

REAGSO

RÉUNION D'ENSEIGNEMENT
DES ANESTHÉSISTES
DU GRAND SUD-OUEST

56



GRUISSAN

7-8 octobre 2023 Palais des Congrès
de Gruissan (11)

Programme et inscriptions sur reagso.com

Renseignements : Dr Vincent ATTHAR : +33 6 88 32 89 40



encre : zanda - graphisme : micromu.fr

Vidéolaryngoscopie pour tous les patients

Pr Karine Nouette Gaulain

SAR FME

CHU De Bordeaux

université
de **BORDEAUX**





Pas de lien d'intérêt

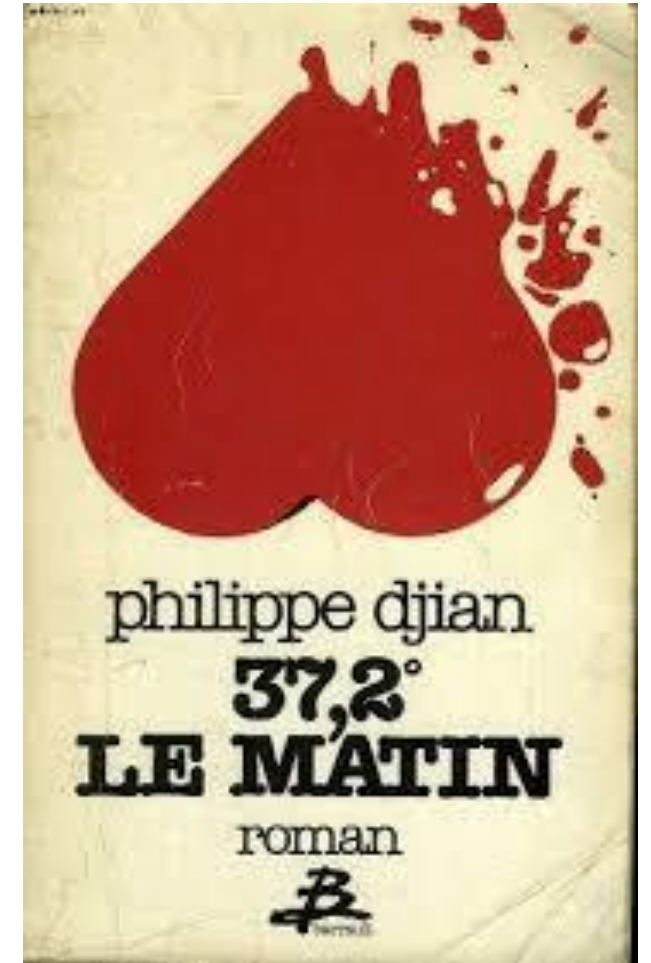
Co pilotage RFE intubation difficile 2018

Organisation de quelques congrès

Fan du bord de mer



Vidéolaryngoscopes: états des lieux



Accord FORT



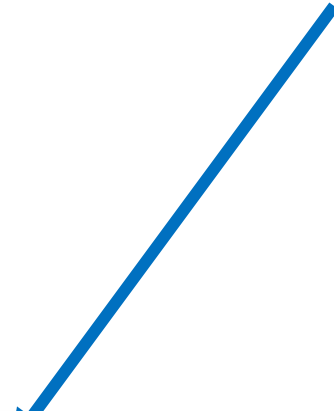
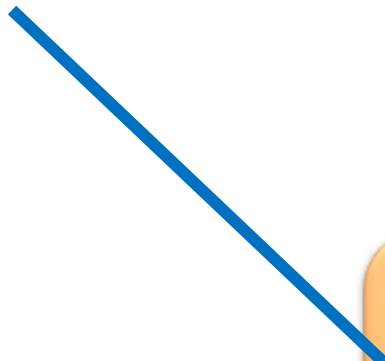
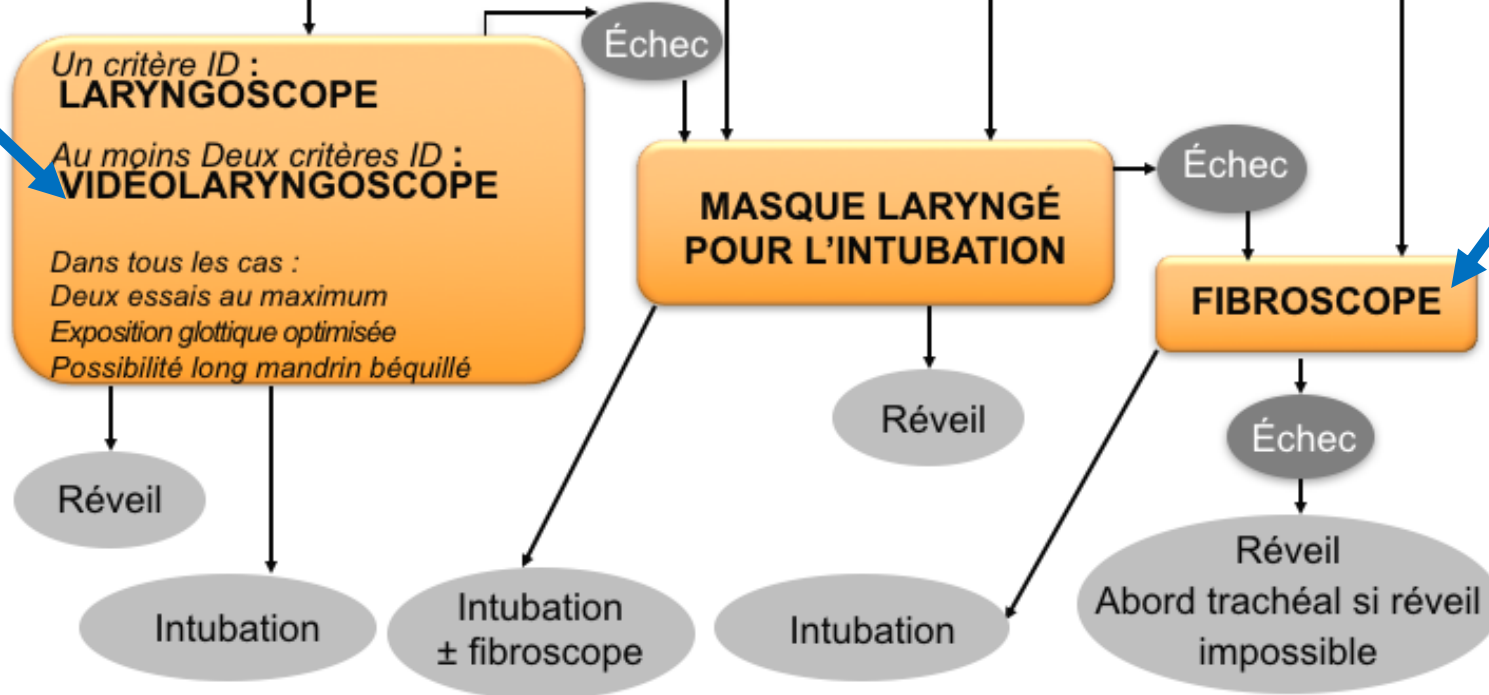
INTUBATION
Ventilation au masque efficace

**Aide
prévue**

Apnée possible

Ventilation spontanée

DIFFICILE ET
LA DURÉE
PEUT ÊTRE
PROLONGÉE



Management of Difficult Tracheal Intubation

A Closed Claims Analysis

Aaron M. Joffe, D.O., Michael F. Aziz, M.D.,
Karen L. Posner, Ph.D., Laura V. Duggan, M.D., F.R.C.P.C.,
Shawn L. Mincer, M.S.W., Karen B. Domino, M.D., M.P.H.

ANESTHESIOLOGY 2019; 131:818–29

Outcome

Augmentation des décès Induction

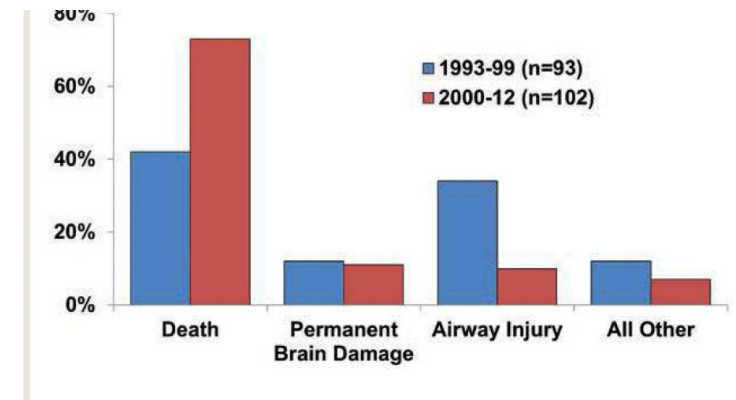


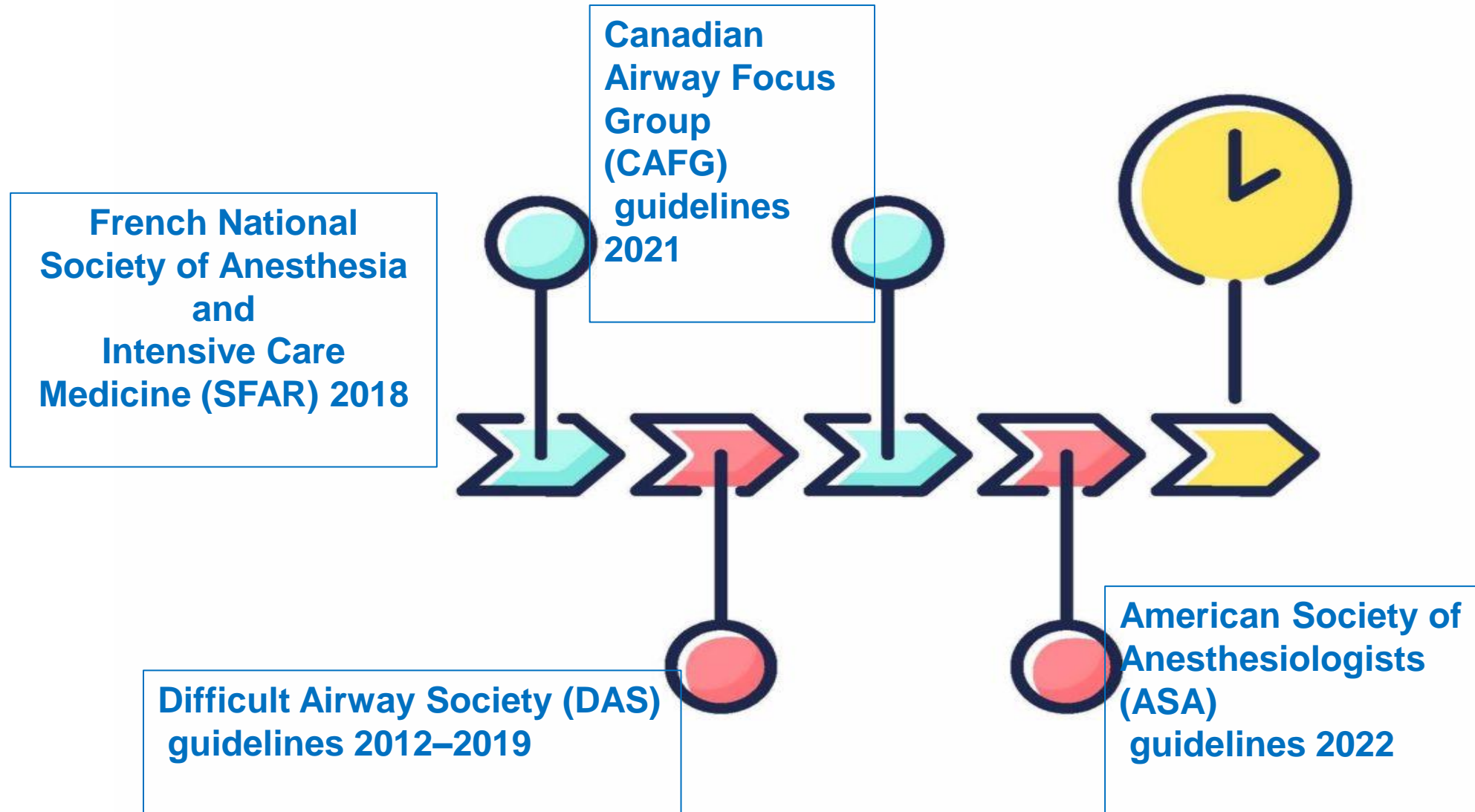
Table 2. Timing of Perioperative Difficult Airway Claims and Outcomes

