The Sutherland Emergency Department

Airway Corner Newsletter

Jan & Feb 2020

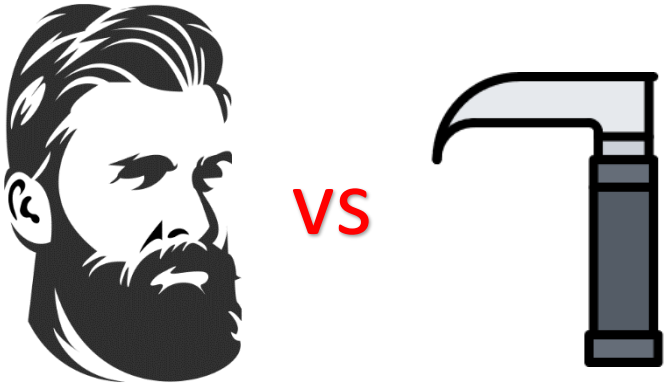
	Feb			Jan		
Number of intubations	5			4		
Indications	**Trauma**	**Medical:**		**Trauma**	**Medical:**	
	0	ICH/Stroke: 0 Overdose/Ingestion: 4 Sepsis/Resp Failure: 0 Cardiac Failure: 0 Arrest: 1		1	ICH/Stroke: 0 Overdose/Ingestion: 1 Sepsis/Resp Failure:2 Cardiac Failure: 0 Arrest: 0	
Team-leader	**FACEM**	**AT**	**Other**	**FACEM**	**AT**	**Other**
	2	3	0	4	0	0
Intubator	**FACEM**	**AT**	**Other**	**FACEM**	**AT**	**Other**
	1	2	2	0	3	1

Airway ax performed	Yes 3 / No 2			Yes 4 / No 1		
Checklist utilisation	Yes 4 / No 1			Yes 4 / No 1		
ApOx used	Yes 5 / No 0			Yes 3 / No 2		
Induction rx	**Ketamine**	**Propofol**	**Other**	**Ketamine**	**Propofol**	**Other**
	4	2	0	3	0	2
Paralytic rx	**Rocuronium**	**Suxamethonium**		**Rocuronium**	**Suxamethonium**	
	3	1		2	1	
Laryngoscope	**Direct**	**Video**		**Direct**	**Video**	
	0	5		0	4	
First pass success rate	100%			100%		

Intubation manoeuvres	**Nil**	**NPA/OPA**	**BVM**	**LMA**	**Repositioned**	**Cric**	**Nil**	**NPA/OPA**	**BVM**	**LMA**	**Repositioned**	**Cric**
	4	1	0	0	0	0	0	0	0	0	0	0
Desaturation	1						1					
Hypotension	None						None					
Equipment Failure	None						None					
Aspiration	None						None					
Oesophageal intubation	None						None					
Mainstem intubation	None						None					
Laryngospasm	None						None					
Drug error	None						None					
Airway trauma	None						None					
Cardiac arrest	None						1					

Please contact K Ostrowski or M Raos should any issues arise regarding airway management within the department

Case Observations



There have been some tricky scenarios to start the year mostly involving the combination of beards, hypoxia and peri-arrest situations. The temptation is to rush into intubation in these situations where hypoxia is the issue, in truth what is needed is ventilation or oxygenation or both. Through setting up for success you can make the situation better and get a better trajectory once the airway comes under control. Specifically using the intubation checklist is an opportunity to ensure critical elements such as ventilator set-up, suction and apnoeic oxygenation is addressed prior to embarking on laryngoscopy. Now that the beard is back we have to have some strategies to oxygenate everyone from lumberjacks to baristas.

Here are some strategies

1) Lube – heard of beard oil? Well this is the next level, grab the KY or petroleum jelly and lube the beard to make it one more fluid surface which will make a better seal with the inflatable mask seal
2) Stickers – grab a large tegaderm and cut a mouth hole out of it then grab a couple more and cover up the hair to create a pseudo skin
3) Paediatric mask – remember mouth to nose? Well you can get yourself a nice paediatric mask and form a seal round the nose with the mouth shut and pre-oxygenate that way

4) Nasopharyngeal airway – using a NPA with the adapter from an ETT or a shortened size 7 ETT you can pre-oxygenate using the nose again. Feel free to use cophenylcaine up the nose to lessen the bleeding

5) Cut-down 6.0 ETT – essentially the same as above cut the ETT and make a bespoke NPA

6) Shave the beard – can be an effective way to get a seal if other techniques not working. We appreciate a nice think beard at the Airway Corner, but in sometimes "it is what it is".

