



VIDEOLARYNGOSCOPE

QUELLE PLACE AU SMUR DE VERSAILLES

Pré Hospitalier

COVID19

Formation

Recommandations sociétés Savantes

Vidéolaryngoscope

Choix de l'Outil

UU?

Vidéolaryngoscopie directe possible?

Marché Hospitalier

SMUR de Versailles

Indication

Champs d'application

Place dans notre algorithme

Place dans nos Procédures

Stratégie de Formation des Equipes

Recommandations, guidelines

- ▶ Peu ou pas d'étude en contexte d'urgence ou d'intubation non programmée en dehors d'une structure hospitalière : le préhospitalier: à nous de jouer!
- ▶ Les études et méta-analyses distinguent
 - ▶ L'intubation réglée ou sans critère d'intubation difficile
 - ▶ L'intubation non réglée / avec >2 critères d'intubation difficile
 - ▶ L'intubation en contexte COVID19

Dans le cas d'une induction à séquence rapide pour estomac plein, les données de la littérature ne permettent pas de formuler de recommandation concernant l'utilisation des vidéolaryngoscopes.

Pas de recommandation.

Argumentaire : La durée nécessaire pour une intubation trachéale avec un vidéolaryngoscope peut être plus courte, identique ou plus longue qu'avec un laryngoscope équipé d'une lame de Macintosh [38,42,44,45]. Ce paramètre étant aléatoire et dépendant de nombreux facteurs (type de dispositif, de l'expertise de l'opérateur et du terrain), les vidéolaryngoscopes ne peuvent pas à l'heure actuelle être proposés systématiquement en première intention dans la prise en charge des patients à risque de régurgitation et d'inhalation. La manœuvre de Sellick pourrait altérer la vision glottique sous vidéolaryngoscope et le taux de réussite de l'intubation chez un patient avec un estomac plein [46,47].

R2.2 – Si une intubation difficile n'est pas prévue, Il faut probablement utiliser les vidéolaryngoscopes en seconde intention chez les patients avec un stade de Cormack et Lehane III ou plus, si la ventilation au masque est possible. (Grade 2+) Accord FORT.

Argumentaire : Les vidéolaryngoscopes réduisent l'incidence des scores de Cormack et Lehane III et IV observés initialement par laryngoscopie directe chez le patient avec une intubation difficile non prévue [48,49]. Dans ces situations, le risque d'échec d'intubation avec la technique de vidéolaryngoscopie est faible chez le praticien expérimenté. Dans une étude rétrospective non randomisée multicentrique (7 centres) entre 2004 et 2013,

Intubation difficile et extubation en anesthésie chez l'adulte

Recommandations formalisées d'expert.

Anesth Reanim. 2017; 3: 552–571

Videolaryngoscopy in the critically ill

Published data on videolaryngoscopy in critically ill patients are generally of poor quality, with limited evidence from ICU and ED populations^{120,132–141} and results from these two locations might not necessarily be transferrable. Evidence from anaesthesia practice is relevant and generally of higher quality, but there are again issues of transferability. A recent systematic review of videolaryngoscopy, in all settings, reported improved laryngeal view with videolaryngoscopy, improved ease of use, reduced airway trauma and reduced failures, both in an unselected population and in predicted difficult intubation.¹⁴² Evidence highlights the importance of training in success with videolaryngoscopy,^{142,143} an important omission in many studies in the critically ill. The systematic review also identified that not all videolaryngoscopes perform equally.¹⁴² There is uncertainty over the impact of videolaryngoscopy on intubation speed,¹⁴² but it is likely that hyperangulated (as opposed to MacIntosh-shaped) blades prolong easy intubations. Synthesizing the available evidence, and given the importance of avoiding multiple attempts and reducing failed intubations in the critically ill, we make the following recommendations for videolaryngoscopy.

