation?

8) ____:____:____.____ Start time for cuff inflation?

C) After Intubation:

1) ____:____:____.____ Time manual ventilation recommences after intubation?

2) (Check) 1st ventilation mode after intubation.

a) _____ Resuscitator bag

b) _____ Anesthesia circuit

c) _____ Mechanical ventilator (without manual vent.)

3) ____:____:____.____ Start Time for listening over right chest?

4) ____:____:____.____ Start Time for listening over left chest?

5) ____:____:____.____ Start Time for listen over upper abdomen?

6) ____:____:____.____ Start Time when ventilator was

Figure I.2. Intubation Analysis Questionnaire (IA) (continued - p.8 of 11).

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connected?

- 6.5) ____:____:____.____ Time when mechanical ventilator ventilates patient
- 7) ____:____:____.____ Start Time for listening over chest to confirm ventilator ventilating?
- 8) ____:____:____.____ Start Time when anesthesiologist and CRNA first look for CO₂ signal?
- 9) ____:____:____.____ Finish Time when tube was taped?
- 10) ____:____:____.____ Start Time when tube cuff inflation / overinflation checked?
- 11) ____:____:____.____ Start Time when tube depth is checked?

XII) Cognitive Skills in association with intubation

A) Laryngoscopy Performed by: (circle)

- 1) MD Attending 2) MD Fellow 3) CRNA 4) Non-anesthesia personnel
5) _____

B) Difficulty of Intubation?

Easy _____ Most Difficult

C) Timeliness of the intubation in relation to the clinical situation?

Delayed _____ Hasty

D) Was intubation necessary?

Necessary _____ Not Necessary

E) Did the anesthesiologist consider all the relevant issues / complications associated with intubation?

All issues considered _____ Lack of Planning

F) Was preparation for intubation adequate?

Figure I.2. Intubation Analysis Questionnaire (IA) (continued - p.9 of 11).

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very adequate _____ Inadequate

G) Did the anesthesiologist use all available history / clinical exam / lab data?

Used data _____ Data clearly
efficiently _____ not used

H) How often did the anesthesia team look at patient monitors?

Frequently _____ Infrequently

I) Was it clear from the communication heard on the video tape what the intentions were:

1) Of the anesthesia team?

Clear _____ Unclear

2) The surgical team?

Clear _____ Unclear

J) Was it clear what the patient's injuries were, and how the team was managing the patient?

Clear _____ Unclear

XIII) Communication Overview
(if a specific incident of poor communication, explain under appropriate analog scale)

A) Was needed information communicated among the anesthesia team?

Effective _____ Poor
Communication _____ Communication

B) Between anesthesia team and surgical team?

Effective _____ Poor
Communication _____ Communication

Figure I.2. Intubation Analysis Questionnaire (IA) (continued - p.10 of 11).

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C) How much extraneous chatter was there?
No extraneous _____ lots of extraneous
chatter _____ chatter

D) Were tasks delegated appropriately?
Ideal task _____ Poor task
delegation _____ delegation

E) Were requests for information made by the anesthesia team
responded to?
Always _____ Never

F) Were requests for info made by the surgeons responded to?
Always _____ Never

G) Were anesthesia management strategies communicated
effectively?
Effectively _____ Poorly

H) Was surgical management strategy communicated effectively?
Effectively _____ Poorly

COMMENT here on noteworthy aspects of video!

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Figure I.2. Intubation Analysis Questionnaire (IA) (continued - p.11 of 11).

