



NSW Emergency Department Airway Registry And Education Project

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Background

- Advanced airway management is a core skill of Emergency Physicians and other doctors working in Emergency Departments (EDs)
- Rapid sequence induction of anaesthesia and endotracheal intubation (RSI) is a high-risk procedure that has an increased rate of severe complications when performed in EDs
- While there are multicentre studies that describe the performance of intubation in the EDs of North America and Europe, there has been only a single-centre study¹ regarding the success rates or complications that occur within the Australasian model of emergency management

¹Fogg T, Annesley N, Hitos K, Vassiliadis J. Prospective observational study of the practice of endotracheal intubation in the emergency department of a tertiary hospital in Sydney, Australia. *Emergency Medicine Australasia*. 2012 Dec 6;24(6):617–624.



Aims

- To develop an electronic database and describe the practice of intubation in NSW EDs
- Provide ED health professionals airway education
 - Using mobile in-situ simulation and E- learning
 - Supported by off-site instructors and technical teams
 - Utilising high bandwidth videoconferencing



Method

- Prospective observational study to be carried over 12 months in EDs across NSW
- Participants will access the database over a secure Internet site
- An educational airway module will be offered to participants via the Education by Web-based Innovative Simulation and E learning (EdWISE) program
- www.edwise.edu.au



Airway Registry Data Collection Sheet

www.airwayregistry.org.au



AUSTRALIA & NEW ZEALAND ED AIRWAY REGISTRY

To be completed for ALL intubations in the Emergency Department

Place Patient Sticker Here	DATE:
	EST WEIGHT:
	TEAM LEADER: Speciality + Seniority (eg ED Reg)

INDICATION FOR INTUBATION – TICK BEST ONE ONLY		
TRAUMA:	MEDICAL:	OTHER (Please State):
Traumatic Cardiac Arrest <input type="checkbox"/>	Respiratory Failure <input type="checkbox"/>	Altered Mental Status – Not Overdose <input type="checkbox"/>
Head Injury – Threatened Airway <input type="checkbox"/>	Airway Obstruction <input type="checkbox"/>	Cardiac Arrest <input type="checkbox"/>
Head Injury – Airway not patent <input type="checkbox"/>	Anaphylaxis <input type="checkbox"/>	
Combative / Agitated <input type="checkbox"/>	CHF <input type="checkbox"/>	
Face / Neck Trauma <input type="checkbox"/>	Sepsis <input type="checkbox"/>	
Shock <input type="checkbox"/>	GI Bleed <input type="checkbox"/>	
Drowning <input type="checkbox"/>	Seizure <input type="checkbox"/>	
Burn / Inhalation <input type="checkbox"/>	ICH/Stroke <input type="checkbox"/>	
Penetrating Trauma <input type="checkbox"/>	Overdose/Ingestion <input type="checkbox"/>	

DIFFICULT AIRWAY INDICATORS - "LEON"		TICK IF NO formal assessment made
Look: (eg Facial Trauma, Large Teeth or Tongue, Beard) <input type="checkbox"/>	Y / N	Obstruction? <input type="checkbox"/>
Evaluate 3-3-2 Rule (eg 3-2-1 See over) <input type="checkbox"/>	- - -	Neck Mobility Limited? <input type="checkbox"/>
Other <input type="checkbox"/>		

Observations	Last Set BEFORE INDUCTION	GCS	RR	SBP	HR	SaO ₂
	First Set AFTER INTUBATION			SBP	HR	SaO ₂

Preoxygenation* <input type="checkbox"/>	NRBM <input type="checkbox"/>	BVM <input type="checkbox"/>	NIV <input type="checkbox"/>	TIME OF INDUCTION	TIME OF INTUBATION
Apnoeic O ₂ * <input type="checkbox"/>	NI <input type="checkbox"/>	NP <input type="checkbox"/>	BVM <input type="checkbox"/>	NIV <input type="checkbox"/>	