Phase	1993 to 1999 (n = 83)		2000 to 2012 (n = 79)	
	Claims, No. (column %)	BD/D, No. (row %)	Claims, No. (column %)	BD/D, No. (row %)
Preinduction	1 (1%)	1 (100%)	0	0
Induction	52 (63%)	15 (29%)	53 (67%)	40 (75%)
Intraprocedure	12 (14%)	10 (83%)	10 (13%)	7 (70%)
Extubation in OR	12 (14%)	10 (83%)	13 (16%)	12 (92%)
Recovery/PACU	6 (7%)	4 (67%)	3 (4%)	3 (100%)

Perioperative defined as preinduction through recovery in the OR or PACU. $P = 0.808$ by Fisher exact test for phase by time period. Odds ratio for interaction between phase (excluding preinduction) and time period on outcome = 5.5 (95% CI, 1.07 to 28.4); $P = 0.041$. Odds ratio by multiple logistic regression.

BD/D, permanent brain damage or death; OR, operating room; PACU, postanesthesia care unit.

Où en sommes nous EN 2023: GUIDELINES?



Où en sommes nous EN 2023: VIDEOLARYNGOSCOPIES

LAME Macintosh

AVEC ÉCRAN ALLUMÉ
OU ÉTEINT



LAME HYPER ANGULÉE

SANS GOUTTIÈRE LATÉRALE

AVEC GOUTTIÈRE LATÉRALE



Message 1:

- le risque respiratoire persiste pour le patient
- notre expertise a grandi
- le matériel s'est adapté

Quelles sont les conséquences pour le patient:

- *Efficacité?*
- *Sécurité?*



EFFICACITE:

Vidéo laryngoscopes les grands succès



- **Succès au premier essai**
 - **VDL 9364** /10525 vs **DL 7739** / 9272 (RR 1.05 [95% CI :1.03 , 1.07])
- **Prévention de l' Intubation oesophagienne**
 - **VDL 37**/3143 vs **DL 85**/ 2625 (RR 0.47 [95% CI : 0.29 , 0.77])
- **Prévention de l' Hypoxémie**
 - **VDL 110**/ 2870 vs **DL 169**/2564 (RR 0.61 [95% CI :0.44 , 0.85])
- **Prévention de l'échec de l'intubation avec praticien entraîné**
 - **VDL 145**/ 5987 vs **DL 223**/ 4952 (RR 0.41 [95% CI: 0.33 , 0.50])

EFFICACITÉ: succès au premier essai



Analysis 1.3. Comparison 1: Macintosh-style VL versus DL, Outcome 3: Successful first attempt

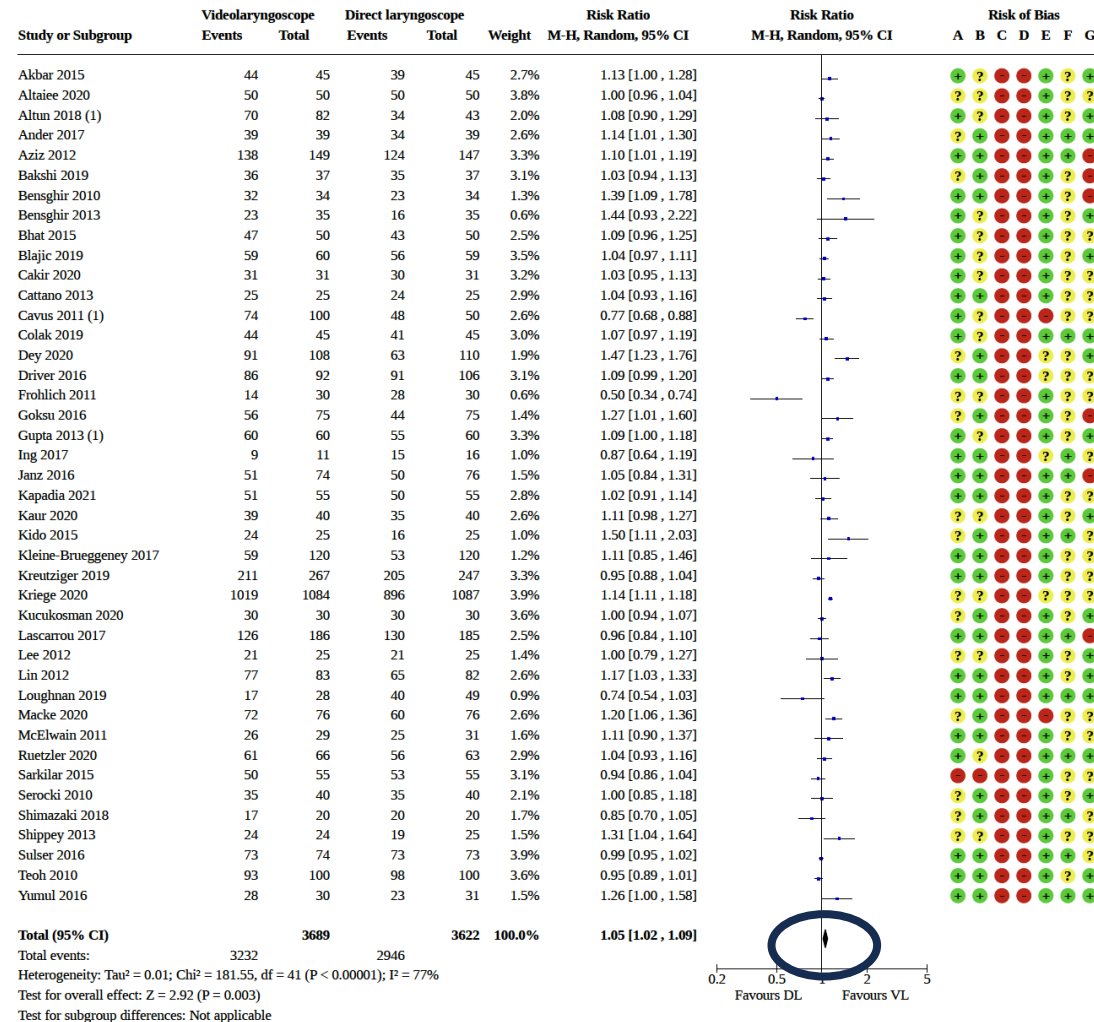
7311 PATIENTS

42 ETUDES

SUCCES 1^{ER} ESSAI

VDL: 3232
DL: 2946

RR (95% CI)
1.05 [1.02, 1.09]



Footnotes

(1) Multi-arm study. Data combined for each VL group.

EFFICACITÉ: ECHEC D'INTUBATION, INTUBATION DIFFICILE



Analysis 1.13. Comparison 1: Macintosh-style VL versus DL, Outcome 13: Subgroup analysis of failed intubation: airway difficulty

1393 PATIENTS

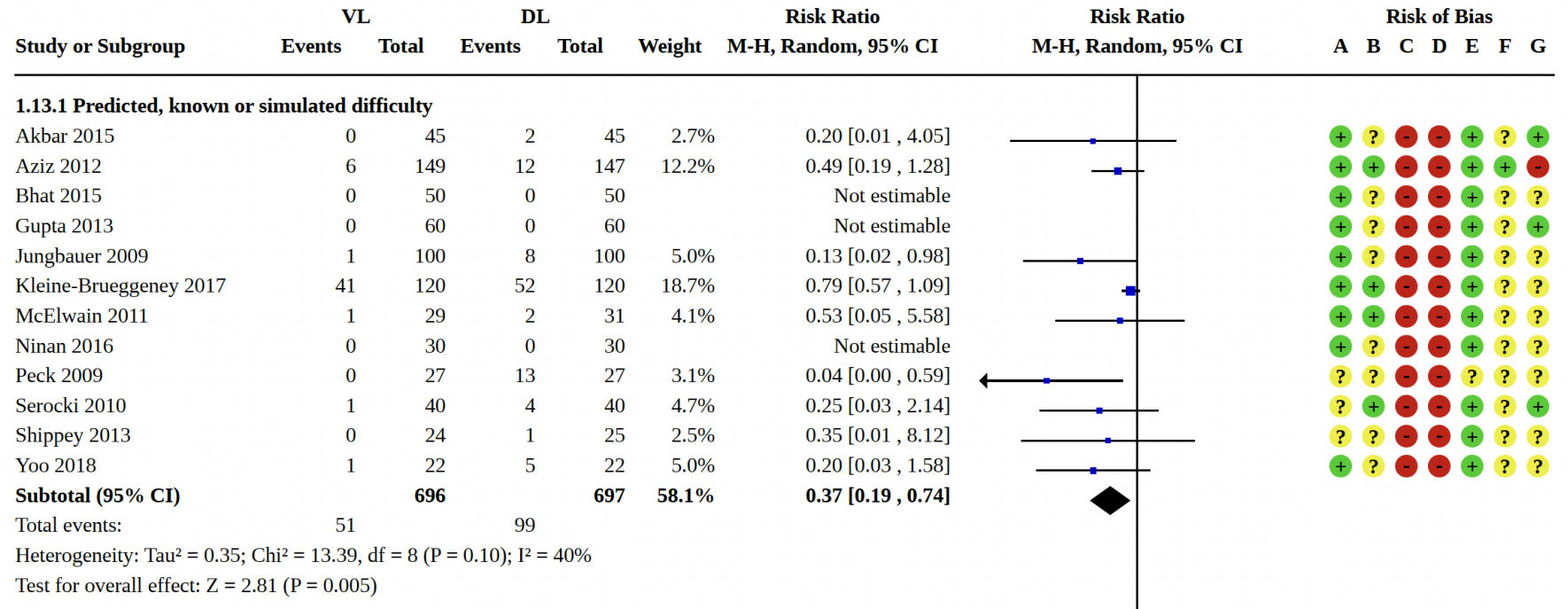
12 ETUDES

**ECHEC
D'INTUBATION**

VDL: 51

DL: 99

RR (95% CI)
0.37 [0.19, 0.74]



