



ABORD DES VAS EN 2023 ?



Urg'Ara

Hospices Civils de Lyon



SAMU de LYON

Eric Cesareo 12/10/2023

ÉTAT DES LIEUX



Table 3 Pre-hospital life-sustaining treatments according to mode of transport.

	Mode of Transport			P
	all patients number (%) number = 1,958	HMICU number (%) number = 516	GMICU number (%) number = 1,442	
Aggressive therapy ^a	287 (14.7)	97 (18.8)	190 (13.2)	0.002
(1) Tracheal intubation	1,050 (53.6)	308 (59.7)	742 (51.5)	0.001
(2) Colloids or SSH	1,074 (54.9)	238 (46.1)	836 (58.0)	<0.001
(3) Crystalloids ≥1000 ml	431 (22.0)	131 (25.4)	300 (20.8)	0.031
(4) Catecholamines	261 (13.3)	93 (18.0)	168 (11.7)	<0.001
(5) Blood products	72 (3.7)	43 (8.3)	29 (2.0)	<0.001
(6) Exsufflation or chest tube	38 (1.9)	14 (2.7)	24 (1.7)	0.14

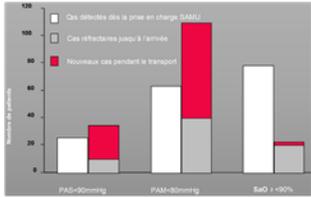
ISR et traumatisme sévère: IOT pour qui ? quand ?

► Une détresse neurologique (CGS \leq 8 et Score moteur \leq 4)

→ Amélioration prouvée du pronostic neurologique à 6 mois



Hypo PA, hypoxémie, Hypocapnie++



Rouxel, Tazarourte, Vigùe
Ann Fr Anesth Réanim 2004

Prise en charge des TCG à la phase précoce (24 premières heures) RFE Anesth Reanim. 2016; 2: 431-53

► Une détresse ventilatoire

FR >25

SpO2 < 90% AA et < 93% avec O2 haut débit

→ Correction hypoxémie/hypercapnie et ses conséquences



RFE traumatisme thoracique : prise en charge 48 premières heures SFAR/SFMU Anesth Reanim. 2015; 1: 272-87

Après avoir éliminé un PNO ++

► Un risque évolutif majeur pour le patient

► Un patient hyper agité, non examinable, dangereux pour lui ou l'entourage

Choc hémorragique : le rapport bénéfice/risque pas en faveur d'une ISR

Airway and ventilation management strategies for hemorrhagic shock. To tube, or not to tube, that is the question!

Anthony J. Hudson, MA, Geir Strandenes, MD, Christopher K. Bjerkvig, MD, Marius Svanevik, MD, and Elon Glassberg, MD, MHA, Devon, UK



Trauma and acute care Surgery
2018; 84: S77-S82

Surgical Innovation

Circulation First for the Rapidly Bleeding Trauma Patient—
It Is Time to Reconsider the ABCs of Trauma Care

Paula Ferrada, MD; Sharmila Dissanaiké, MD



JAMA Surgery
doi:10.1001/jamasurg.2022.8436.
Online ahead of print

A CIRCULATION-FIRST APPROACH FOR RESUSCITATION OF TRAUMA PATIENTS WITH HEMORRHAGIC SHOCK

Jonathon Chon Teng Chio,* Mark Piehl,^{†‡} Valerie J. De Maio,[§] John T. Simpson,* Chelsea Matzko,* Cameron Belding,* Jacob M. Broome,* and Juan Duchesne*



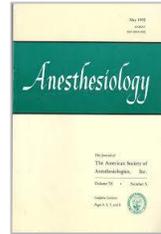
SHOCK. 2023;59:1-4



L'intubation en urgence est à priori une intubation difficile (Grade II)

En préhospitalier

- Intubation difficile = 8 à 15%
- Echec = 0,3%-0,5%



The intubation difficulty scale (IDS): proposal and evaluation of a new score characterizing the complexity of endotracheal intubation.

Adnet F et al. Anesthesiology 1997;87:1290—7

Il existe un prix à payer

Morbidity related to emergency endotracheal intubation
A substudy of the KETamine SEDation trial

Jabre P et col Resuscitation 2011; 82: 517-22



Table 1
Intubation-related complications according to medical or traumatic reason for intubation in 650 patients.