A videolaryngoscope should be available and considered as an option for all intubations of critically ill patients. Those involved in critical care intubation should be appropriately trained in use of the videolaryngoscope(s) they may be called upon to use. If difficult laryngoscopy is predicted in a critically ill patient (MACOCHA score ≥ 3)⁵⁴ videolaryngoscopy should be actively considered from the outset. If during direct laryngoscopy there is a poor view of the larynx, subsequent attempts at laryngoscopy should be performed with a videolaryngoscope.

Guidelines for the management of tracheal intubation in critically ill adults

A. Higgs^{1,*}, B. A. McGrath², C. Goddard³, J. Rangasami⁴, G. Suntharalingam⁵, R. Gale⁶, T. M. Cook⁷ and on behalf of Difficult Airway Society, Intensive Care Society, Faculty of Intensive Care Medicine, Royal College of Anaesthetists
British Journal of Anaesthesia, 120 (2): 323e352 (2018)

Individuals and departments may decide to use videolaryngoscopy as first choice for all intubations in the critically ill. Departmental device selection is multifactorial but we recommend a device with a screen, visible to all members during intubation, to improve assistance, cricoid force optimization, training, supervision, and teamwork.¹⁴⁴ These recommendations apply both to ICUs and EDs but may be difficult in remote parts of hospitals. Where videolaryngoscopy is used as first choice, it is logical to use a device that enables use both as a direct laryngoscope and as a videolaryngoscope (i.e. Macintosh-type blade). Where videolaryngoscopy is used as a rescue device (whether direct laryngoscopy or videolaryngoscopy was used initially) it is likely that a hyper-angulated device (used with a stylet or bougie) will perform best.¹⁴⁵ Blood, secretions, and vomitus in the airway can hamper videolaryngoscopy in the critically ill patient.

Guidelines for the management of tracheal intubation in critically ill adults

A. Higgs^{1,*}, B. A. McGrath², C. Goddard³, J. Rangasami⁴, G. Suntharalingam⁵, R. Gale⁶, T. M. Cook⁷ and on behalf of Difficult Airway Society, Intensive Care Society, Faculty of Intensive Care Medicine, Royal College of Anaesthetists
British Journal of Anaesthesia, 120 (2): 323e352 (2018)

Videolaryngoscopy versus direct laryngoscopy for adult patients requiring tracheal intubation (Review)

Lewis SR, Butler AR, Parker J, Cook TM, Smith A.

Cochrane Database of Systematic Reviews 2016, Issue 11. Art. No.: CD011136.

Méta Analyse

64 essais randomisés contrôlés

Comparaison entre Vidéolaryngoscopie et Laryngoscopie directe / Lame type Macintosh

> 16 ans IOT + Anesthésie Générale dans un contexte de Chirurgie / Urgences/ Soins Intensifs, non sélectionnés/ difficulté d'intubation

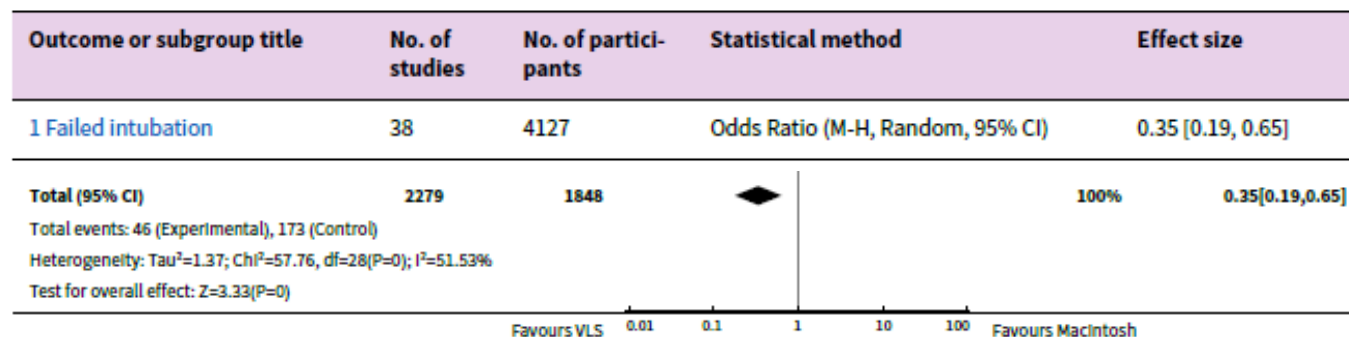
Primary outcomes

1. Failed intubation or change of device required
2. Hypoxia between start of intubation and recovery from anaesthesia, with dichotomous data (episodes of arterial oxygen saturation < 90%) or continuous data (lowest or mean arterial oxygen saturation)