SÉCURITÉ : INTUBATION OESOPHAGIENNE ET LAME HYPER ANGULÉE vs DL



Analysis 2.4. Comparison 2: Hyperangulated VL versus DL, Outcome 4: Oesophageal intubation

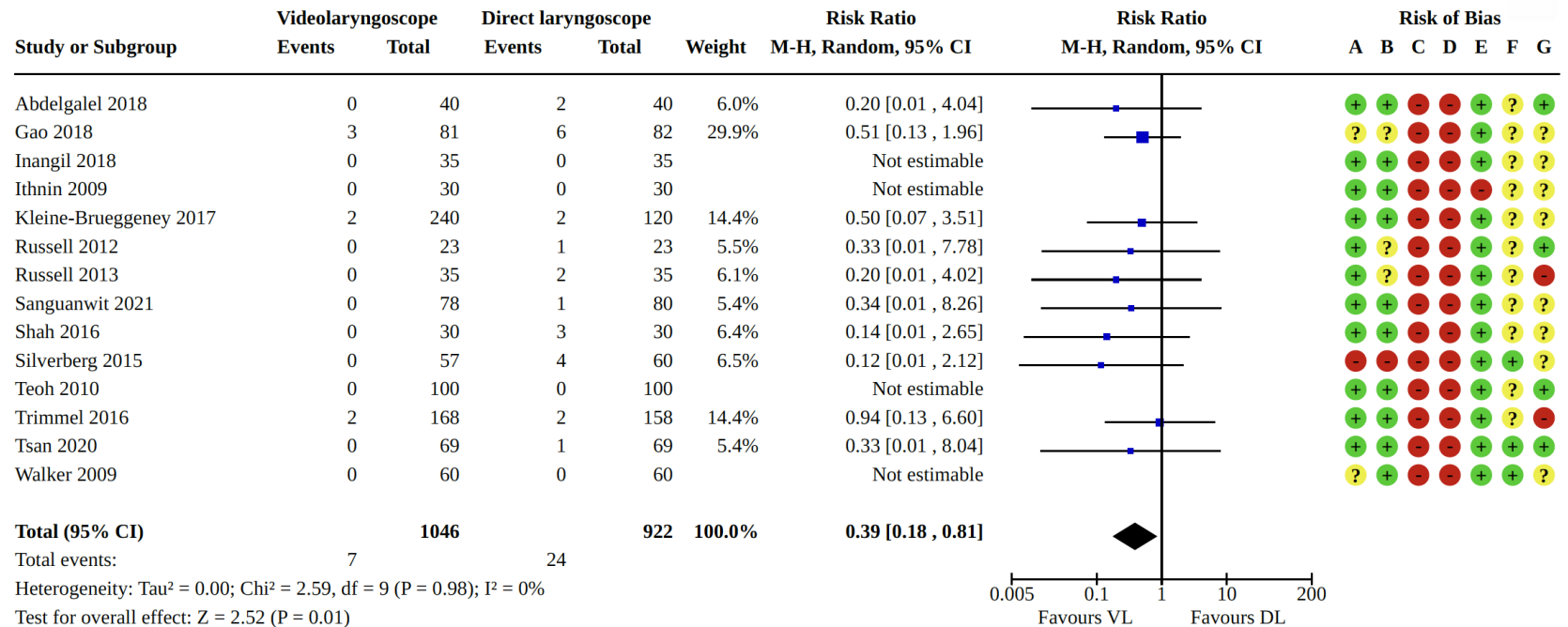
1968 PATIENTS

14 ETUDES

Intubation oesophagienne

VDL: 7
DL: 24

RR (95% CI)
0.39 [0.18 , 0.81]



Risk of bias legend

(A) Random sequence generation (selection bias)

(B) Allocation concealment (selection bias)

(C) Blinding of participants and personnel (performance bias)

(D) Blinding of outcome assessment (detection bias)

(E) Incomplete outcome data (attrition bias)

(F) Selective reporting (reporting bias)

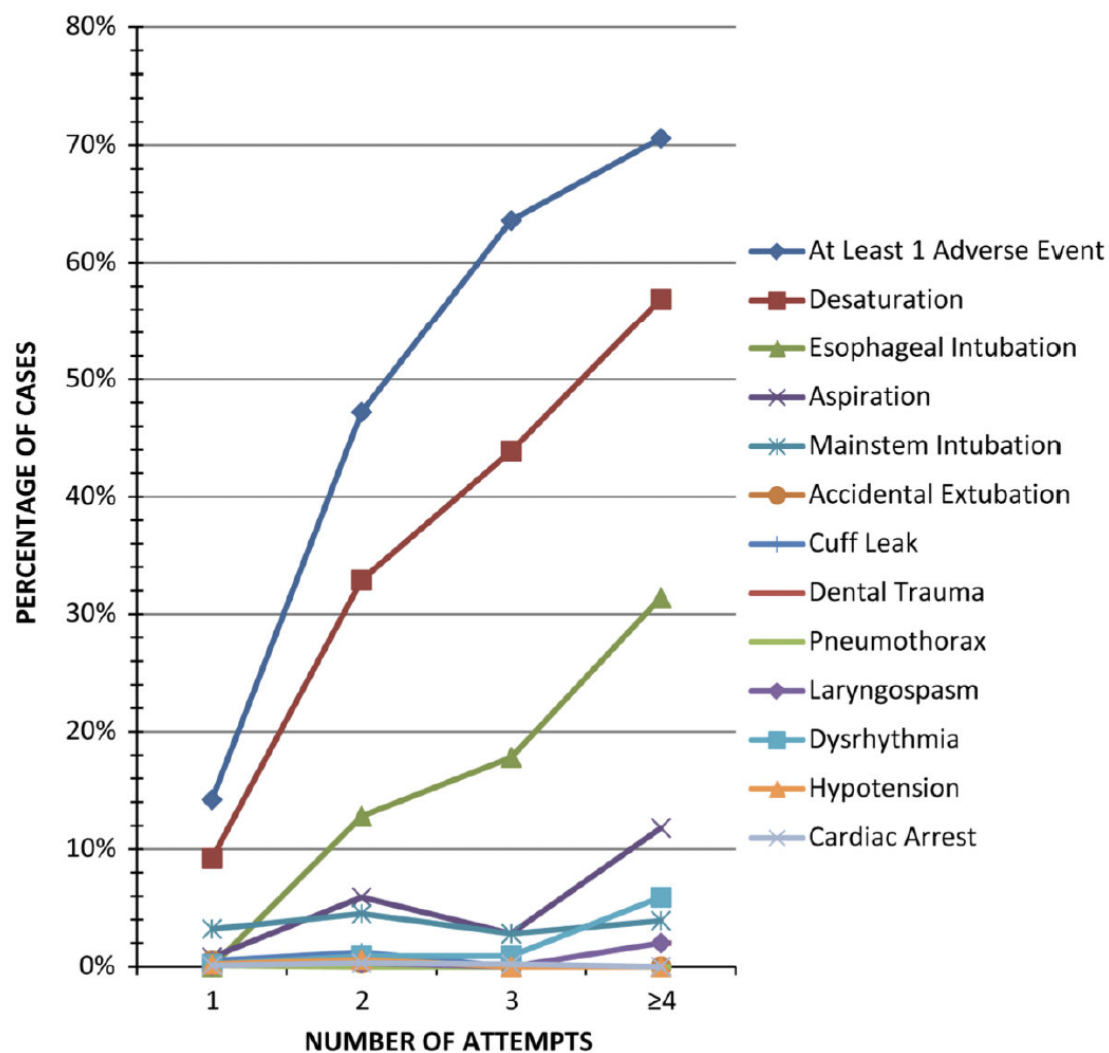
(G) Experience of intubator

Les vidéoscopes: les non réponses en 2023

	Macintosh VDL vs DL	VDL hyper angulée vs DL	VDL canal latéral vs DL
Hypoxémie	81 vs 112 <i>0.72 [0.52, 0.99]</i>	21 vs 37 <i>0.49 [0.22, 1.11]</i>	8 vs 41 <i>0.25 [0.12, 0.50]</i>
Traumatisme dentaire	2 vs 4 <i>0.68 [0.16, 2.89]</i>	2 vs 7 <i>0.51 [0.16, 1.59]</i>	1 vs 4 <i>0.52 [0.13, 2.12]</i>
Intubation oesophagienne	21 vs 35 <i>0.51 [0.22, 1.21]</i>	7 vs 24 <i>0.39 [0.18, 0.81]</i>	9 vs 31 <i>0.54 [0.17, 1.75]</i>
Douleur laryngée	253 vs 282 <i>0.85 [0.68, 1.07]</i>	389 vs 654 <i>0.81 [0.66, 1.00]</i>	185 vs 188 <i>0.91 [0.73, 1.14]</i>
Mortalité	119 vs 116 <i>1.01 [0.82, 1.24]</i>	35 vs 31 <i>1.15 [0.73, 1.79]</i>	NON DISPONIBLE

Nombre d'essais de laryngoscopie et risque

KEEP
IN MIND



Message 2: EFFICACITÉ ET SÉCURITÉ

Les VDL permettent d'augmenter le succès d'intubation au premier essai et de diminuer la survenue d'hypoxémie



Vidéolarygoscopes et situations particulières

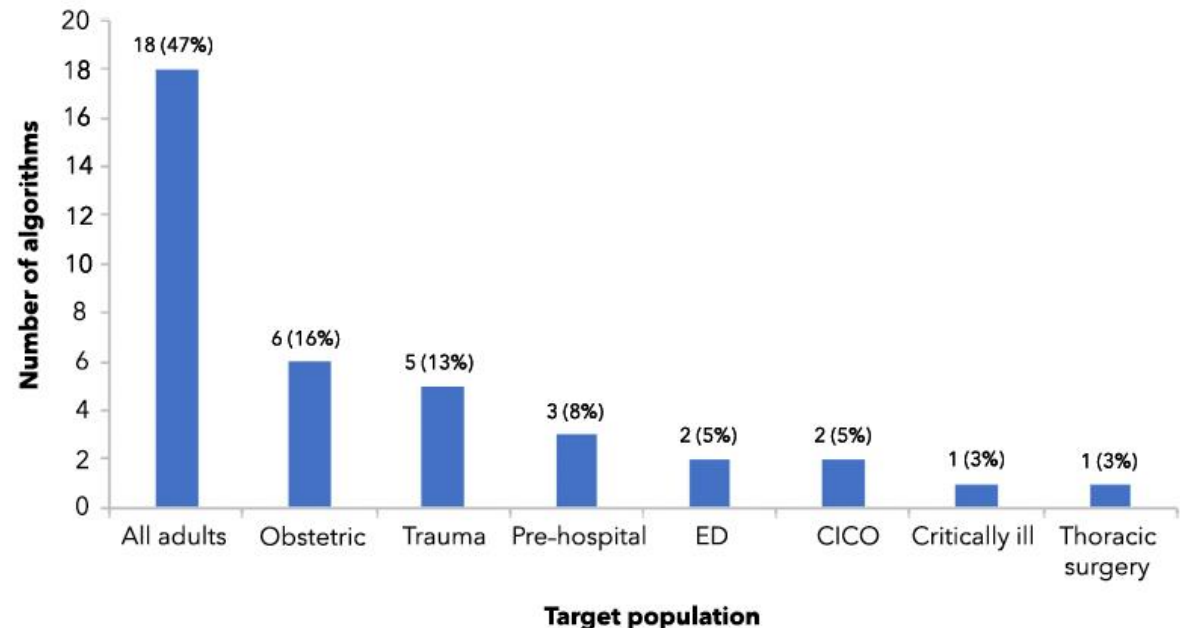
ICU

Enfant

Grossesse

Intubation nasale

Urgences



ORIGINAL ARTICLE

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, J.P. Gaillard, A.J. Latimer, S.A. Ghamande, K.W. Gibbs, D.J. Vonderhaar,