	Total	Medical reason (N= 539)	Traumatic reason (N= 111)	p
Complications, n (%)	192 (30%)	175 (33)	17 (15)	0.0003
General complications^a				
Desaturation	70 (10)	62 (12)	8 (7)	0.18
Hypotension	88 (14)	81 (15)	7 (6)	0.02
Cardiac arrest	18 (3)	18 (3)	0 (0)	0.05
Aspiration during intubation	5 (1)	5 (1)	0 (0)	0.60
Vomiting	12 (2)	12 (2)	0 (0)	0.24
Bronchospasm and/or laryngospasm	1 (0)	1 (0)	0 (0)	—
Mechanical complications^a				
Mainstem intubation	19 (3)	18 (3)	1 (1)	0.22
Esophageal intubation	26 (4)	24 (5)	2 (2)	0.29
Dental trauma	9 (1)	7 (1)	2 (2)	0.66

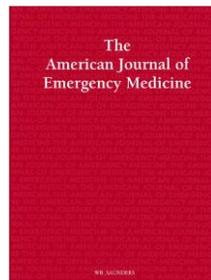
^a The total is greater than 192 (30%) because some patients had more than 1 complication

Pré-oxygénation indispensable et impérative

- Pendant la préparation des drogues et du matériel d'intubation
- Masque facial valve et ballon auto-remplisseur VS autre NRB ?
sur la méthode rien n'émerge de façon significative y compris l'oxygénation apnéique !
pas de VNI (Traumato!)



Check-List



Effect of the implementation of a checklist in the prehospital management of a traumatised patient

Cazes N et coll

doi.org/10.1016/j.ajem.2023.07.034

Aides cognitives ?



Bag-Mask Ventilation during Tracheal Intubation of Critically Ill Adults

Casey JD et coll N Engl J Med. 2019; 380: 811-21

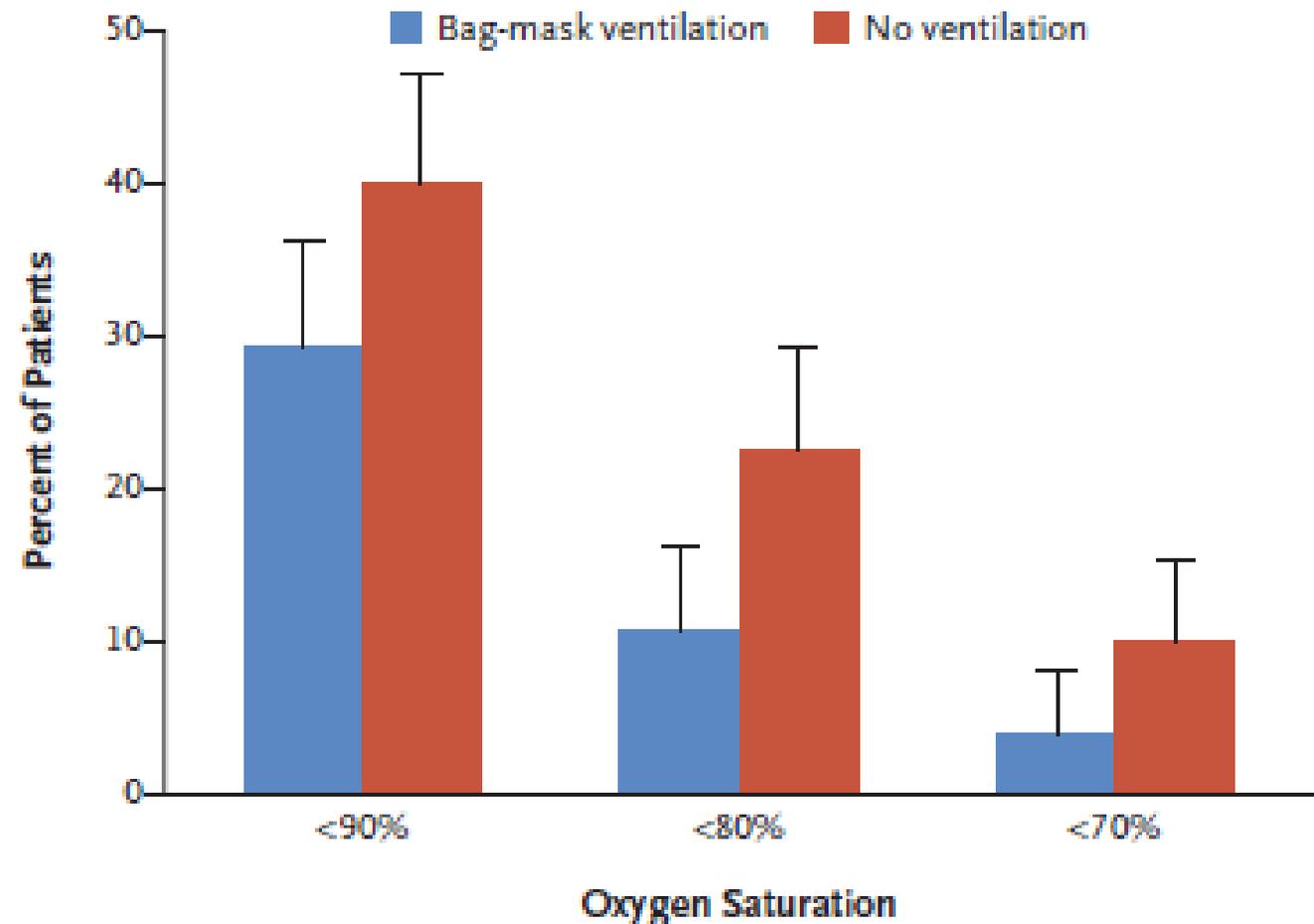
Revenir sur les dogmes !!

