

# Intubation chez le patient hypoxémique Update 2017

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## Conflits d'intérêts

### Support logistique lors de congrès

- Maquet
- Hill-Rom
- Air Liquide

### Conférencier

- Covidien
- Lilly oncology
- Boehringer Ingelheim

### Consultant

- Hill-Rom

Clinical practice and risk factors for immediate complications of endotracheal intubation in the intensive care unit: A prospective, multiple-center study\*

Crit Care Med 2006 Vol. 34, No. 9

Jaber et al.

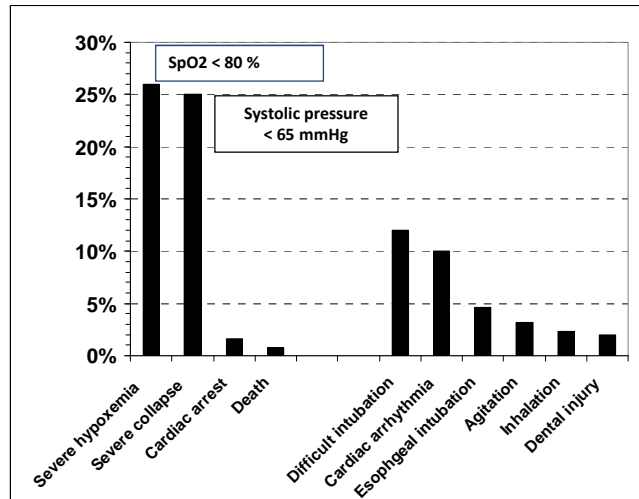
Intubations in ICU  
(n=253) – 7 ICU

**1. Complications  
"overall"**

**= 40-50%**

**2. Complications severe  
life threatening**

**= 25-40%**



## Pré-oxygénation avant intubation : Nouvelles Approches ?

1. Non-Invasive Ventilation (NIV/CPAP)

2. High Flow Oxygen Cannula (HFNC)

3. Combinaison NIV + HFNC ?

## Pré-oxygénation avant intubation : Nouvelles Approches ?

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### Use of High-Flow Nasal Cannula Oxygen Therapy to Prevent Desaturation During Tracheal Intubation of Intensive Care Patients With Mild-to-Moderate Hypoxemia\*

Miguel-Montanes et al. CCM 2015

March 2015 • Volume 43 • Number 3

**TABLE 2. Oxygenation Variables, Adverse Events During and After Intubation, and ICU Mortality**

Variable	Nonbreathing Bag Reservoir Facemask <i>n</i> = 50	High-Flow Nasal Cannula Oxygen <i>n</i> = 51	<i>p</i>
Spo <sub>2</sub> after preoxygenation, %, median (IQR)	100 (98–100)	100 (100–100)	0.01 <sup>a</sup>
Lowest Spo <sub>2</sub> , median (IQR)	94 (83–98)	100 (95–100)	< 0.0001 <sup>b</sup>
Adjusted lowest Spo <sub>2</sub> , %, median <sup>c</sup>	94	99.2	0.007
Spo <sub>2</sub> upon respirator connection, %, median (IQR)	98 (92.5–100)	100 (99–100)	0.0004 <sup>b</sup>
Spo <sub>2</sub> 5 min after intubation, %, median (IQR)	100 (98.8–100)	100 (100–100)	0.002 <sup>b</sup>
Spo <sub>2</sub> 30 min after intubation, %, median (IQR)	100 (99–100)	100 (100–100)	0.024 <sup>b</sup>
Spo <sub>2</sub> < 80%, <i>n</i> (%)	7 (14)	1 (2)	0.03 <sup>a</sup>

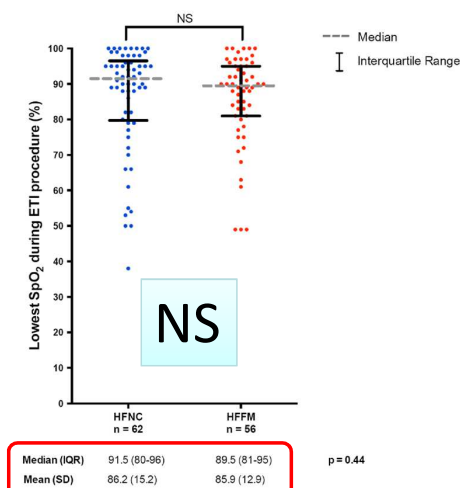
Etude Avant-Après  
Monocentrique

## High-flow nasal cannula oxygen during endotracheal intubation in hypoxemic patients: a randomized controlled clinical trial