DEVICE STUDY

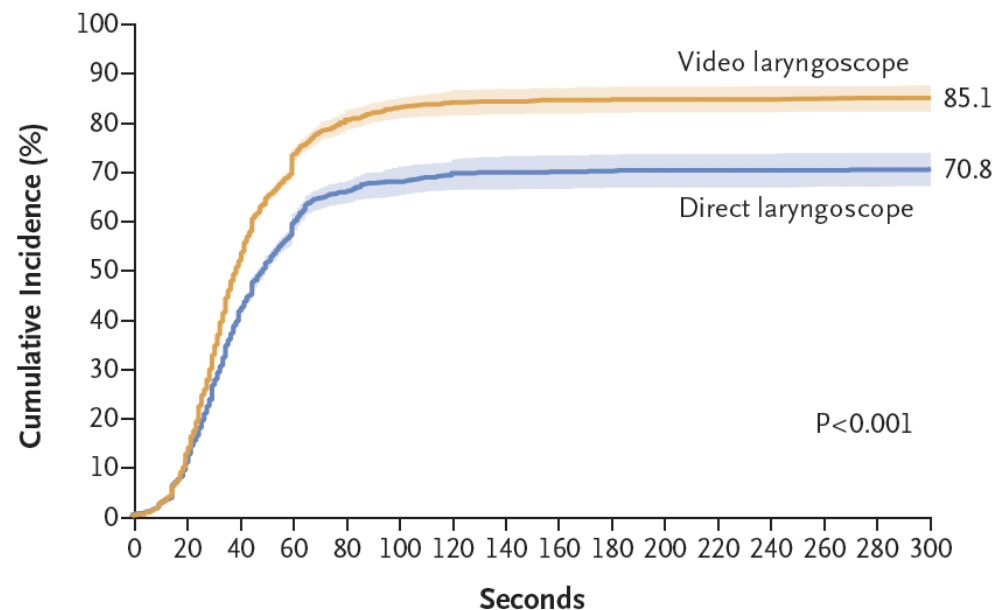
1417 PATIENTS

17 centres ICU et urgences

SUCCES 1^{ER} ESSAI

VDL: 600/705 (85%)
DL: 504/712 (71%)

P < 0.001

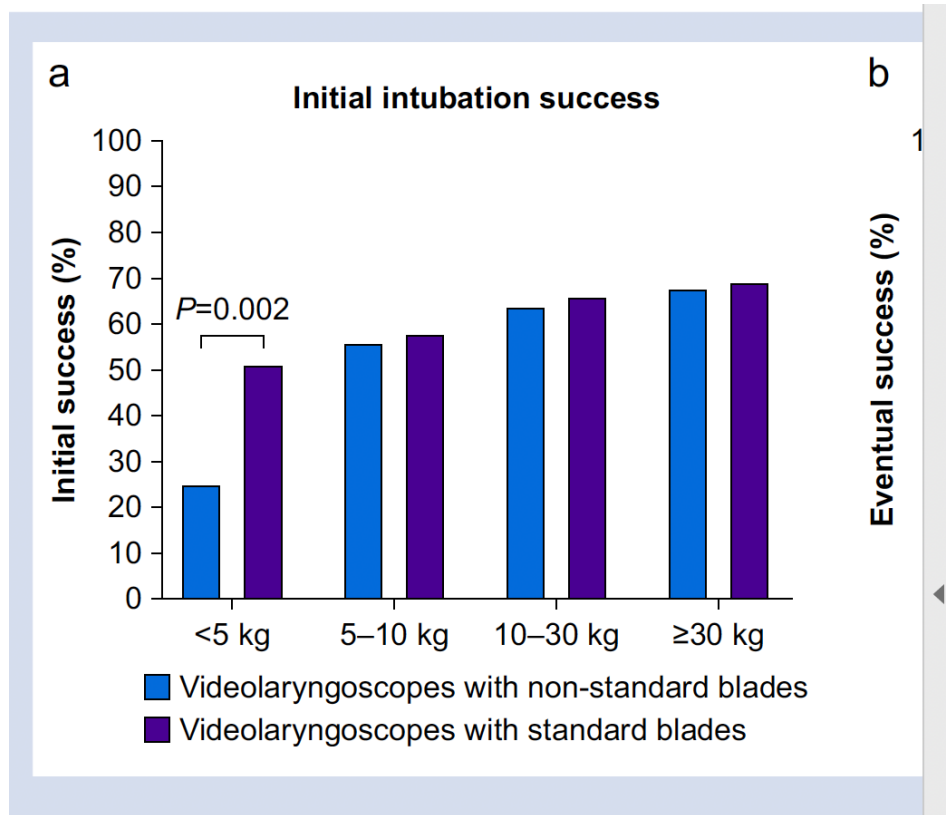


Outcome	Video Laryngoscope (N=705)	Direct Laryngoscope (N=712)	Absolute Difference or Median Difference (95% CI)*
Primary outcome: successful intubation on first attempt — no. (%)	600 (85.1)	504 (70.8)	14.3 (9.9 to 18.7) †
Secondary outcome: severe complication during intubation — no. (%) ‡	151 (21.4)	149 (20.9)	0.5 (–3.9 to 4.9)
Peripheral oxygen saturation <80% — no./total no. (%) §	64/658 (9.7)	69/659 (10.5)	–0.7 (–4.2 to 2.7)
Systolic blood pressure <65 mm Hg — no./total no. (%)	20/624 (3.2)	29/644 (4.5)	–1.3 (–3.6 to 1.0)
New or increased use of vasopressors — no. (%)	91 (12.9)	87 (12.2)	0.7 (–2.9 to 4.3)
Cardiac arrest not resulting in death — no. (%)	2 (0.3)	0	0.3 (–0.3 to 0.8)
Cardiac arrest resulting in death — no. (%)	1 (0.1)	3 (0.4)	–0.3 (–1.0 to 0.4)

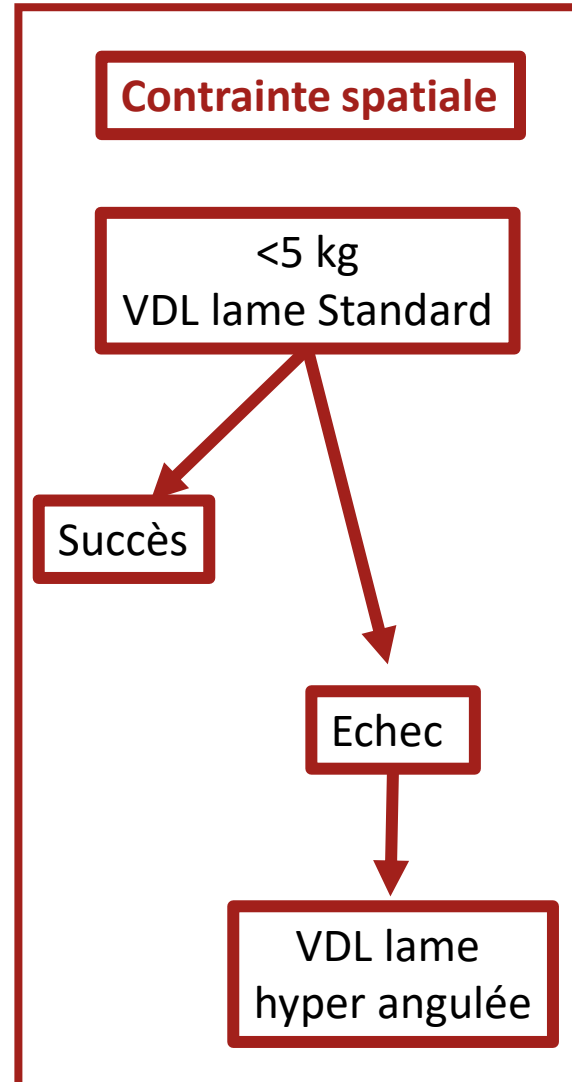
VDL ET DL pour l'intubation endotrachéale PEDIATRIE

META ANALYSE 46 RCT

Registre 1313 intubations difficiles



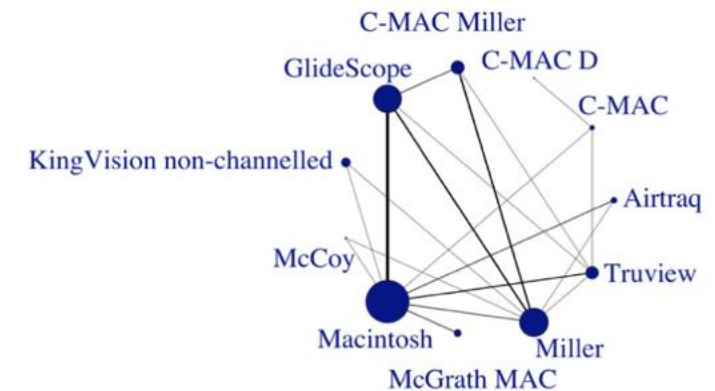
Br J Anaesth 2021;126:20e22



VDL réduit

- le risque d'échec au premier essai
Enfant <1 an

- Le risque de complications respiratoires majeures
Enfant <1 an
Enfant 0-18 ans



Paediatr Anaesth. 2022 Sep;32(9):1000-1014

VDL ET DL pour l'intubation nasotrachéale (ID)

5 RCT
331 PATIENTS

VDL améliore

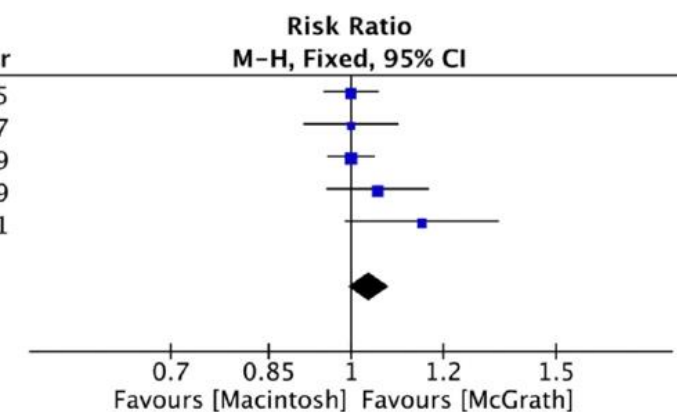
**SUCCES 1^{ER}
ESSAI**

**DURÉE
D'INTUBATION**

**SCORE DE
Cormack-LEHANE**

**RECOURS A LA
PINCE DE MAGILL
ET BURP**

Study or Subgroup	McGrath		Macintosh		Weight	Risk Ratio M-H, Fixed, 95% CI	Year
	Events	Total	Events	Total			
Kwak et al (2015)	35	35	35	35	22.1%	1.00 [0.95, 1.06]	2015
Sato et al (2017)	20	20	20	20	12.8%	1.00 [0.91, 1.10]	2017
Chae et al (2019)	41	41	41	41	25.8%	1.00 [0.95, 1.05]	2019
Roh et al (2019)	39	40	37	40	23.0%	1.05 [0.95, 1.17]	2019
Ambulkar et al (2021)	29	29	26	30	16.2%	1.15 [0.99, 1.34]	2021
Total (95% CI)		165		166	100.0%	1.04 [1.00, 1.08]	
Total events	164		159				
Heterogeneity: Chi ² = 6.41, df = 4 (P = 0.17); I ² = 38%							
Test for overall effect: Z = 1.74 (P = 0.08)							



**Différence de routine entre les études
Intubation en chirurgie tête et cou: ID?**

VDL ET DL pour l'intubation endotrachéale en obstétrique

4 études

416 patientes

Succès au premier essai NS

Temps nécessaire pour l'intubation

TIME



Expertise+++

VDL standart?