Code Brown Scenario of the Month: Post intubation arrest

In a study of 1,849 ICU patients (De Jong et al) there were 49 cardiac arrests during the intubation process. Of those patients who arrested 14 of them did have ROSC. Overall, based on that study, this means there is 1 cardiac arrest during every 40 intubations. This study further looked at the risk factors for intubation-related cardiac arrest:

Predictors of Intubation-Related Cardiac Arrest	OR	95% CI	P Value
Hypotension (SBP < 90mmHg)	3.406	1.797 - 6.454	0.0002
Hypoxemia Prior to Intubation (O2 < 90%)	3.991	2.101 - 7.593	<0.0001
Absence of Preoxygenation	3.584	1.287 - 4.678	0.0146
Obesity (BMI > 25kg/m)	2.005	1.017 - 3.952	0.0445
Age > 75 Years	2.251	1.080 - 4.678	0.0297

The best way to manage this is to avoid the situation in the first place. This includes attempting to modify the predictors of intubation related cardiac arrest – mainly hypotension, hypoxia and metabolic derangements. Approach the intubation systematically, use the checklist and always "resuscitate before you intubate". Some considerations for high risk patients

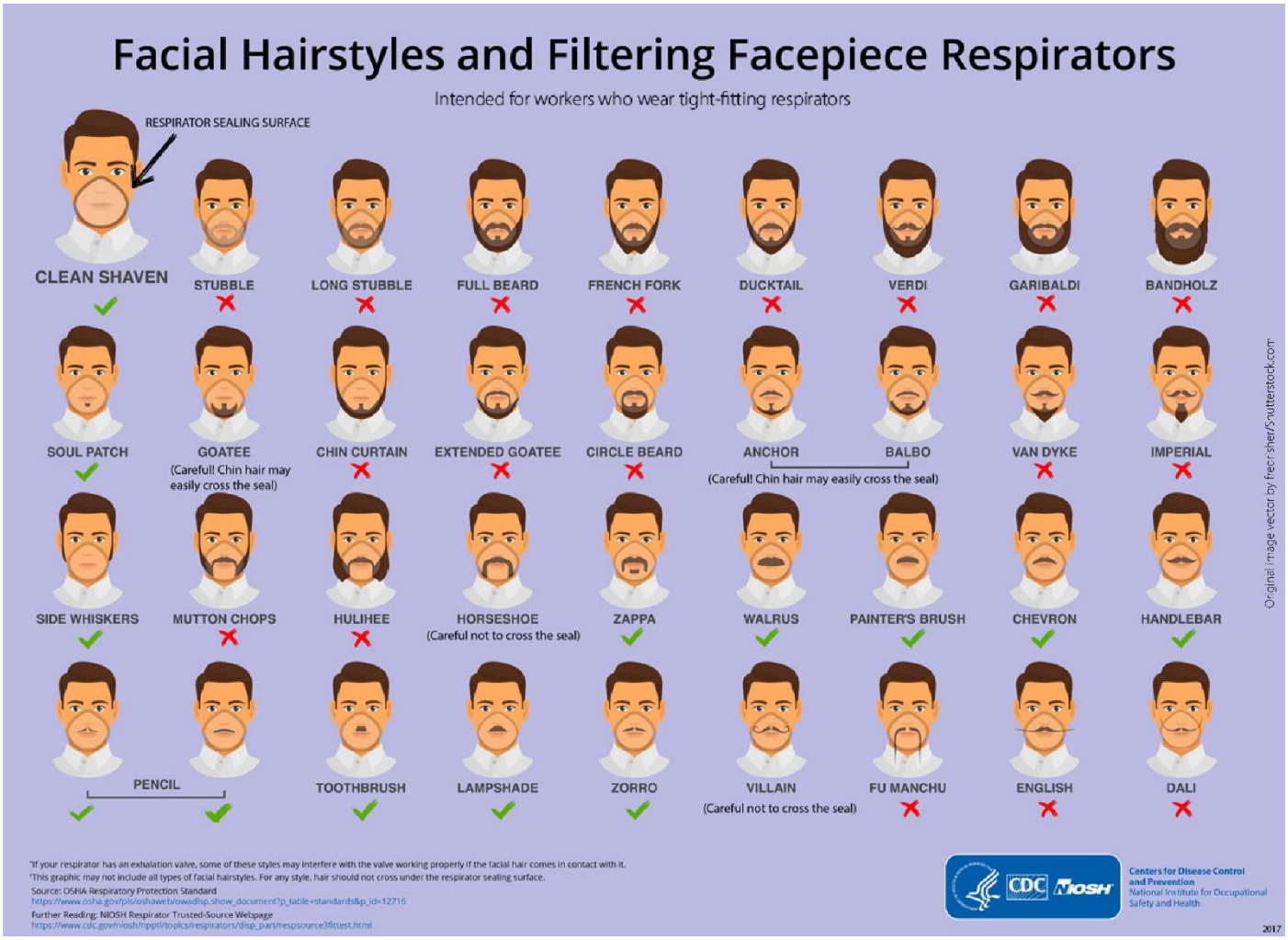
- Have push dose pressors ready
- Commence vasopressors prior to intubation
- Ensure all strategies employed to maximize preoxygenation
- Reduced dose induction agents in shock
- Backup airway plan briefed as a team
- Arterial line in place
- Most experienced operator for the intubation
- Ensure patient optimally positioned

For patients who have a cardiac arrest during induction it is essential to rapidly assess the patient for possible causes.