Intensive Care Med (2015) 41:1538–1548  
DOI 10.1007/s00134-015-3796-z

124 patients  
randomisés

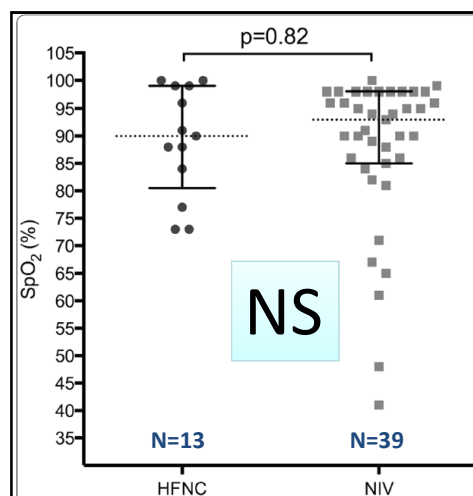
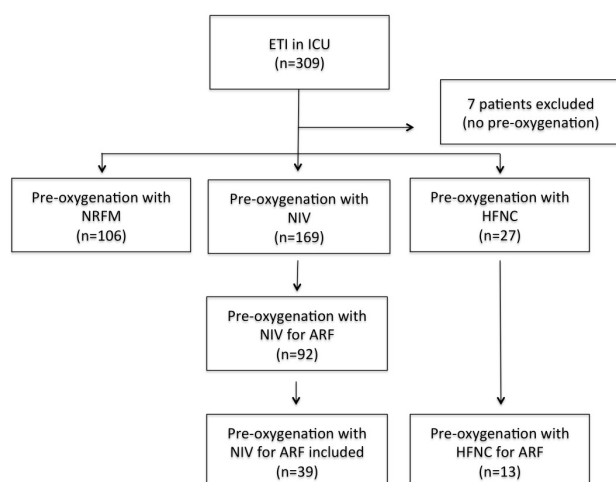


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## Pre-oxygenation with high-flow nasal cannula oxygen therapy and non-invasive ventilation for intubation in the intensive care unit



Besnier et al. 2016

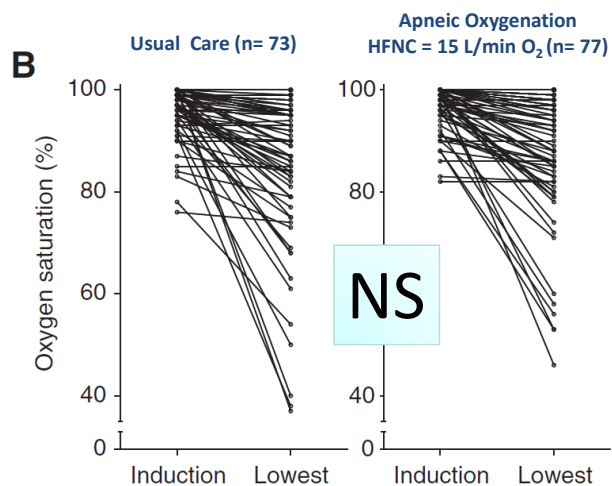
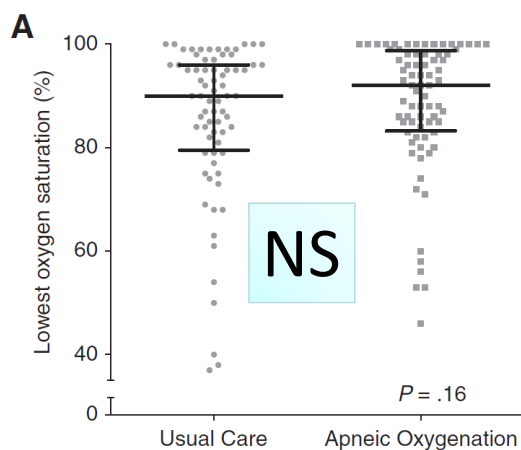