NS

Study or Subgroup	VLS			DL			Weight	Mean Difference IV, Random, 95% CI
	Mean	SD	Total	Mean	SD	Total		
Arici et al, 2014	47.25	14.92	40	32.2	6.58	40	24.0%	15.05 [10.00, 20.10]
Blajic et al, 2019_C-MAC	25	7	60	29	14	59	25.0%	-4.00 [-7.99, -0.01]
Blajic et al, 2019_KVL	29	9	59	29	14	59	24.8%	0.00 [-4.25, 4.25]
Toker et al, 2019	34.7	5.2	50	40.1	5.4	50	26.2%	-5.40 [-7.48, -3.32]
Total (95% CI)			209			208	100.0%	1.20 [-6.63, 9.04]

Heterogeneity: Tau² = 59.79; Chi² = 55.65, df = 3 (P < 0.00001); I² = 95%
Test for overall effect: Z = 0.30 (P = 0.76)

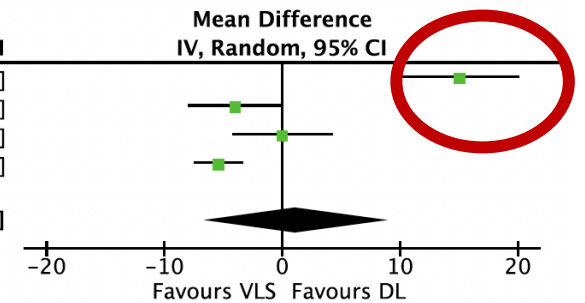


Table 3 Meta-analysis of the secondary outcomes. Values are mean difference or risk ratio

Outcomes	Number of trials	Number of patients		Effect size (95% CI)	I ² (%)	P value
		VLS	DL			
<i>Efficacy</i>						
Number of attempts at tracheal intubation (n) ^{65,67,68}	3	209	208	- 0.02 (- 0.04 to 0.01)	0	0.29
Time to optimal laryngeal view (sec) ^{67,68}	2	169	168	- 0.65 (- 2.09 to 0.78)	66	0.37
Time to place ETT (sec) ^{66,68}	2	85	85	- 0.65 (- 4.66 to 3.36)	93	0.75
Cormack and Lehane grading (I vs II/III/IV) ^{65,67,68}	3	209	208	1.80 (1.10 to 2.95)	80	0.02
POGO (%) ^{65,68}	2	90	90	6.56 (1.24 to 11.87)	69	0.02
<i>Complications and adverse effects</i>						
Rate of sore throat (%) ⁶⁶⁻⁶⁸	3	204	203	0.76 (0.40 to 1.46)	0	0.41

CI = confidence interval; DL = direct laryngoscopy; ETT = endotracheal tube; VLS = videolaryngoscope; POGO = percentage of glottic opening

VDL ET DL pour l'intubation endotrachéale urgences

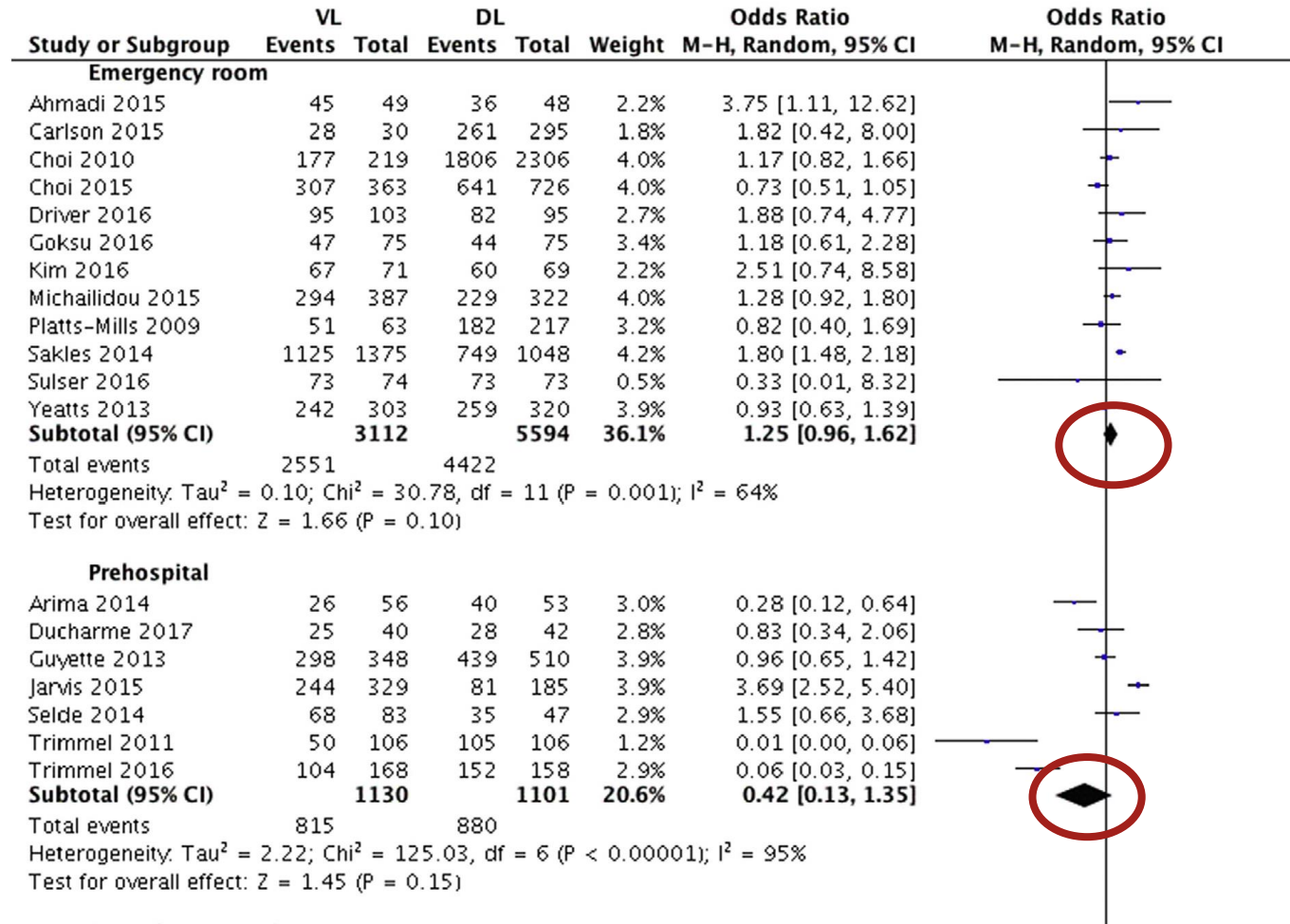
SUCCÈS 1 ESSAI

Difficulté d'installation

Instabilité hémodynamique

Qualité de la sédation

Facteurs humains et stress



NS

NS

Causes of Difficult Airways

- Anterior Larynx
- Fluids in airways
- Neck immobility
- Small mouth
- Facial trauma
- Obesity



49.7% difficult intubations fail on the first attempt



39% Emergency Departments do not use video laryngoscopy due to high cost of devices

33%

higher likelihood of adverse events is associated with failure on first attempt to intubate

4 Minutes

before irreversible brain damage from lack of oxygenation occurs

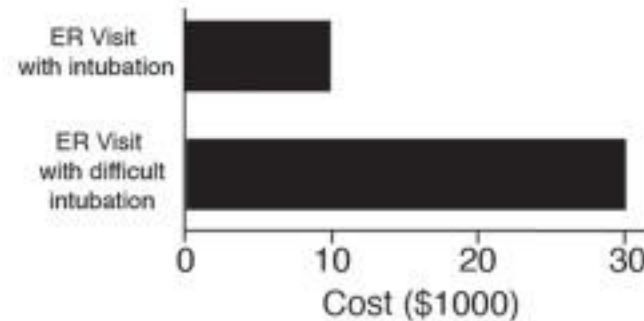
\$20K additional costs for patients with difficult intubations compared to normal intubations

413,000

emergency intubations performed annually in the United States

30 Seconds

target time to secure an airway in the emergency setting



Common Adverse Events

- Oxygen desaturation
- Soft tissue trauma
- Hypotension
- Cardiac arrest

- # Message 3 : un VDL lame standard
- écran éteint permet une laryngoscopie directe
 - écran allumé permet une VDL

Pourquoi ne pas utiliser les VDL à lame standard en pratique quotidienne?