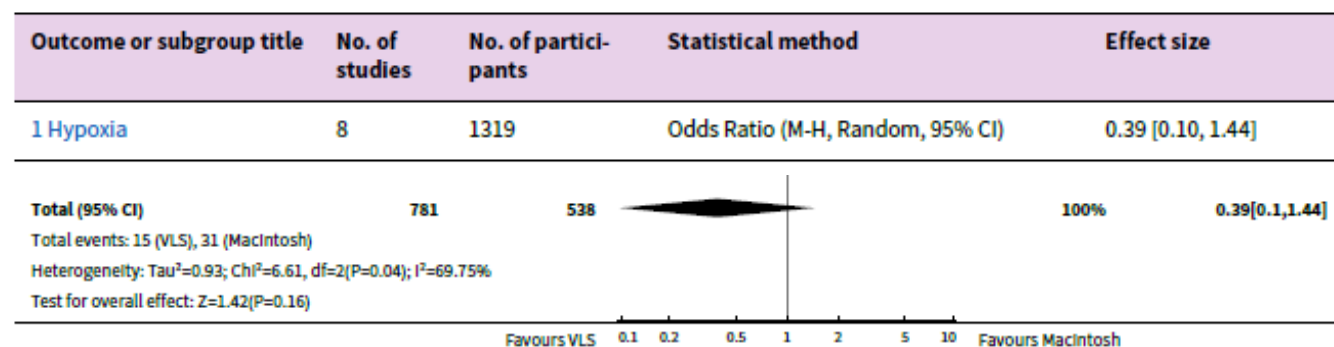
Secondary outcomes

1. Mortality within 30 days of anaesthesia
2. Serious respiratory complications (including aspiration) within 30 days of anaesthesia
3. Laryngeal or airway trauma – including any one of damage to vocal cords, bleeding or dental injury
4. Patient-reported sore throat or hoarseness - both early (within two hours of anaesthesia) and late (within 48 hours of anaesthesia)
5. Proportion of successful first attempts at tracheal intubation
6. Number of attempts at tracheal intubation
7. Total time for tracheal intubation and commencement of ventilation
8. Difficulty of tracheal intubation - assessed by intubator or observer, using a locally derived or validated difficulty scale
9. Improved visualization of the larynx as measured on a validated scale (such as the Cormack and Lehane classification system (Cormack 1984); the POGO (percentage of glottic opening) score (Levitan 1998); or classification system by (Cook 2000).