## Randomized Trial of Apneic Oxygenation during Endotracheal Intubation of the Critically Ill

Semler et al. 2016

Am J Respir Crit Care Med Vol 193, Iss 3, pp 273-280, Feb 1, 2016

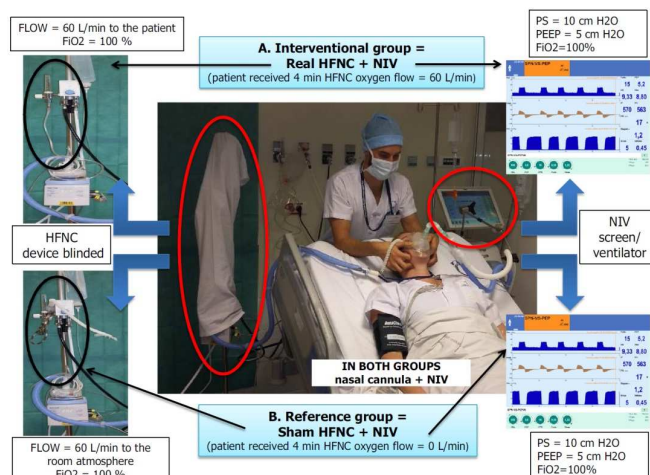
150 patients randomisés

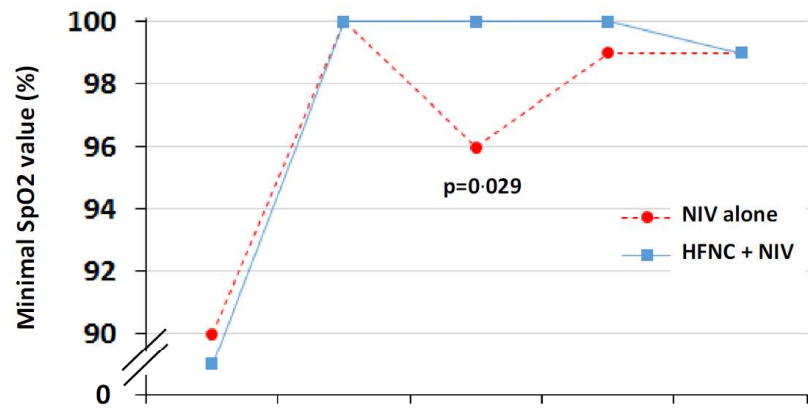


Apnoeic oxygenation via high-flow nasal cannula oxygen combined with non-invasive ventilation preoxygenation for intubation in hypoxaemic patients in the intensive care unit: the single-centre, blinded, randomised controlled OPTINIV trial



Jaber et al. 2017





	Baseline	Before intubation	During intubation	Intubation + 5'	Intubation + 30'
NIV Median (IQR)	90 (86-93)	100 (96-100)	96 (92-99)	99 (92-100)	99 (97-100)
Range [min-max]	[73-99]	[75-100]	[56-100]	[92-100]	[93-100]
HFNC + NIV Median (IQR)	89 (87-92)	100 (99-100)	100 (95-100)	100 (100-100)	99 (98-100)
Range [min-max]	[78-100]	[85-100]	[25-100]	[92-100]	[89-100]
NIV Mean (SD)	89.0 (5.7)	96.2 (5.9)	91.5 (12.5)	91.3 (9.0)	97.8 (2.5)
HFNC + NIV Mean (SD)	89.6 (5.5)	98.4 (3.6)	94.6 (15.0)	92.8 (6.7)	98.1 (2.8)

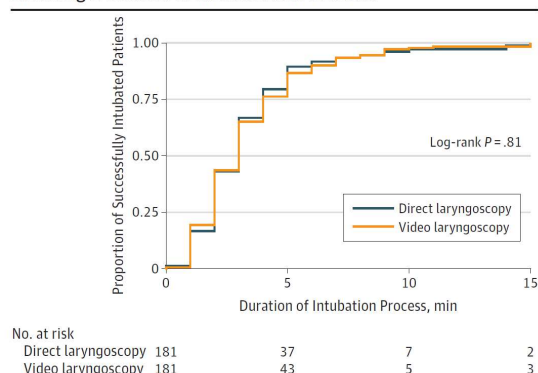
## Vidéolaryngoscopie

## Video Laryngoscopy vs Direct Laryngoscopy on Successful First-Pass Orotacheal Intubation Among ICU Patients A Randomized Clinical Trial

JAMA February 7, 2017 Volume 317, Number 5

Lascarrou et al.