Correspondence


Videolaryngoscopy increases 'mouth-to-mouth' distance compared with direct laryngoscopy

*SARS-COV-1 to laryngoscopists in 2003,
Risque gouttelette et infection
Facteurs patients et techniques*



INTUBATION ET RISQUE INFECTIEUX

Anaesth Crit Care Pain Med 39 (2020) 395–415



SFAR
 Société Française d'Anesthésie et de Réanimation

Guidelines

Guidelines: Anaesthesia in the context of COVID-19 pandemic^{☆,☆☆}

Lionel Velly^{a,b,*}, Etienne Gayat^{c,d}, Hervé Quintard^g, Emmanuel Weiss^{h,i}, Audrey De Jong^{e,f},
 Philippe Cuvillon^j, Gérard Audibert^k, Julien Amour^l, Marc Beaussier^m, Matthieu Biais^{n,o},
 Sébastien Bloc^p, Marie Pierre Bonnet^{q,r,s}, Pierre Bouzat^t, Gilles Brezac^u,
 Claire Dahyot-Fizelier^{v,w}, Souhayl Dahmani^x, Mathilde de Queiroz^y, Sophie Di Maria^z,
 Claude Ecoffey^{aa}, Emmanuel Futier^{ab,ac}, Thomas Geeraerts^{ad}, Haithem Jaber^{ae},
 Laurent Heyer^{af}, Rim Hoteit^c, Olivier Joannes-Boyau^{ag}, Delphine Kern^{ah},
 Olivier Langeron^{ai}, Sigismond Lasocki^{aj}, Yoan Launey^{ak}, Frederic le Saché^{al,am,an},
 Anne Claire Lukaszewicz^{ao,ap}, Axel Maurice-Szamburski^{aq}, Nicolas Mayeur^{ar},
 Fabrice Michel^{as}, Vincent Minville^{at,au}, Sébastien Mirek^{av,aw}, Philippe Montravers^{ax,ay},
 Estelle Morau^{az}, Laurent Muller^{ba,bb}, Jane Muret^{bc}, Karine Nouette-Gaulain^{bd},
 Jean Christophe Orban^{be}, Gilles Orliaguet^{bf,bg}, Pierre François Perrigault^{bh},
 Florence Plantet^{bi}, Julien Pottecher^{bj,bk}, Christophe Quesnel^{ay,bl}, Vanessa Reubrecht^z,
 Bertrand Rozec^{bm}, Benoit Tavernier^{bn}, Benoit Veber^{bo}, Francis Veyckmans^{bp},
 Hélène Charbonneau^{ar}, Isabelle Constant^{bq}, Denis Frasca^{br}, Marc-Olivier Fischer^{bs},
 Catherine Hureau^{bt}, Alice Blet^{d,bu,bv}, Marc Garnier^{ay,bw,bx}

Check for updates

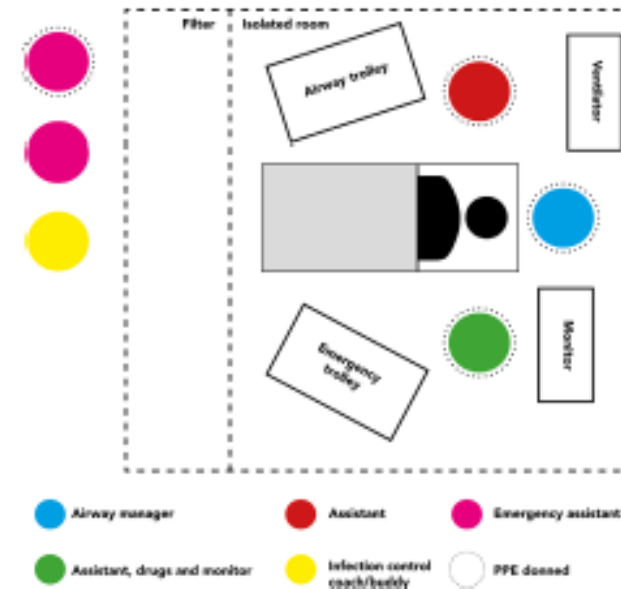


Figure 2 Suggested team roles and ergonomics for elective tracheal intubation.

Anaesthesia 2020, 75, 724–732 doi:10.1111/anae.15049

Original Article

The Italian coronavirus disease 2019 outbreak: recommendations from clinical practice

M. Sorbello,¹ K. El-Boghdady,² I. Di Giacinto,³ R. Cataldo,⁴ C. Esposito,⁵ S. Falchetta,⁶
 G. Merli,⁷ G. Cortese,⁸ R. M. Corso,⁹ F. Bressan,¹⁰ S. Pintaudi,¹¹ R. Greif,¹² A. Donati,¹³
 F. Petri¹⁴ and On behalf of The Società Italiana di Anestesia Analgesia Rianimazione e Terapia
 Intensiva (SIAARTI) Airway Research Group, and The European Airway Management Society

Pediatric Anesthesiology

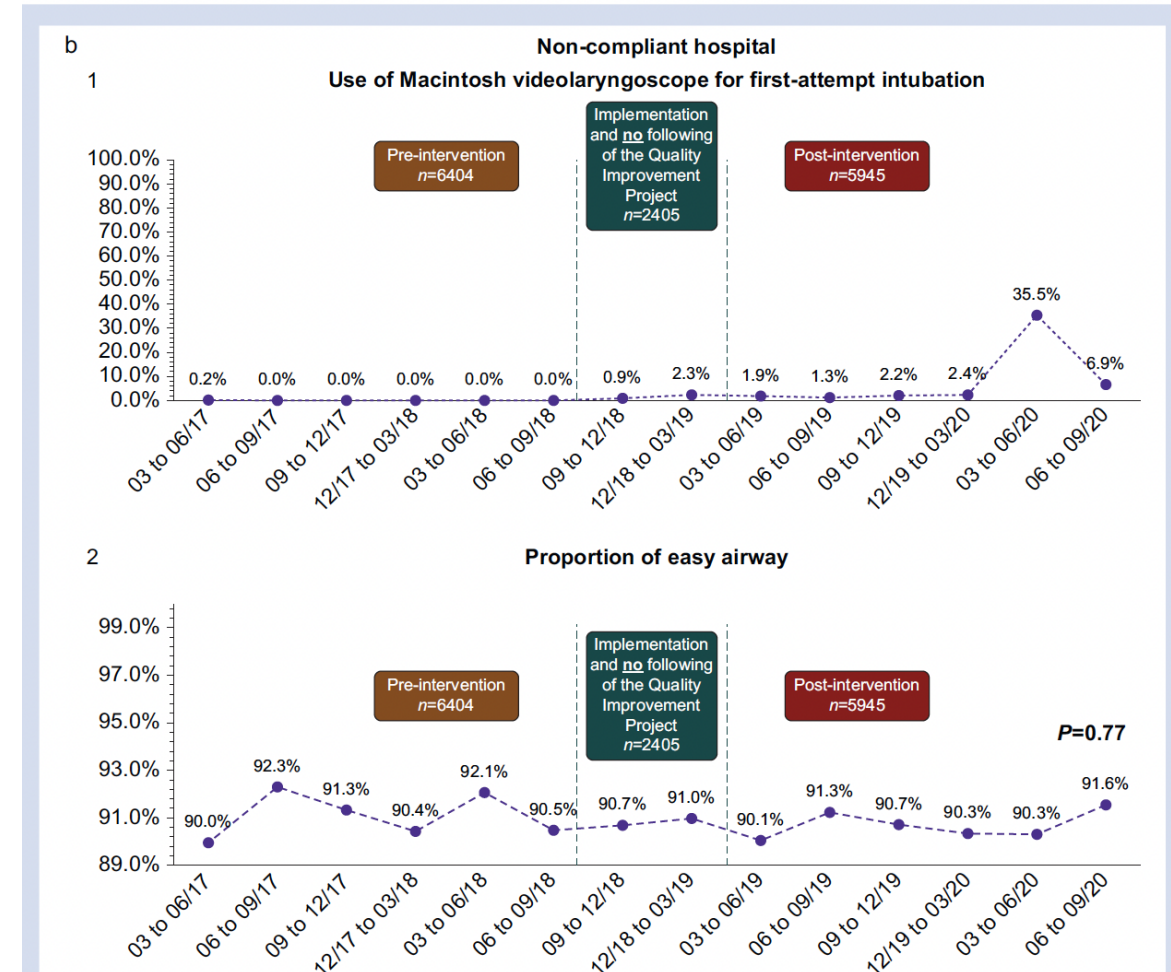
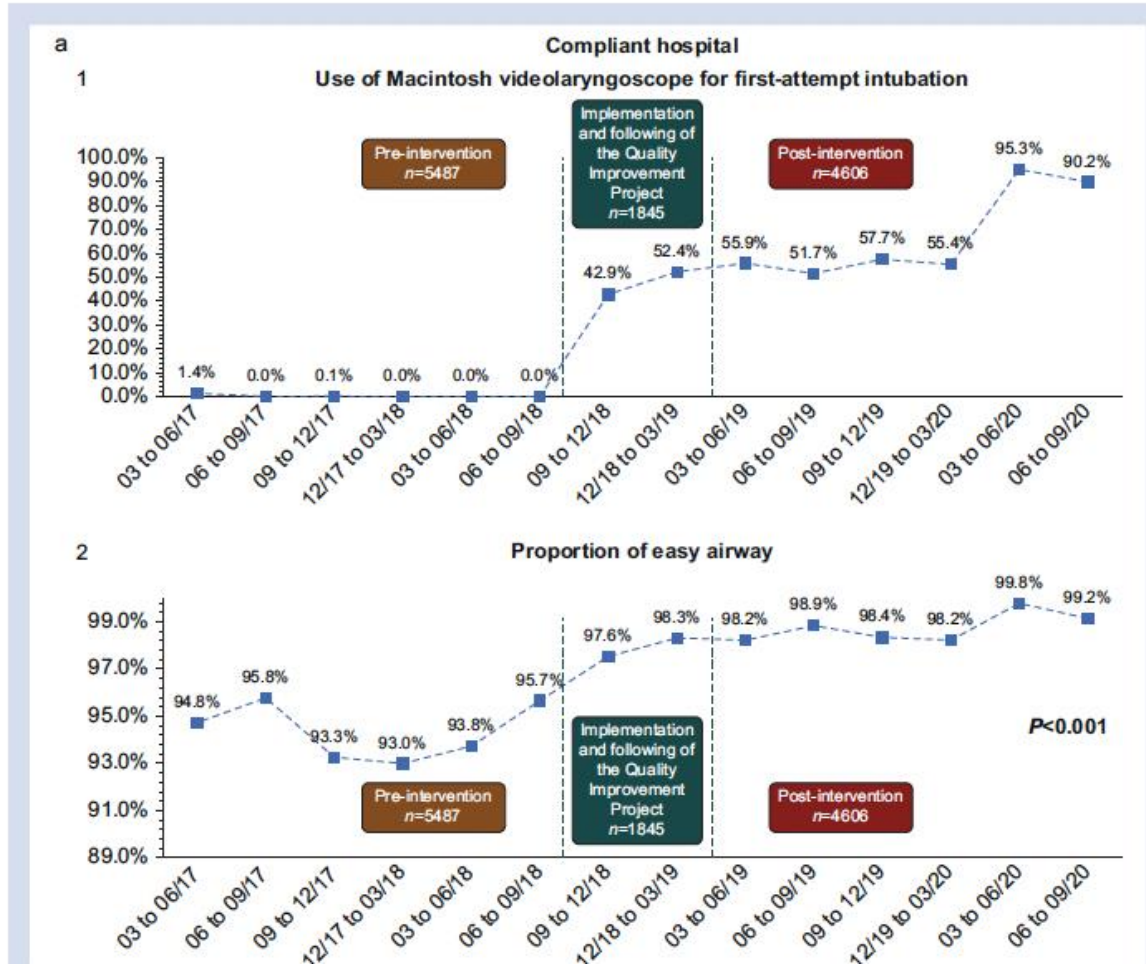
SPECIAL ARTICLE

Pediatric Airway Management in Coronavirus Disease 2019 Patients: Consensus Guidelines From the Society for Pediatric Anesthesia's Pediatric Difficult Intubation Collaborative and the Canadian Pediatric Anesthesia Society