Multicentrique, randomisée
401 patients

Degré hypoxémie

Pas de différence régurgitations
Ou pneumopathie inhalation

B Degree of Hypoxemia



Sur le choix des drogues : Délai (temps bras-cerveau) et durée action courte

1. Kétamine/Etomidate (une inhibition profonde mais transitoire de l'axe surrénalien)



Etomidate as an induction agent for endotracheal intubation in critically ill patients: A meta-analysis of randomized trials

Yuki Kotani, MD^{a,b,c,*}, Gioia Piersanti^a, Giacomo Maiucci^a, Stefano Fresilli, MD^a, Stefano Turi, MD^a, Giada Montanaro^a, Alberto Zangrillo, MD^{a,b}, Todd C. Lee, MD, MPH^d, Giovanni Landoni, MD^{a,b}

Y. Kotani et al.

Journal of Critical Care 77 (2023) 154317

Study or Subgroup	Etomidate		Control		Weight	Risk Ratio M-H, Fixed, 95% CI	Year
	Events	Total	Events	Total			
Absalom A 1999	5	17	3	17	1.1%	1.67 [0.47, 5.90]	1999
Schenarts CL 2001	0	16	1	15	0.6%	0.31 [0.01, 7.15]	2001
Jacoby J 2006	13	44	16	44	5.9%	0.81 [0.45, 1.48]	2006
Hildreth AN 2008	2	18	0	12	0.2%	3.42 [0.18, 65.58]	2008
Jabre P 2009	93	328	87	327	32.1%	1.07 [0.83, 1.37]	2009
Tekwani KL 2010	26	63	21	59	8.0%	1.16 [0.74, 1.82]	2010
Punt CD 2014	61	161	54	140	21.3%	0.98 [0.74, 1.31]	2014
Driver B 2014	3	28	1	26	0.4%	2.79 [0.31, 25.12]	2014
Smischney NJ 2019	26	76	25	84	8.7%	1.15 [0.73, 1.81]	2019
Powers WF 2021	0	208	0	220		Not estimable	2021
Matchett G 2022	90	400	59	401	21.7%	1.53 [1.14, 2.06]	2022
Total (95% CI)		1359		1345	100.0%	1.16 [1.01, 1.33]	

Total events 319 267
Heterogeneity: $\text{Chi}^2 = 8.52$, $\text{df} = 9$ ($P = 0.48$); $I^2 = 0\%$
Test for overall effect: $Z = 2.15$ ($P = 0.03$)