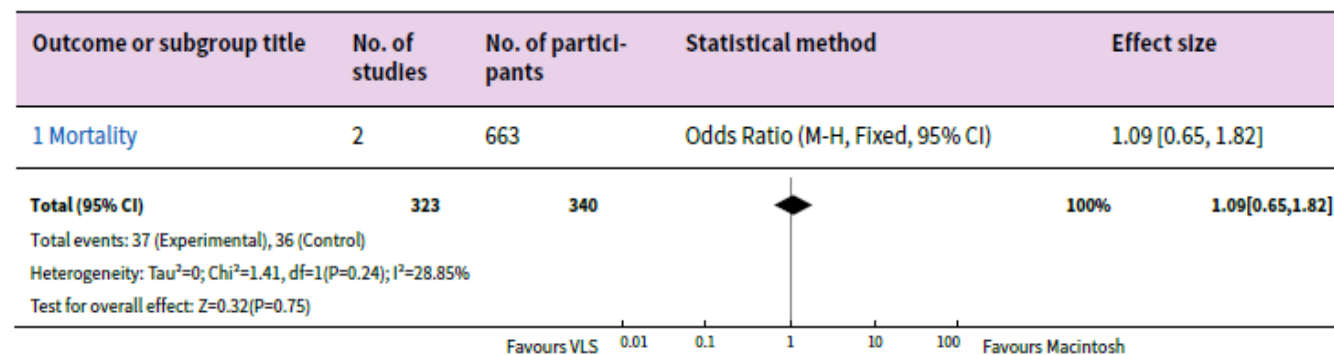
Comparison 1. VLS versus Macintosh



Comparison 2. VLS versus Macintosh



Comparison 3. VLS versus Macintosh

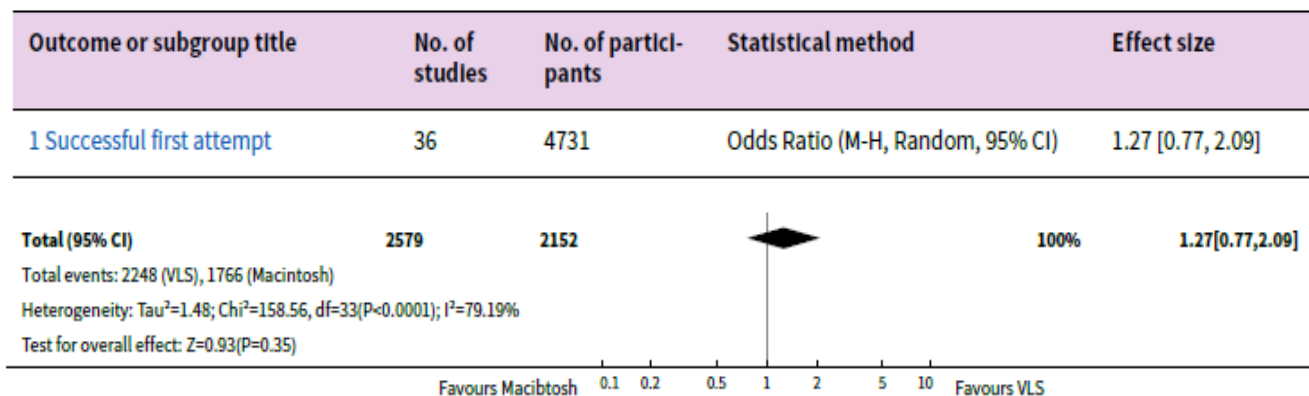


Videolaryngoscopy versus direct laryngoscopy for adult patients requiring tracheal intubation (Review)

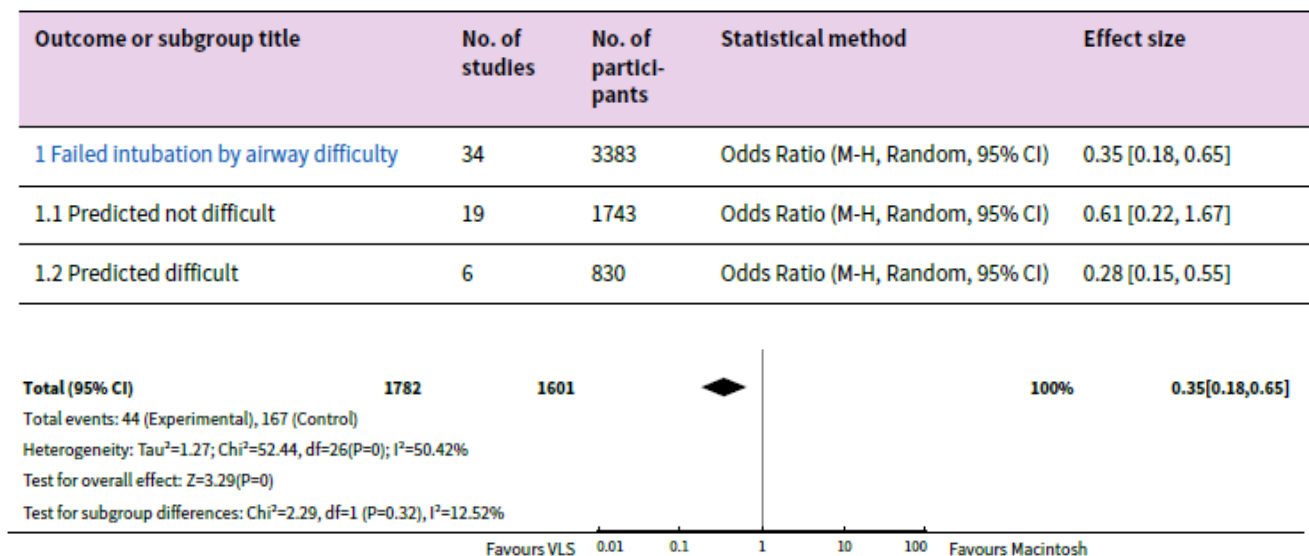
Lewis SR, Butler AR, Parker J, Cook TM, Smith A.