Medication BEFORE Induction in ED		Medication FOR Induction		Medication POST Intubation	
Morphine	dose (mg) <input type="checkbox"/>	Ketamine	dose (mg) <input type="checkbox"/>	Vecuronium	<input type="checkbox"/>
Fentanyl IN	dose (mcg) <input type="checkbox"/>	Thiopentone	dose (mg) <input type="checkbox"/>	Ketamine	<input type="checkbox"/>
Fentanyl IV	dose (mcg) <input type="checkbox"/>	Propofol	dose (mg) <input type="checkbox"/>	Morphine	<input type="checkbox"/>
Midazolam	dose (mg) <input type="checkbox"/>	Fentanyl	dose (mcg) <input type="checkbox"/>	Midazolam	<input type="checkbox"/>
Ketamine	dose (mg) <input type="checkbox"/>	Suxamethonium	dose (mg) <input type="checkbox"/>	Propofol	<input type="checkbox"/>
Topical LA	dose (mg) <input type="checkbox"/>	Rocuronium	dose (mg) <input type="checkbox"/>	Fentanyl	<input type="checkbox"/>
Other	dose (mg) <input type="checkbox"/>	Other	dose (mg) <input type="checkbox"/>	Other	<input type="checkbox"/>
Nil	<input type="checkbox"/>	Nil	<input type="checkbox"/>	Nil	<input type="checkbox"/>

Attempt	Intubator	Speciality + Seniority (eg ED Reg)	No. Previous Intubations (Please circle)	Blade Type M=Macintosh N=Video O=Other	Cormack & Lehane Grade Direct Vision Video	Bringout B=right S=left N=neither	External Laryngeal Manipulation (Y/N)	Cricoid (Y/N)	Manual In-line Stabilisation (Y/N)	TUBE SIZE (ouffed?)
1			<10 10-100 >100							
2			<10 10-100 >100							
3			<10 10-100 >100							
4			<10 10-100 >100							
5			<10 10-100 >100							

*NRBM = Non Re-Breather Mask, BVM = Bag Valve Mask, NIV = Non Invasive Ventilation, NP = Nasal Prongs
PLEASE TURN OVER

OTHER INTUBATION MANOEUVRES – INDICATE ON WHICH ATTEMPT/S AFTER TICK BOX			
NIL <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Surgical airway <input type="checkbox"/>
Guedel / NPA inserted post induction <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cricoid pressure removed <input type="checkbox"/>
BVM ventilation after failed attempt <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LMA inserted post induction <input type="checkbox"/>

INTUBATION COMPLICATIONS – INDICATE ON WHICH ATTEMPT/S AFTER TICK BOX			
NIL <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Oesophageal intubation <input type="checkbox"/>
Equipment Failure – state what in comments <input type="checkbox"/>	<input type="checkbox"/>	Record Lowest SaO ₂ /BP and Duration <input type="checkbox"/>	Laryngospasm <input type="checkbox"/>
Desaturation – SaO ₂ < 93% <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mainstem bronchial intubation <input type="checkbox"/>
Bradycardia – HR < 60bpm <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Medication error <input type="checkbox"/>
Hypotension – requiring IV fluid/pressors <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Vomit – no aspiration <input type="checkbox"/>
Dental trauma due to intubation <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Vomit – with aspiration <input type="checkbox"/>
Airway trauma by intubator <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cardiac arrest <input type="checkbox"/>
Second dose of paralytic agent <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other (State Below) <input type="checkbox"/>

DISPOSITION	ICU <input type="checkbox"/>	Theatre <input type="checkbox"/>	Transferred to another hospital <input type="checkbox"/>	Required subsequent re-intubation in ED <input type="checkbox"/>	Extubated in ED <input type="checkbox"/>	Died in ED <input type="checkbox"/>
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COMMENTS

THANK YOU

"LEON" Evaluation	Cormack and Lehane Grading
<p>Look Externally: Facial Trauma Large Incisors Beard or Moustache Large Tongue</p> <p>Evaluate 3-3-2 Rule: Inter incisor distance ≥ 3 fingers Hyoid-mental distance ≥ 3 fingers Thyroid-hyoid distance ≥ 2 fingers</p> <p>Obstruction (eg haematoma, epiglottitis, large tonsils)</p> <p>Neck mobility limited?</p>	<p>Grade 1 Grade 2 Grade 3 Grade 4</p>