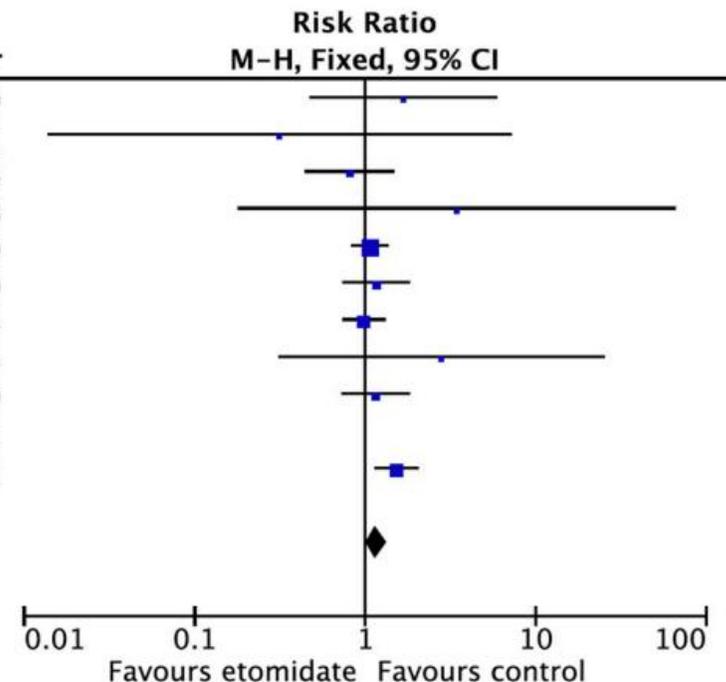


Fig. 2. Forest plot for mortality at the main timepoint defined by authors.

2. Célocurine/rocuronium

JAMA | Original Investigation

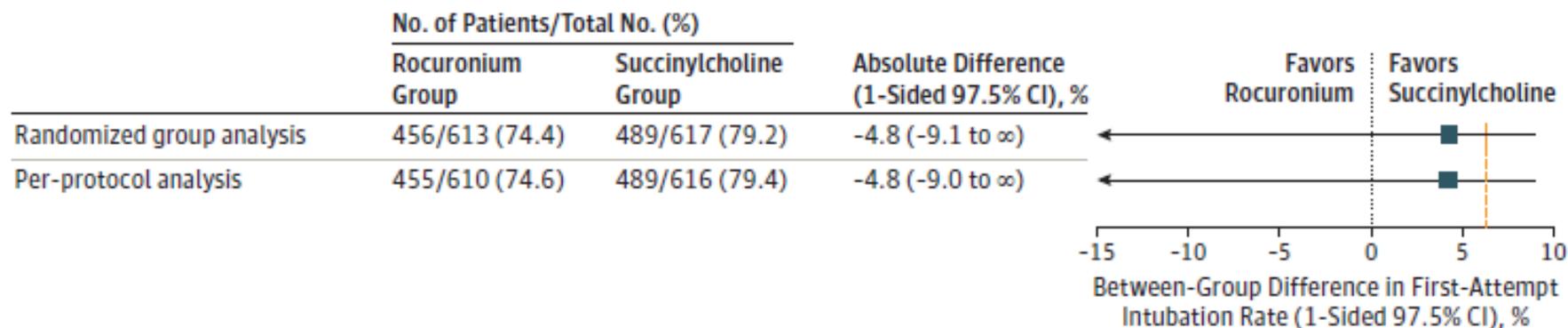
Effect of Rocuronium vs Succinylcholine on Endotracheal Intubation Success Rate Among Patients Undergoing Out-of-Hospital Rapid Sequence Intubation A Randomized Clinical Trial

Bertrand Guihard, MD; Charlotte Chollet-Xémard, MD; Philippe Lakhnati, MD; Benoit Vivien, MD, PhD; Claire Broche, MD; Dominique Savary, MD; Agnes Ricard-Hibon, MD; Pierre-Jean Marianne dit Cassou, MD; Frédéric Adnet, MD, PhD; Eric Wiel, MD, PhD; Juliette Deutsch, MD; Cindy Tissier, MD; Thomas Loeb, MD; Vincent Bounes, MD, PhD; Emmanuel Rousseau, MD; Patricia Jabre, MD, PhD; Laetitia Huiart, MD, PhD; Cyril Ferdynus, PhD; Xavier Combes, MD, PhD



2019;322(23):2303-2312

Figure 2. Difference in Successful First-Attempt Intubation Rate Between Patients Given Rocuronium vs Succinylcholine While Undergoing Out-of-Hospital Rapid Sequence Intubation



The dashed line represents the noninferiority margin of 7%. Because the CI lines go above the prespecified noninferiority margin of 7%, the null hypothesis that succinylcholine is superior cannot be rejected.

CONCLUSIONS AND RELEVANCE Among patients undergoing endotracheal intubation in an out-of-hospital emergency setting, rocuronium, compared with succinylcholine, failed to demonstrate noninferiority with regard to first-attempt intubation success rate.