- Inadequate gas exchange
    - Rapidly go through your “DOPES” mnemonic to troubleshoot
    - Disconnect patient from ventilator and hand bag
    - Ensure placement of tube has been confirmed and it is not too deep or too shallow
    - Ensure no pneumothorax
    - Assess for bronchospasm
    - Assess for gas trapping
- Decreased Cardiac output
    - Assess cardiac rhythm and treat if needed
    - Administer vasopressors or fluid load
    - Bedside USS ?rule out tamponade
- Consider other reversible causes
    - Rocuronium anaphylaxis
    - Toxicological
    - Blood loss

COVID be prepared to de-beard

Also just a quick note about beards yet again. The official line from the CDC is that for your n95 respirator to work you need a tight seal on your face. Facial hair has been a bit of a hot topic this issue so we thought we'd close with the recommendations from the CDC regards facial hair. There's a lot of high quality evidence out there – dating from 1988.



Word on the Street

The bottom line: This multi-centre randomised prehospital trial looking at LMA vs ETT prehospital airway management did not show a favourable functional outcome at 30 days. How this relates to the ED is unclear, but when a patient arrives in ED post cardiac arrest and is ventilating well through an LMA the focus should be on addressing other reversible causes of arrest and maximizing other interventions and returning to the airway and exchanging for an ETT if needed.

Effect of a Strategy of a Supraglottic Airway Device vs Tracheal Intubation During Out-of-Hospital Cardiac Arrest on Functional Outcome
The AIRWAYS-2 Randomized Clinical Trial

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IMPORTANCE The optimal approach to airway management during out-of-hospital cardiac arrest is unknown.

OBJECTIVE To determine whether a supraglottic airway device (SGA) is superior to tracheal intubation (TI) as the initial advanced airway management strategy in adults with nontraumatic out-of-hospital cardiac arrest.

DESIGN, SETTING, AND PARTICIPANTS Multicenter, cluster randomized clinical trial of paramedics from 4 ambulance services in England responding to emergencies for approximately 21 million people. Patients aged 18 years or older who had a nontraumatic out-of-hospital cardiac arrest and were treated by a participating paramedic were enrolled automatically under a waiver of consent between June 2015 and August 2017; follow-up ended in February 2018.

INTERVENTIONS Paramedics were randomized 1:1 to use TI (764 paramedics) or SGA (759 paramedics) as their initial advanced airway management strategy.

MAIN OUTCOMES AND MEASURES The primary outcome was modified Rankin Scale score at hospital discharge or 30 days after out-of-hospital cardiac arrest, whichever occurred sooner. Modified Rankin Scale score was divided into 2 ranges: 0-3 (good outcome) or 4-6 (poor outcome; 6 = death). Secondary outcomes included ventilation success, regurgitation, and aspiration.

RESULTS A total of 9296 patients (4886 in the SGA group and 4410 in the TI group) were enrolled (median age, 73 years; 3373 were women [36.3%]), and the modified Rankin Scale score was known for 9289 patients. In the SGA group, 311 of 4882 patients (6.4%) had a good outcome (modified Rankin Scale score range, 0-3) vs 300 of 4407 patients (6.8%) in the TI group (adjusted risk difference [RD], −0.6% [95% CI, −1.6% to 0.4%]). Initial ventilation was successful in 4255 of 4868 patients (87.4%) in the SGA group compared with 3473 of 4397 patients (79.0%) in the TI group (adjusted RD, 8.3% [95% CI, 6.3% to 10.2%]). However, patients randomized to receive TI were less likely to receive advanced airway management (3419 of 4404 patients [77.6%] vs 4161 of 4883 patients [85.2%] in the SGA group). Two of the secondary outcomes (regurgitation and aspiration) were not significantly different between groups (regurgitation: 1268 of 4865 patients [26.1%] in the SGA group vs 1072 of 4372 patients [24.5%] in the TI group; adjusted RD, 1.4% [95% CI, −0.6% to 3.4%]; aspiration: 729 of 4824 patients [15.1%] vs 647 of 4337 patients [14.9%], respectively; adjusted RD, 0.1% [95% CI, −1.5% to 1.8%]).

CONCLUSIONS AND RELEVANCE Among patients with out-of-hospital cardiac arrest, randomization to a strategy of advanced airway management with a supraglottic airway device compared with tracheal intubation did not result in a favorable functional outcome at 30 days.

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Supplemental content

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