Videolaryngoscopy as a first-intention technique for tracheal intubation in unselected surgical patients: a before and after observational study

Audrey De Jong^{1,†}, Thomas Sfarra^{2,†}, Yvan Pouzeratte², Joris Pensier², Amélie Rolle², Gérald Chanques¹ and Samir Jaber^{1,*}

DAILY PRACTICE

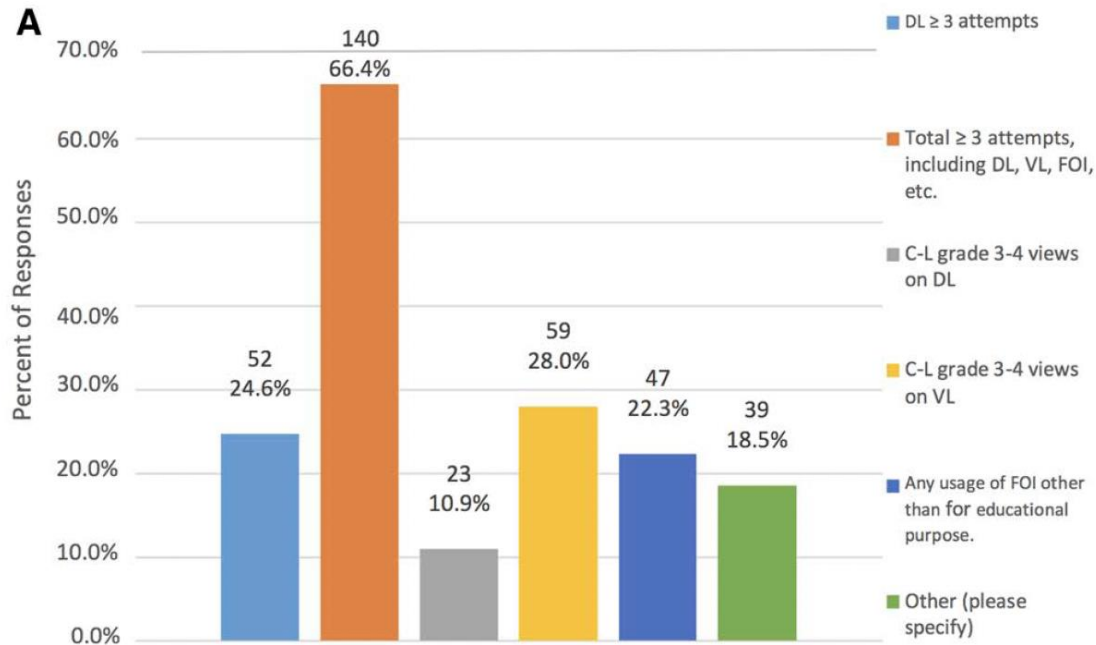


Documenting Difficult Intubation in the Context of Video Laryngoscopy: Results From a Clinician Survey

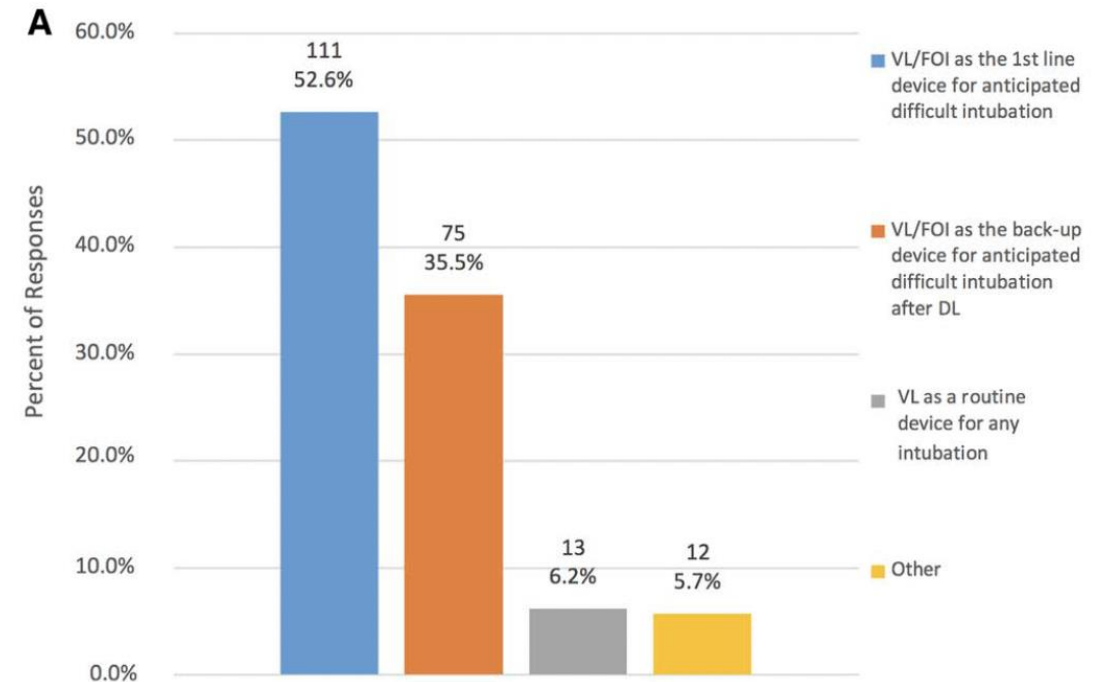
Matthew Kauffman, MD,* Richard D. Urman, MD, MBA,* and Dongdong Yao, MD, PhD*†

211 réponses / 654 Anesthésistes en Angleterre

Définition ID



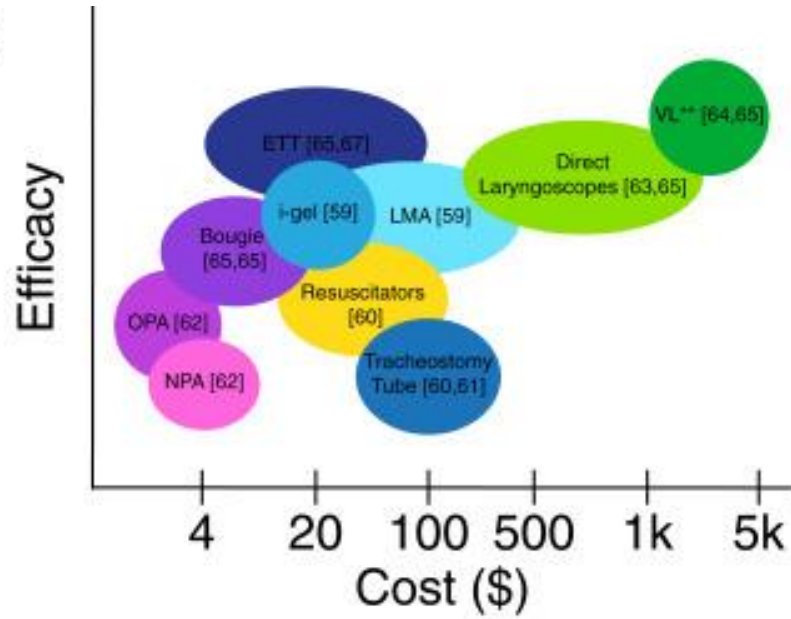
Choix stratégique du dispositif



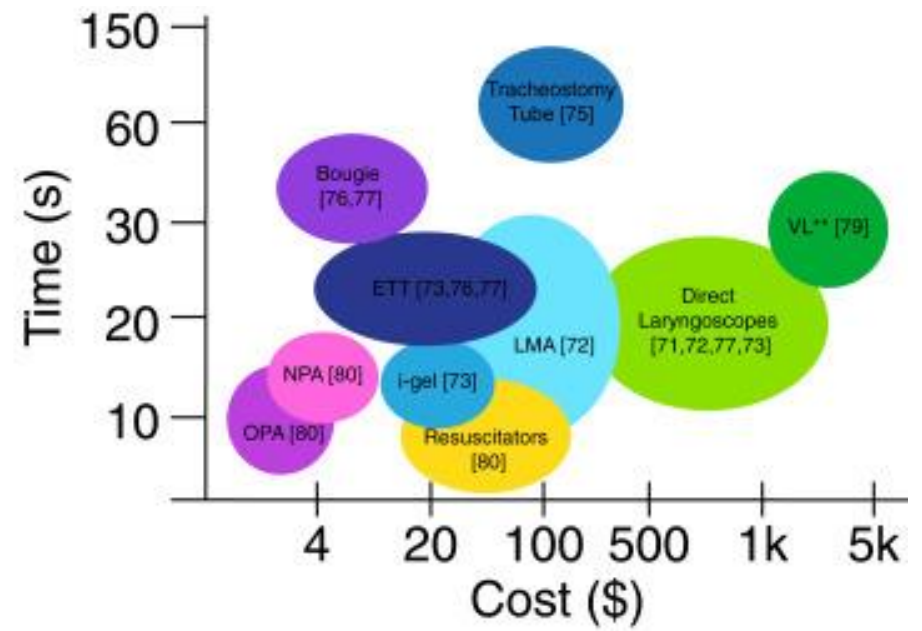
(A&A Practice. 2020;14:e01289.)

Money? Urgences

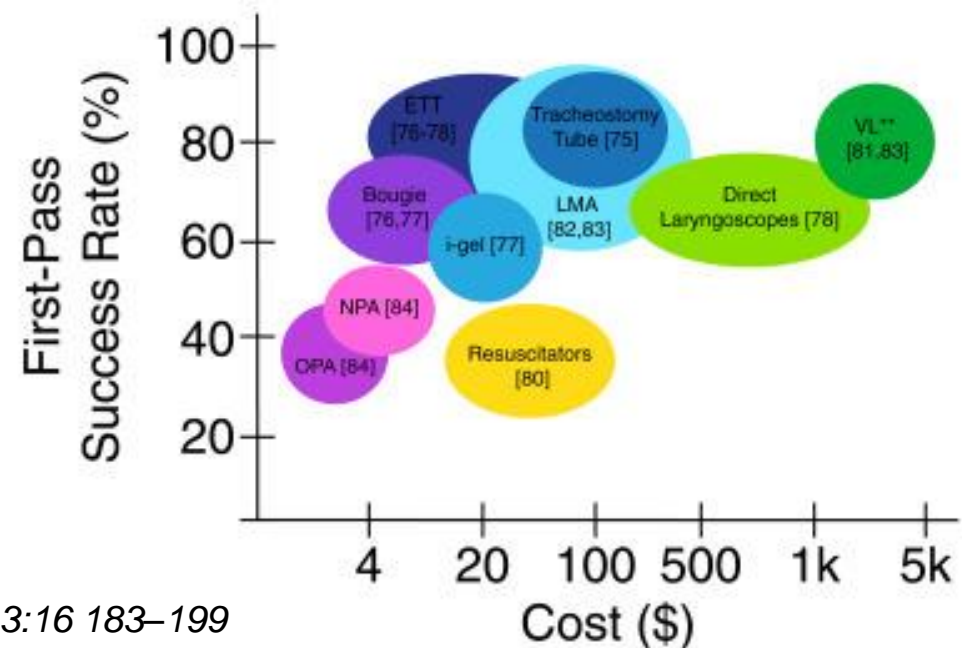
A



B



C



Données Médico-économiques au CHU de Bordeaux en 2021

- **Impacts prévisibles du budget hospitalier**

- Impact sur le budget

- 4,99€/lame Mac Grath versus 2,19€ /lames d'intubation Macintosh
- Surcout annuel calculé pour 7580 lames : **21 224 € HT**
- Pas de cout de formation (fournisseur)
- Pas de cout de maintenance des équipements (MAD)