JAMA Surgery | Original Investigation

Effect of Cricoid Pressure Compared With a Sham Procedure in the Rapid Sequence Induction of Anesthesia The IRIS Randomized Clinical Trial

Aurélie Birenbaum, MD; David Hajage, MD, PhD; Sabine Roche, MD; Alexandre Ntomba, MD; Mathilde Eurin, MD; Philippe Cuvillon, MD, PhD; Aurélien Rohn, MD; Vincent Compere, MD, PhD; Dan Benhamou, MD; Matthieu Blais, MD, PhD; Remi Menut, MD; Sabiha Benachi, MD; François Lenfant, MD, PhD; Bruno Riou, MD, PhD; for the IRIS Investigators Group



JAMA Surg. 2019;154:9-17.

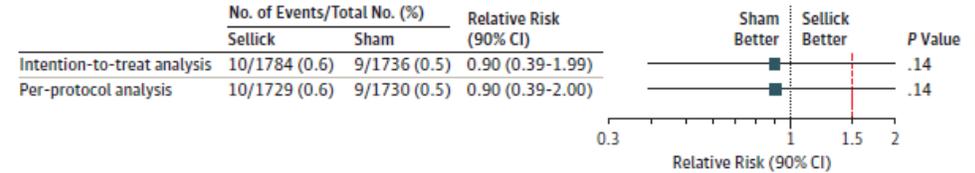


Randomisée, multi centrique, double aveugle,
Menée au Bloc opératoire

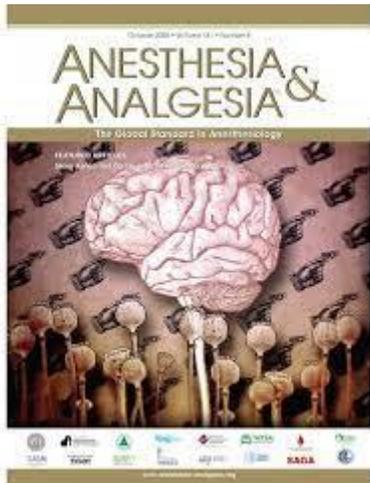
3472 patients inclus en urgence (ou à risque) 1735/1736

Recherche inhalation bronchique

Figure 2. Comparison of the Incidence of Pulmonary Aspiration (Primary End Point) Between the Sellick Group and the Sham Group



9 patients 10 patients
0,5% 0,6%



CASE REPORT: PDF ONLY

The Sellick Maneuver Causing Complete Airway Obstruction

Georgescu, Alexandra MD; Miller, John N. MB, BS; Lecklitner, Myron L. MD

[Author Information](#)

Anesthesia & Analgesia 74(3):p 457-459, March 1992.

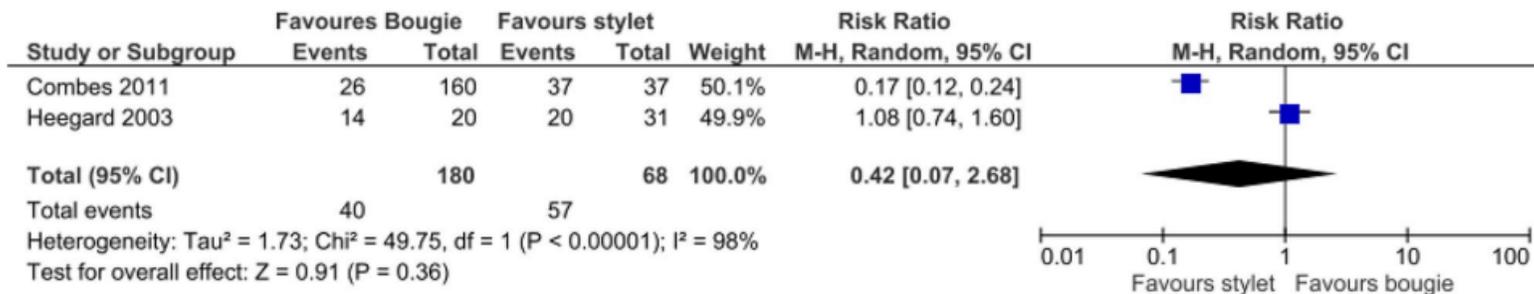
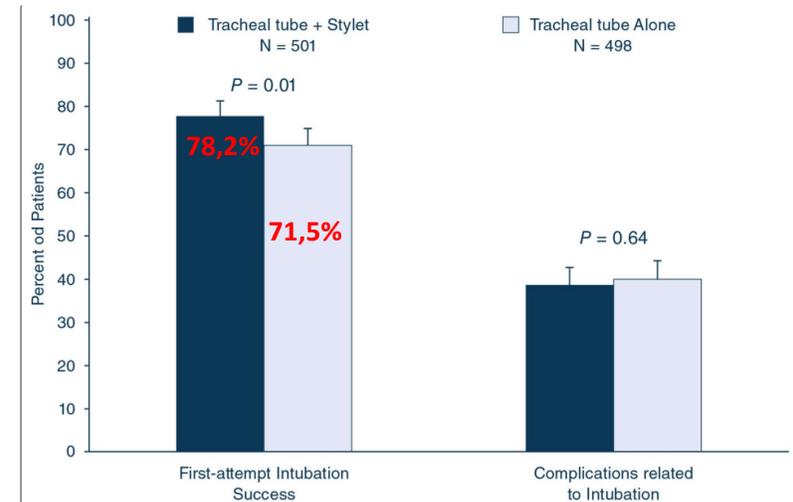