Cochrane Database of Systematic Reviews 2016, Issue 11. Art. No.: CD011136.

Comparison 7. VLS versus Macintosh



Comparison 15. VLS versus Macintosh



Videolaryngoscopy versus direct laryngoscopy for adult patients requiring tracheal intubation (Review)

Lewis SR, Butler AR, Parker J, Cook TM, Smith A.

Cochrane Database of Systematic Reviews 2016, Issue 11. Art. No.: CD011136.

Comparison of videolaryngoscopy and direct laryngoscopy by German paramedics during out-of-hospital cardiopulmonary resuscitation; an observational prospective study

Risse et al. BMC Emergency Medicine (2020) 20:22

Rare étude en contexte préhospitalier.

Paramédics.

- ▶ **Methods:** In a single Emergency Medical Service (EMS) in Germany with in total 32 ambulances paramedics underwent an initial instruction from in endotracheal intubation (ETI) with GlideScope® (GVL) during resuscitation.
- ▶ The primary endpoint was good visibility of the glottis (Cormack-Lehane grading 1/2), and the secondary endpoint was successful intubation comparing GVL and DL.
- ▶ **Results:** In total $n = 97$ patients were included, $n = 69$ with DL ($n = 85$ intubation attempts) and $n = 28$ VL ($n = 37$ attempts).
- ▶ Videolaryngoscopy resulted in a significantly improved visualization of the larynx compared with DL. In the group using GVL, 82% rated visualization of the glottis as CL 1 & 2 versus 55% in the DL group ($p = 0.02$).
- ▶ Despite better visualization of the larynx, there was no statistically significant difference in successful ETI between GVL and DL (GVL 75% vs. DL 68.1%, $p = 0.63$).

Recommendation:

5. For healthcare workers performing endotracheal intubation on patients with COVID-19, we suggest using video-guided laryngoscopy, over direct laryngoscopy, if available (weak recommendation, low quality evidence).

Rationale:

There is no direct evidence comparing the use of video-laryngoscopy with direct laryngoscopy for intubation of patients with COVID-19. While SAR-CoV-2 appears to be predominantly spread by large respiratory droplets, intubation is likely a small particle (less than 5 micrometers) aerosol-generating procedure, which increases the risk of transmission to healthcare workers [29]. Intubation is particularly risky given the close contact of healthcare workers with the patient's airway and respiratory secretions. Thus, techniques that can reduce the number of attempts at endotracheal intubation and the duration of the procedure and minimize the proximity between the operator and the patient, should be prioritized, potentially reducing the risk of complications in hypoxic COVID-19 patients. In a systematic review including 64 studies and 7,044 patients, video-laryngoscopy reduced the risk of failed intubation (OR 0.35, 95%CI 0.19 to 0.65), without a significant impact upon the proportion of successful first-pass attempts (OR 0.79, 95%CI 0.48 to 1.3), hypoxia (OR 0.39, 95% CI 0.1 to 1.44), or time for tracheal intubation [30, 31]. In patients with difficult airways, the first-attempt success rate may be improved with video-laryngoscopy [32].