Figure 2. Proportion of Patients Successfully Intubated According to Duration of the Intubation Procedure



**Findings** Video laryngoscopy for orotracheal intubation in the ICU did not improve the first-pass success rate compared with conventional direct laryngoscopy (67.7% vs 70.3%, respectively).

**Meaning** Video laryngoscopy did not improve the frequency of successful first-pass intubation in the ICU.

## Video Laryngoscopy vs Direct Laryngoscopy on Successful First-Pass Orotacheal Intubation Among ICU Patients A Randomized Clinical Trial

JAMA February 7, 2017 Volume 317, Number 5

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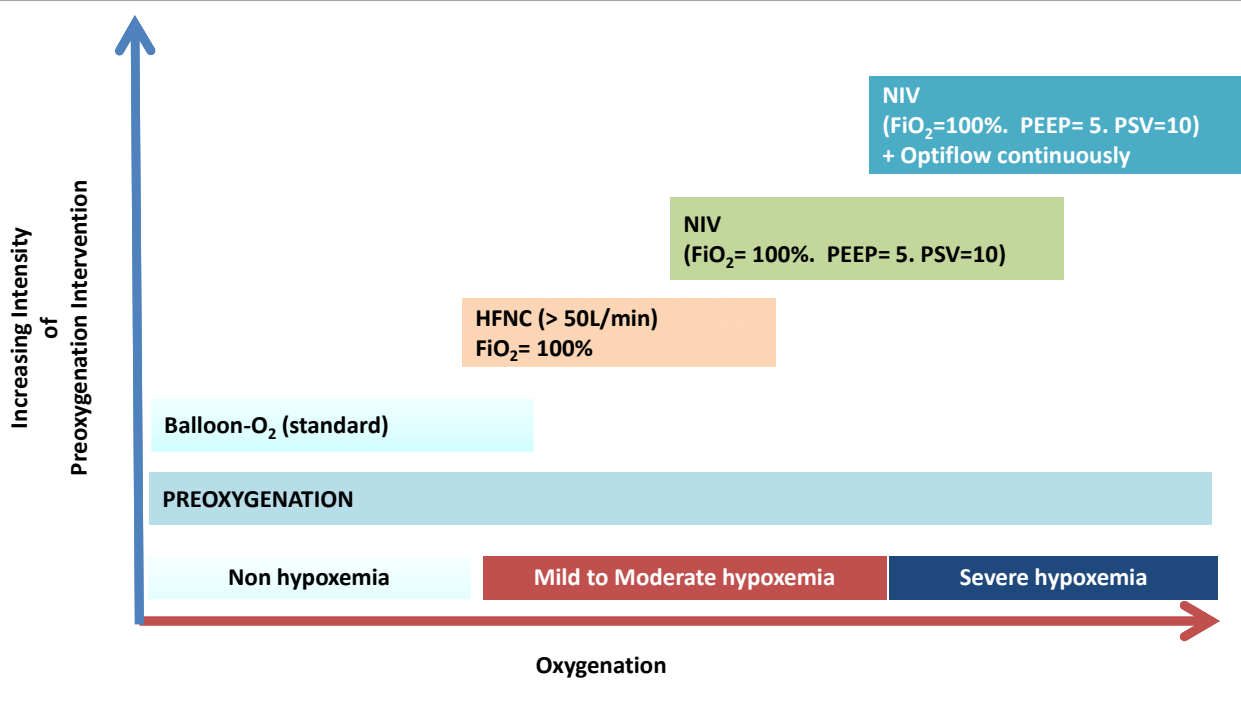
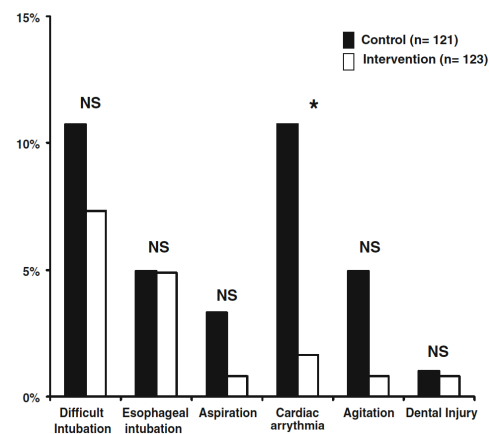
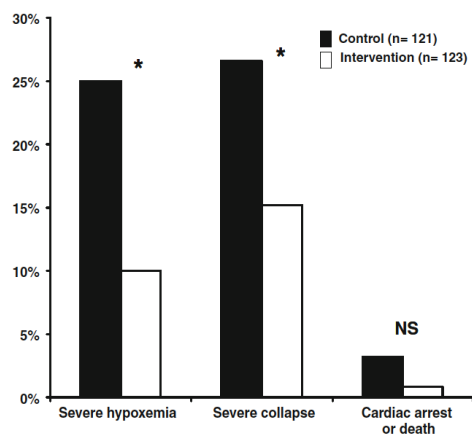
	No./Total (%) of Patients <sup>a</sup>		Absolute Difference (95% CI), %	P Value
	Video Laryngoscopy	Direct Laryngoscopy		
Type of complication				
Death	1/184 (0.5)	0/181	0.5 (−0.5 to 1.6)	.99
Cardiac arrest	4/184 (2.2)	0/181	2.2 (0.07 to 4.3)	.12
Arrhythmia	3/184 (1.6)	4/181 (2.2)	−0.6 (−3.4 to 2.2)	.69
Esophageal intubation	3/184 (1.6)	6/181 (3.3)	−1.7 (−4.9 to 1.5)	.33
Aspiration	4/184 (2.2)	4/181 (2.2)	0 (−3.0 to 3.0)	.99
Tooth injury	0/184	1/181 (0.6)	−0.6 (−1.6 to 0.5)	.50
Hypoxemia <sup>†</sup>	14/173 (8.1)	19/174 (10.9)	−2.8 (−9.0 to 3.3)	.37
Severe hypoxemia <sup>‡</sup>	6/176 (3.4)	1/181 (0.5)	2.9 (−0.03 to 5.7)	.06
Hypotension <sup>k</sup>	8/180 (4.4)	4/179 (2.2)	2.2 (−1.5 to 5.9)	.24
≥1 Life-threatening complication	24/180 (13.3)	17/179 (9.5)	3.8 (−2.7 to 10.4)	.25
Type of life-threatening complication <sup>†</sup>				
Mild to moderate <sup>m</sup>	10/181 (5.4)	14/181 (7.7)	−2.3 (−7.4 to 2.8)	.37
Severe <sup>n</sup>	17/179 (9.5)	5/179 (2.8)	6.7 (1.8 to 11.6)	.01