Admin use only:

Data reviewed <input type="checkbox"/>	Data complete <input type="checkbox"/>	More data required <input type="checkbox"/>	Paper registry updated <input type="checkbox"/>	Database updated <input type="checkbox"/>	Record complete <input type="checkbox"/>
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Version 7.4 04/06/12
Developed by Toby Fogg, Alex Tzannes and John Vassiladis



Outline of the Airway Simulation Module

Times (negociable)	Code	Sub-Module name	Target group	Simulation Learning objectives	Description	E Learning Presentation
09:30 - 10:40	A1	Structured approach and basic airway management	Medical and nursing students; new graduates	<ul style="list-style-type: none"> • Structured approach to the assessment of a patient that requires airway management • assessing for an obstructed airway • basic airway opening techniques • Airway adjuncts 	The facilitator commences with a topic overview and problem based scenario. This will be followed by a team based scenario using a patient simulator which will highlight the objectives of this module.	<ul style="list-style-type: none"> • Triple airway manoeuvres and airway adjuncts
11:10 - 12:20	A2	Approach to ventilation in the ED and oxygen delivery devices	Students and post-graduate level	<ul style="list-style-type: none"> • Overview of Bag-Mask ventilation • LMAs • Overview of oxygen delivery devices 	The facilitator commences with a topic overview and problem based scenario. This will be followed by a team based scenario using a patient simulator which will highlight the objectives of this module.	<ul style="list-style-type: none"> • Bag and mask ventilation • Oxygen delivery devices • LMAs
13:20 - 14:30	A3	Rapid Sequence Induction and approach to the difficult airway	Post-graduate level	<ul style="list-style-type: none"> • Structured approach to the assessment of the airway prior to intubation • red flags to intubation • preparing for intubation • rapid sequence induction—drugs and technique • CMAC • Confirming the position 	The facilitator commences with a topic overview. This will be followed by a team based scenario using a patient simulator which will highlight the objectives of this module.	<ul style="list-style-type: none"> • Preintubation checklist • Confirmation of tube placement • Trouble shooting Desaturation after intubation • CMAC



Outline of the Airway Simulation Module

Times (negociable)	Code	Sub-Module name	Target group	Simulation Learning objectives	Description	E Learning Presentation
15:00 - 16:10	A4-1A	(Alternative) special airway challenges: Airway for special groups (Trauma & Obstetrics)	Post- graduate level	<ul style="list-style-type: none"> • Airway for special groups • Paediatric challenges • Trauma challenges • Obstetric challenges • mechanical ventilation 	The facilitator commences with a topic overview. This will be followed by a team based scenario using SimMan which will highlight the objectives of this module.	
15:00 - 16:10	A4-1B	(Alternative) Special airway challenges: Airway for special groups (Paediatrics)	Post- graduate level	<ul style="list-style-type: none"> • Airway for special groups • Paediatric Challenges • Trauma Challenges • Obstetric Challenges • Mechanical Ventilation 	The facilitator commences with a topic overview. This will be followed by a team based scenario using SimMan which will highlight the objectives of this module.	
15:00 - 16:10	A4-2	(Alternative) Special airway challenges: The difficult airway	Post- graduate level	<ul style="list-style-type: none"> • The difficult airway • Difficult airway algorithm • Supraglottic rescue • Infraglottic rescue - surgical airway 	The facilitator commences with a topic overview. This will be followed by a team based scenario using SimMan which will highlight the objectives of this	<ul style="list-style-type: none"> • Difficult airway algorithm • Non invasive ventilation • Basic ventilator settings • Surgical airway



Conclusion

- This is an innovative and unique project where a number of units have collaborated to:
 - Investigate airway management in EDs across NSW
 - Provide free education and training via web and in situ.
- The simulation airway program via EdWISE has been rolled out to a number of NSW hospitals in the last 3 months
- The roll out of the complete program will be in the next 12 months