Thus, in settings where video-laryngoscopy is available and staff are skilled in its use, we suggest that it be used, in preference to direct laryngoscopy, to maximize the chances of success. Recognizing that not all centers will have rapid access to video-laryngoscopy or skilled users, this recommendation is conditional.

Surviving Sepsis Campaign: Guidelines on the Management of Critically Ill Adults with Coronavirus Disease 2019 (COVID-19)

European Society of Intensive
Care Medicine and the Society
of Critical Care Medicine
2020ESICM

6. For COVID-19 patients requiring **endotracheal intubation**, we **recommend** that endotracheal intubation be performed by the healthcare worker who is most experienced with airway management in order to minimize the number of attempts and risk of transmission (best practice statement).

Rationale:

Similar to the reasoning above, factors that maximize the chances of first pass success should be used when intubating patients with suspected or confirmed COVID-19. Thus, we recommend that the healthcare operator with the most experience and skill in airway management should be the first to attempt intubation.

Surviving Sepsis Campaign: Guidelines on the Management of Critically Ill Adults with Coronavirus Disease 2019 (COVID-19)

European Society of Intensive
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2020ESICM

**Recommandations d'experts
portant sur la prise en charge en
réanimation des patients
infectés à SARS CoV2**

Version 5 du 07/11/2020

SRLF SFAR GFRUP SPILF SPLF

SFMU

*Mise en oeuvre avec la mission
COREB nationale*

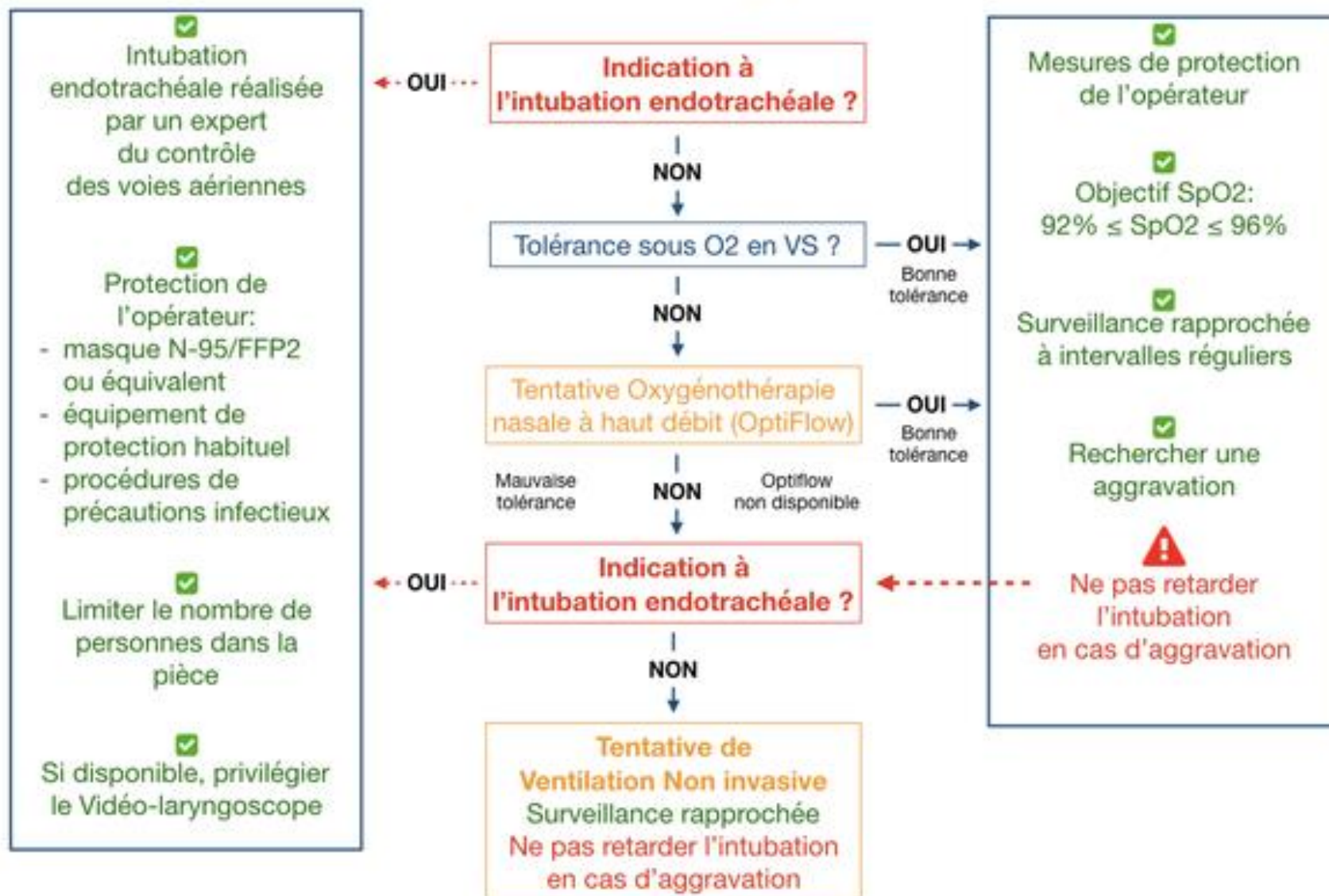
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- ▶ L'utilisation de la vidéo-laryngoscopie qui éloigne l'opérateur du patient est proposée en première intention.