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Laurent Muller  
Gerald Chanques  
Daniel Verzilli  
Olivier Jonquet  
Jean-Jacques Eledjam  
Jean-Yves Lefrant

# **An intervention to decrease complications related to endotracheal intubation in the intensive care unit: a prospective, multiple-center study**



ICM 2010





Recommandations  
Formalisées d'Experts

## Intubation et Extubation du patient de réanimation

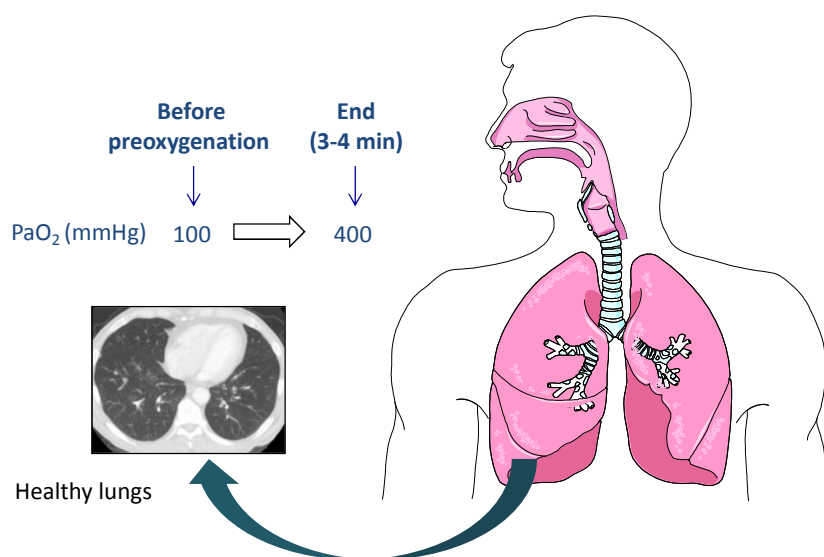


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### Pré-oxygénation / Denitrogénéation



## Pré-oxygénation / Denitrogénéation