1 SECTEUR

- Impact sur la stratégie de l'établissement

- Dans l'hypothèse de déploiement sur l'ensemble des blocs opératoires et réanimations faisant de l'intubation patient au CHU de Bordeaux
- 38 040 lames Macintosh/an
- Le surcout annuel serait de **106 512 € HT**

1 POLE

- **Impacts prévisibles sur les soins de ville**

- Aucun

2023 équipements progressifs de toutes les équipes

Freins inévitables des VDL

STRIDOR

OUVERTURE DE BOUCHE MINIMALE

RACHIS BLOQUÉ EN FLEXION

VDL ne permet pas d'apporter de l'O₂



**GARDER LA COMPETENCE DE LA FIBROSCOPIE VIGILE
ET DE LA CRICO**

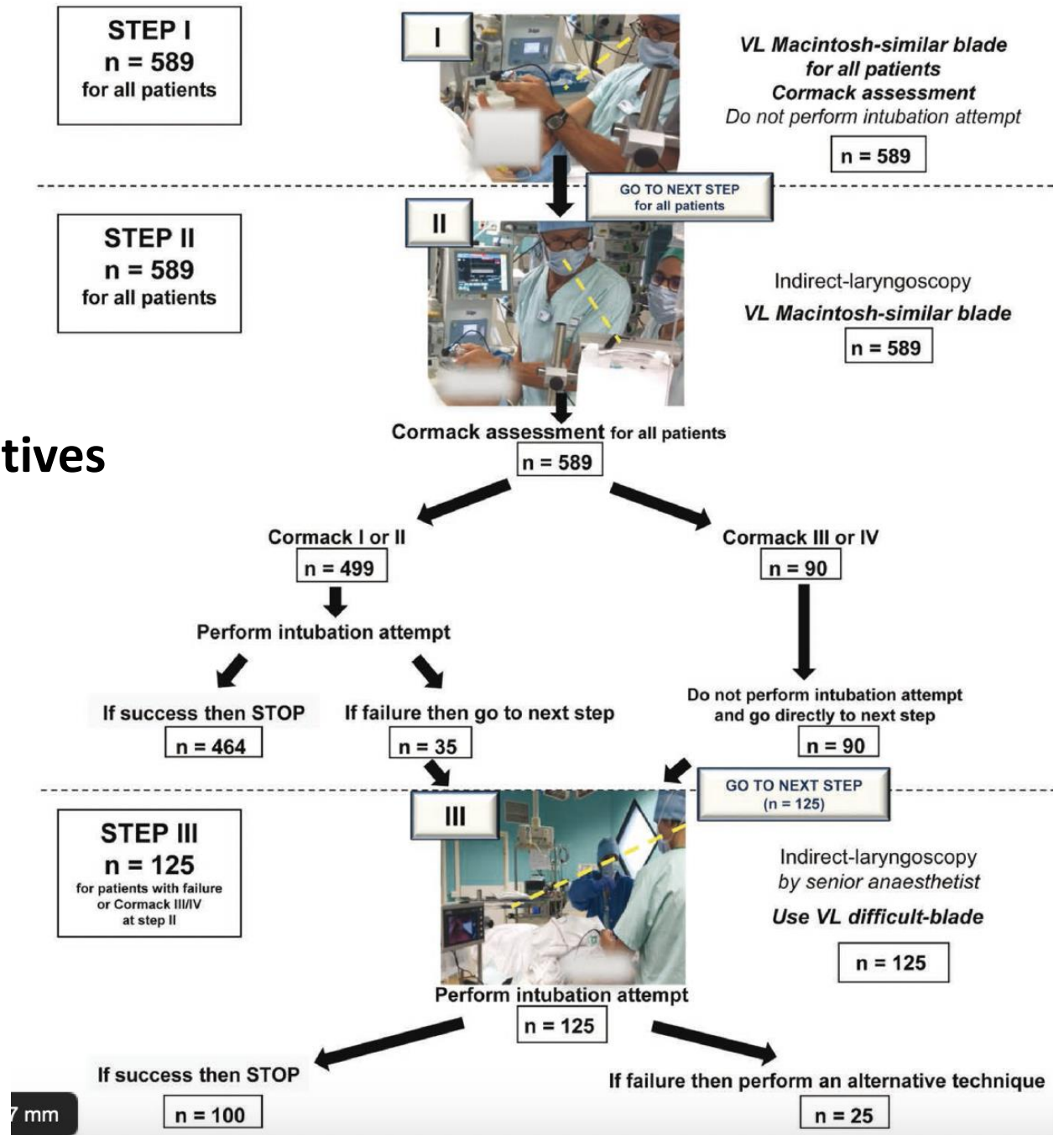


Le changement de pratique au sein de l'équipe

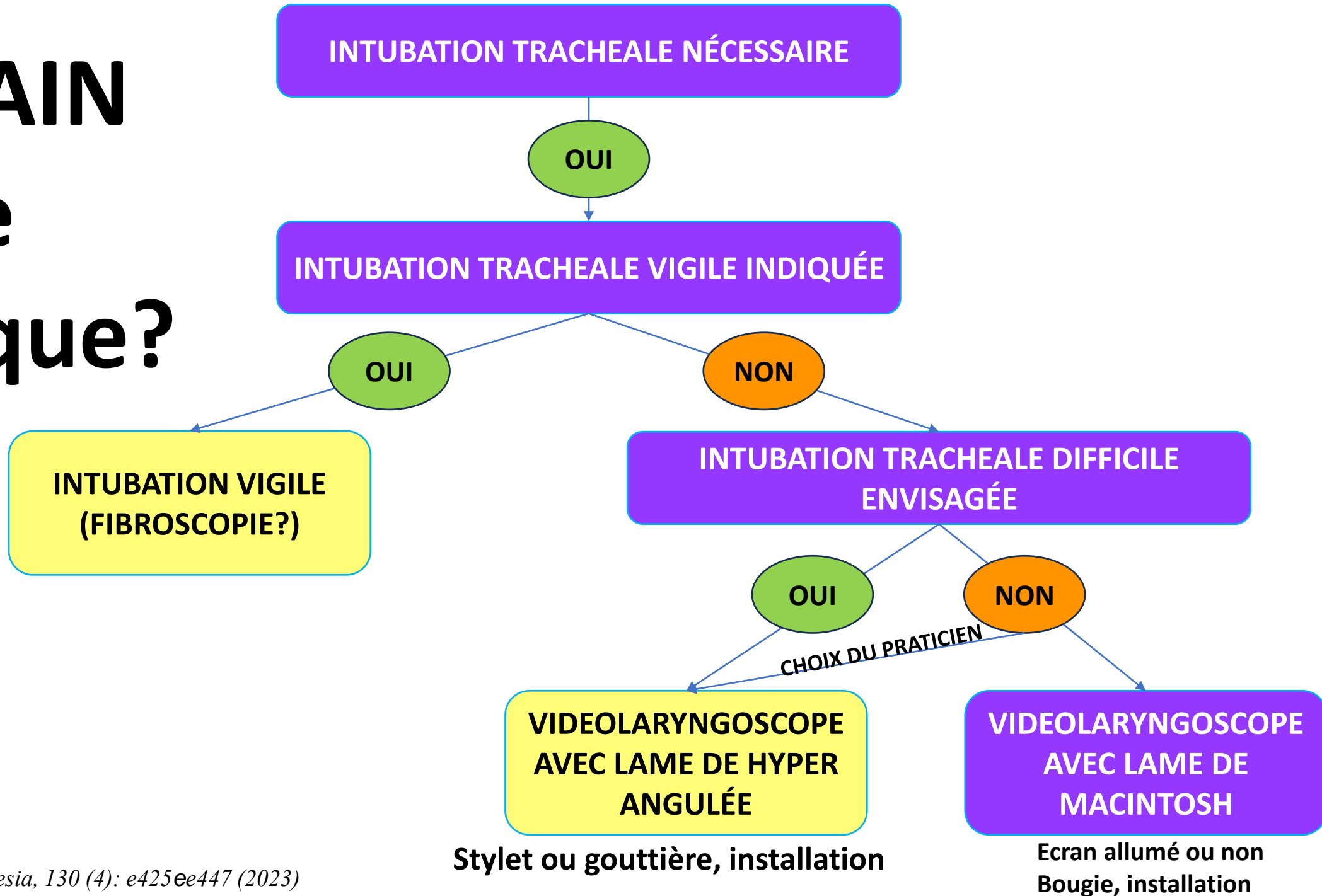
Moins de recours à des solutions alternatives

Satisfaction utilisateurs

EVOLUTION DES ALGORITHMES



DEMAIN Notre pratique?

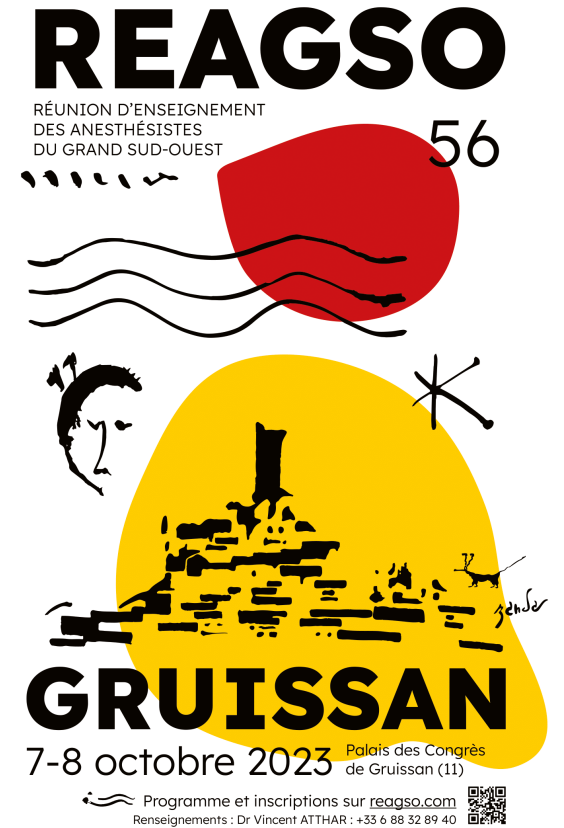


Message 4: revisiter les stratégies en gardant les compétences dans les différentes techniques



TAKE HOME MESSAGE

- Le risque respiratoire persiste chez le patient
- L'expertise des MAR s'améliore avec les années
- EFFICACITÉ ET SECURITÉ : DONNÉES CONFIRMÉES
- Un VDL lame standard écran éteint est un laryngoscope DL version +
- Revisiter les stratégies en gardant les compétences dans différentes techniques





SFAR EN REGION

26 JANVIER 2024

CITE DU VIN à

BORDEAUX