L'utilisation d'un stylet malléable dans la sonde doit probablement être privilégiée

STYLETO Trial
N = 999 patients

Effect of the use of an endotracheal tube and stylet versus an endotracheal tube alone on first-attempt intubation success: a multicentre, randomised clinical trial in 999 patients

Intensive Care Med (2021) 47:653–664 Jaber S and al



European Journal of Trauma
and Emergency Surgery
(2022) 48:1723–1735

Tollman J and al

Fig. 3 Forest plot of comparison between bougie versus stylet; outcome, first pass success rate in studies without video technology

Vidéo-laryngoscopie ou laryngoscopie directe ??

RESEARCH

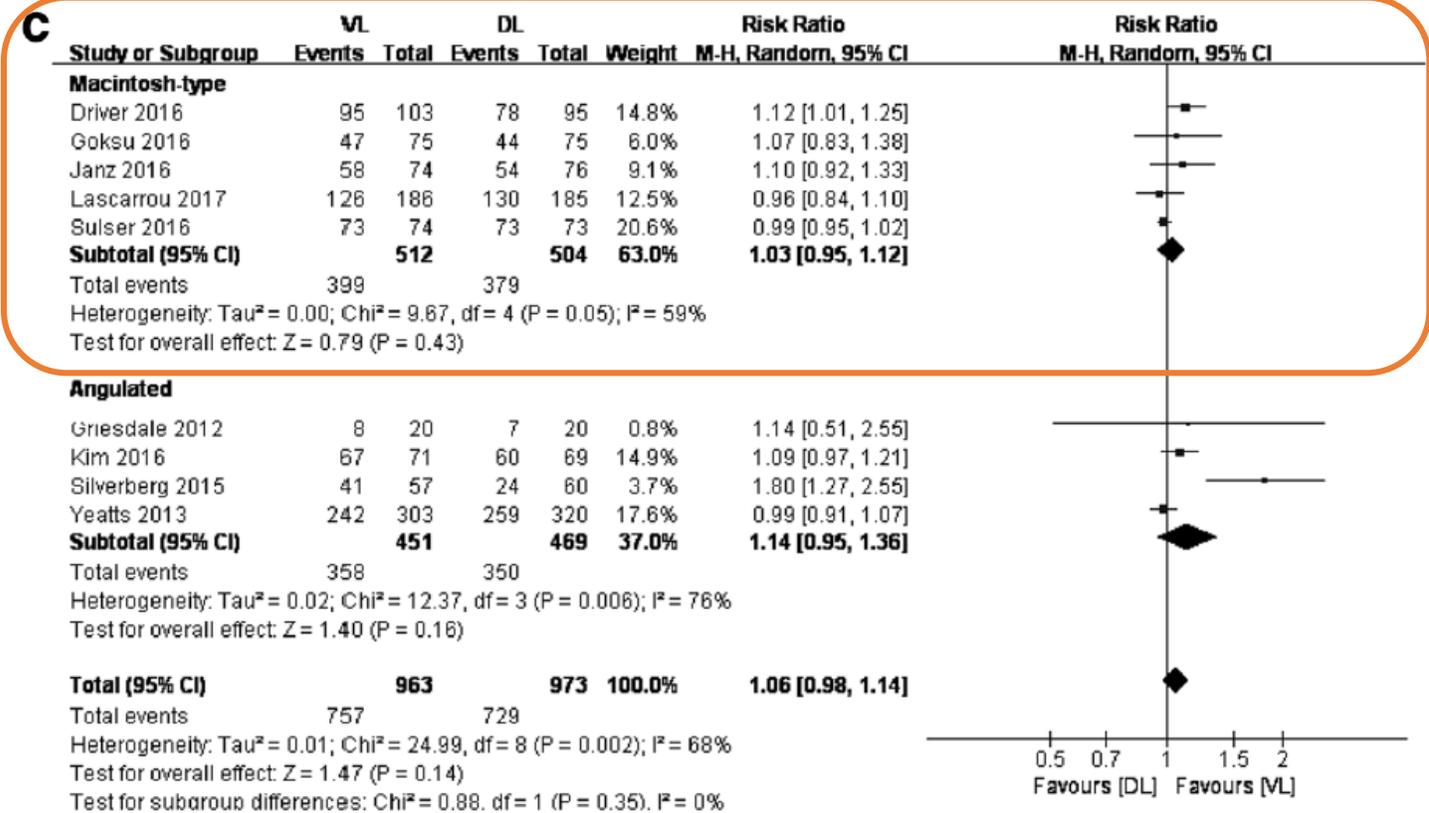
Open Access



Video laryngoscopy does not improve the intubation outcomes in emergency and critical patients – a systematic review and meta-analysis of randomized controlled trials

Jia Jiang¹, Danxu Ma¹, Bo Li², Yun Yue^{1*} and Fushan Xue^{2*}

Jiang *et al. Critical Care* (2017) 21:288

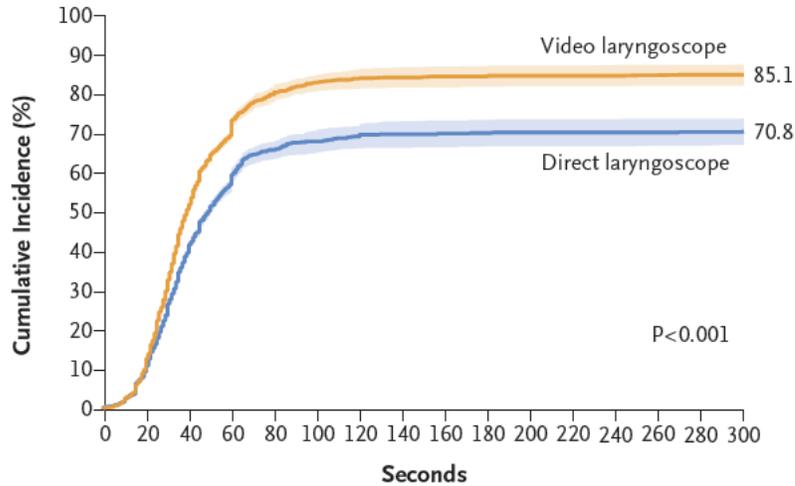


ORIGINAL ARTICLE

2023 : Vidéo-Laryngoscopie !

Video versus Direct Laryngoscopy for Tracheal Intubation of Critically Ill Adults

M.E. Prekker, B.E. Driver, S.A. Trent, D. Resnick-Ault, K.P. Seitz, D.W. Russell,