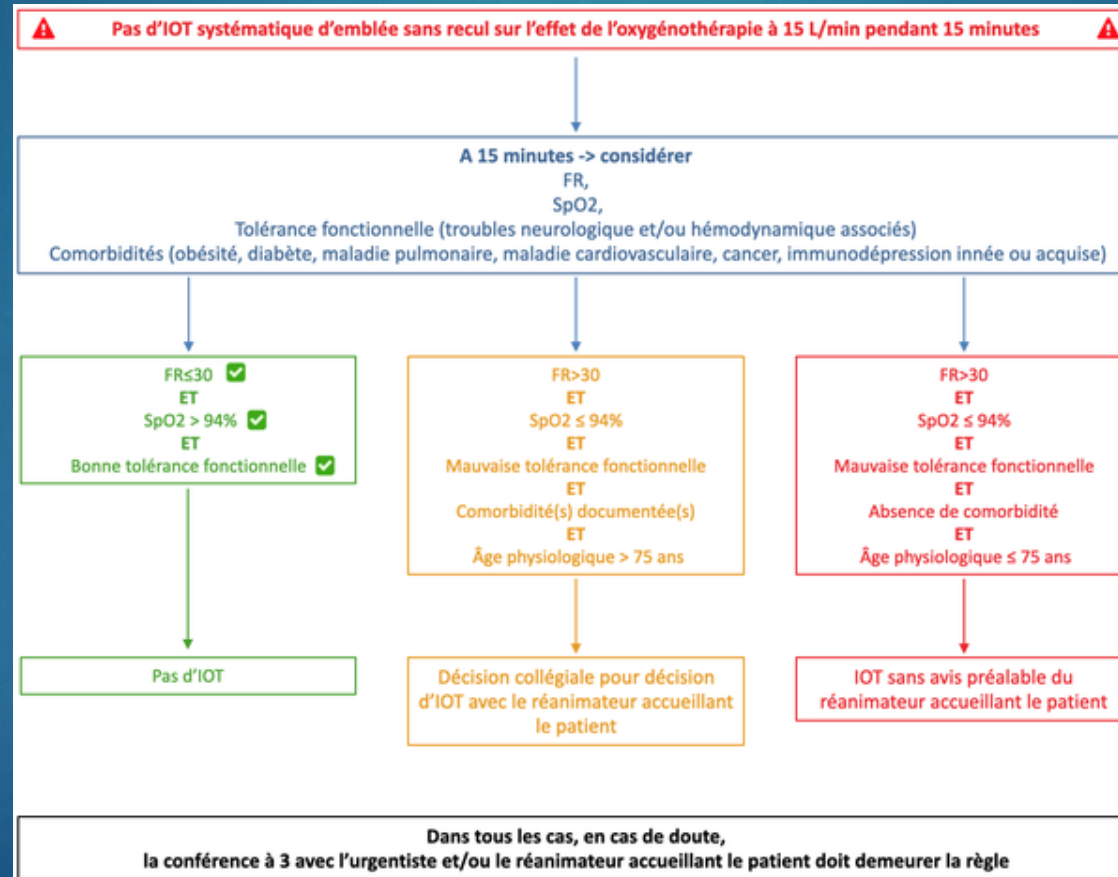
Concerne la détresse respiratoire
aigue du patient COVID 19+