Subgroup	Video Laryngoscope no. of events/total no. (%)	Direct Laryngoscope no. of events/total no. (%)	Absolute Risk Difference (95% CI) percentage points
Overall	600/705 (85.1)	504/712 (70.8)	
Location in hospital			
Emergency department	425/495 (85.9)	352/493 (71.4)	
Intensive care unit	175/210 (83.3)	152/219 (69.4)	
Body-mass index			
<30	402/468 (85.9)	343/483 (71.0)	
≥30	179/217 (82.5)	155/216 (71.8)	
Traumatic injury			
Yes	151/171 (88.3)	114/167 (68.3)	
No	449/534 (84.1)	390/545 (71.6)	
Anticipated difficulty of intubation			
Easy	206/232 (88.8)	172/223 (77.1)	
Moderate	266/317 (83.9)	235/331 (71.0)	
Difficult	51/67 (76.1)	30/62 (48.4)	
Not reported	77/89 (86.5)	67/96 (69.8)	
No. of operator's previous intubations			
<25	128/160 (80.0)	83/154 (53.9)	
25–100	379/441 (85.9)	330/448 (73.7)	
>100	93/104 (89.4)	91/109 (83.5)	
Proportion of previous intubations performed with a video laryngoscope			
<0.25	39/44 (88.6)	27/34 (79.4)	
0.25–0.75	335/398 (84.2)	303/429 (70.6)	
>0.75	226/262 (86.3)	174/248 (70.2)	

-50 -40 -30 -20 -10 0 10 20 30 40 50
 ← Direct Laryngoscope Better Video Laryngoscope Better →

Contrôler la bonne position de la sonde !