Pas de précision pour l'exercice
spécifique du Pré-Hospitalier

COVID-19 en Hypoxémie



Exemple de procédure SMUR Urgence Online 2020



Check list



intensive care society
Care when it matters

Intubation Checklist : critically ill adults – to be done with whole team present.

The Faculty of
Intensive Care Medicine



<u>Prepare the patient</u>	<u>Prepare the equipment</u>	<u>Prepare the team</u>	<u>Prepare for difficulty</u>
☐ Reliable IV / IO access ☐ Optimise position ☐ Sit-up? ☐ Mattress hard ☐ Airway assessment ☐ Identify cricothyroid membrane ☐ Awake intubation option? ☐ Optimal preoxygenation ☐ 3 mins or ETO₂ > 85% ☐ Consider CPAP / NIV ☐ Nasal O₂ ☐ Optimise patient state ☐ Fluid / pressor/ inotrope ☐ Aspirate NG tube ☐ Delayed sequence induction ☐ Allergies? ☐ ↑ Potassium risk? - avoid suxamethonium	☐ Apply monitors ☐ SpO₂ / waveform ETCO₂ / ECG / BP ☐ Check equipment ☐ Tracheal tubes x 2 - cuffs checked ☐ Direct laryngoscopes x 2 ☐ Videolaryngoscope ☐ Bougie / stylet ☐ Working suction ☐ Supraglottic airways ☐ Guedel / nasal airways ☐ Flexible scope / Aintree ☐ FONA set ☐ Check drugs ☐ Consider ketamine ☐ Relaxant ☐ Pressor / inotrope ☐ Maintenance sedation	☐ Allocate roles One person may have more than one role. ☐ Team Leader ☐ 1st Intubator ☐ 2nd Intubator ☐ Cricoid force ☐ Intubator's assistant ☐ Drugs ☐ Monitoring patient ☐ Runner ☐ MILS (if indicated) ☐ Who will perform FONA? ☐ Who do we call for help? ☐ Who is noting the time?	☐ Can we wake the patient if intubation fails? ☐ Verbalise "Airway Plan is:" ☐ Plan A: Drugs & laryngoscopy ☐ Plan B/C: Supraglottic airway Face-mask Fibreoptic intubation via supraglottic airway ☐ Plan D: FONA Scalpel-bougie-tube ☐ Does anyone have questions or concerns?

Fig 2. Intubation checklist. Modified from checklist described in NAP4.¹¹ IV: intravenous. IO: intra-osseous. ETO₂: end-tidal oxygen. CPAP: continuous positive airway pressure. NIV: non-invasive ventilation. NG: naso-gastric.

Formation

- ▶ Pas d'Etude claire sur le sujet
- ▶ Courbe d'apprentissage qui semble + rapide avec le VL qu'avec la Laryngoscopie directe
- ▶ Webinaire récent (Jaber, Langeron, DeJong) : 15 à 20 Intubation sur mannequin ou patient réel.
- ▶ Dans Les guidelines présentés: 15 à 20 intubations avec le video laryngoscope pour être considéré comme expert.