Table 2 Analysis of errors by the adjudication committee.

	Preventable deaths n = 72 patients	Potentially preventable deaths n = 36 patients	Total n = 108 patients
Triage error	8	14	22
Excessive prehospital time	28	9	37
Incorrect prehospital treatment	2	5	7
Inaccurate diagnosis	9	11	20
Diagnosis delay	5	7	12
Deaths during CT scanning	2	7	9
Incorrect treatment at hospital	10	10	20
Incorrect airway control	6	1	7
Omission of essential procedure	21	13	34
Accidental drain/catheter removal	1	0	1
Equipment failure	0	1	1
Total	92	78	170

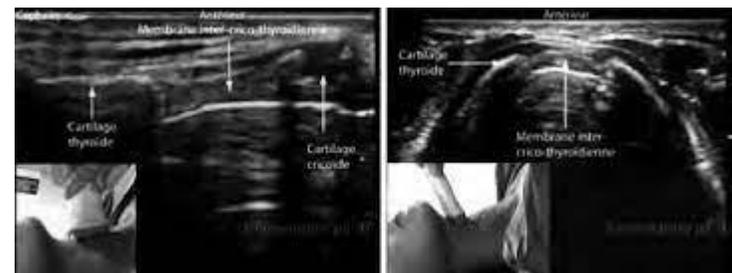
One preventable/potentially preventable death may be related to more than one error, so that sum totals of errors exceed the number of deaths.

Girard E et col. J Visc Surg. 2019; 156:10-16.

- Capnographie indispensable (pas de courbe = la sonde n'est pas en place !!)



- Echographie !! (obsolescence du stéthoscope...)



2023-TAKE HOME MESSAGES (1)

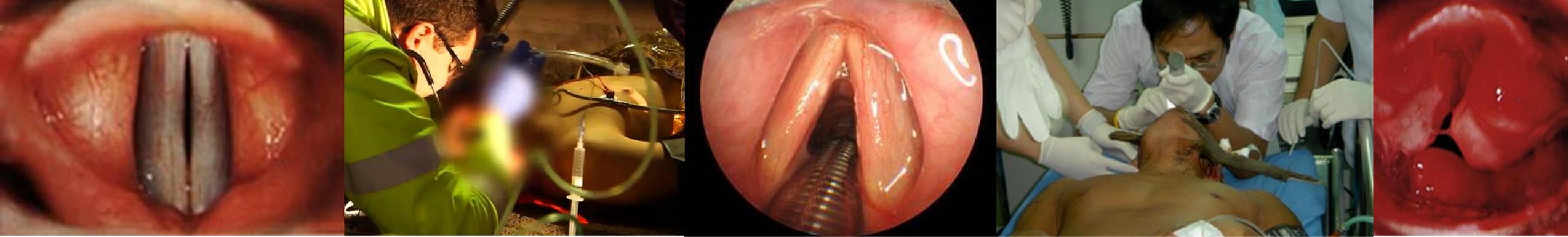
- Intubation préhospitalière est une intubation à priori difficile
- Réflexion bénéfice/risque s'impose à chaque fois
dans tous les cas C-A-B
check-list, aides cognitives ?
conférence à 3 si doute ??
- Pré-oxygénation est une étape indispensable
- Eto/Kéta : « c'est plus la façon de donner que ce que je donne »



2023-TAKE HOME MESSAGES (2)

- Célo/Rocu ($>1\text{mg.Kg}^{-1}$) = DUPONT ou DUPOND sauf si saignement intra péritonéal (?)
- Sellick est inutile et ne doit plus être réalisée
- Sonde d'intubation avec stylet pré formable probablement privilégiée en 1ère intention
- Formez-vous à la vidéo laryngoscopie sans abandonner la laryngoscopie directe (alternative)
- Contrôler systématiquement la bonne position de la sonde
- Définir et communiquer avant la procédure des objectifs de PA, de capnie, de SpO2 (TCG)





MERCI POUR VOTRE ATTENTION

