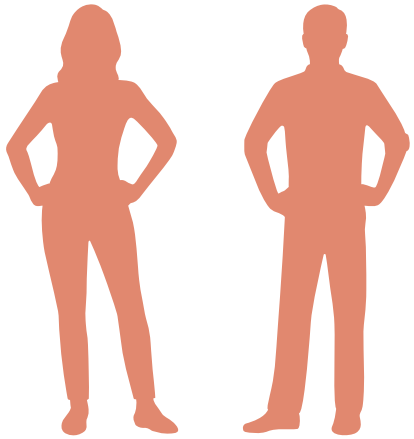
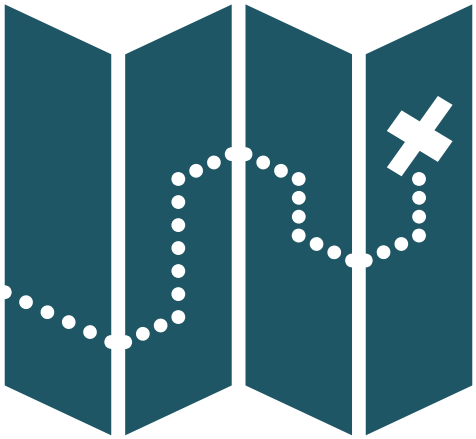
Initiation d'un ventilation non invasive : Modes

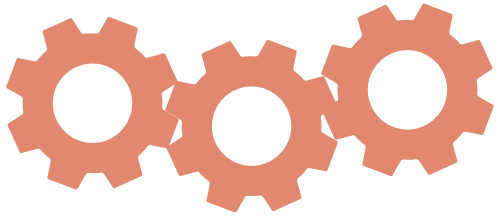
Maxime PATOUT

maxime.patout@aphp.fr
@maximepatout

Mise en place de la VNI

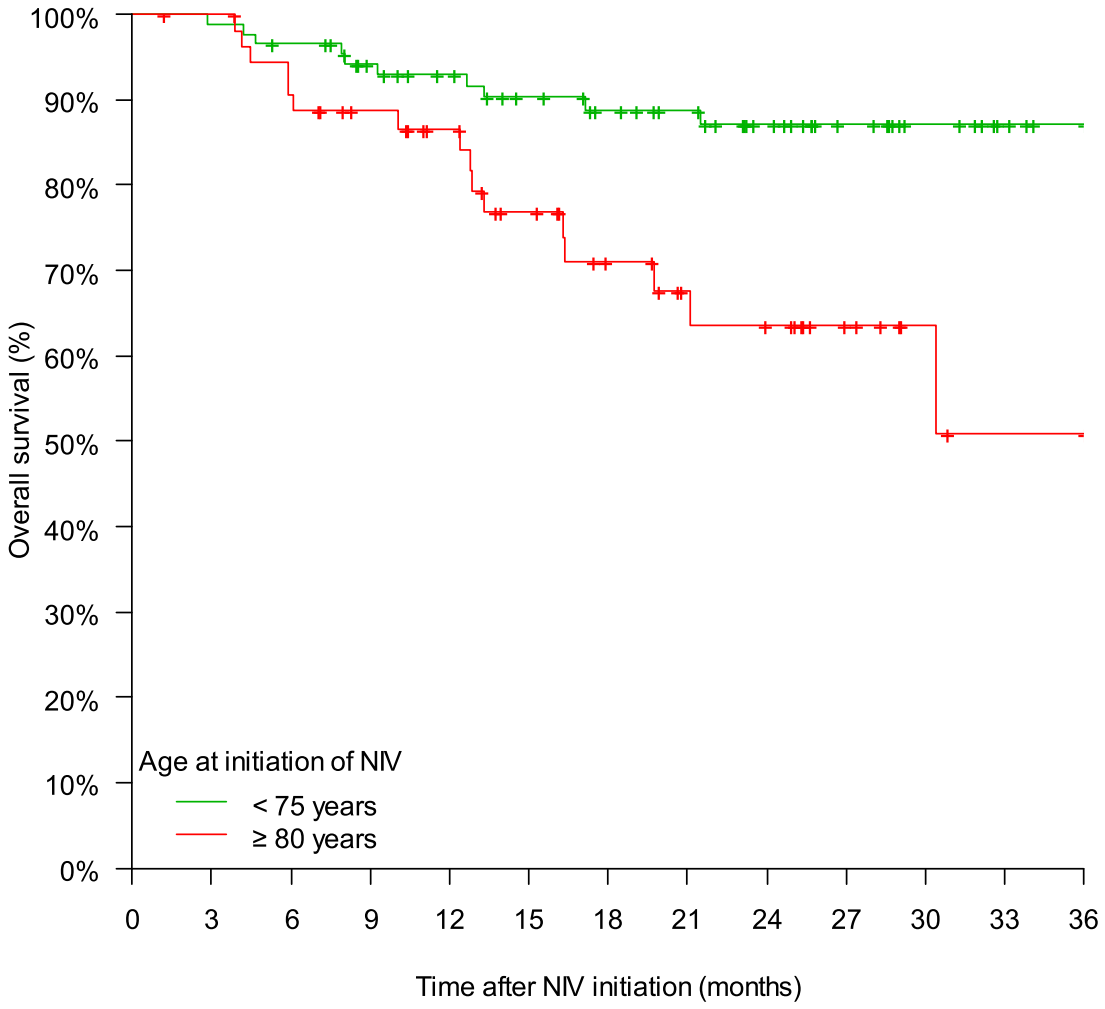






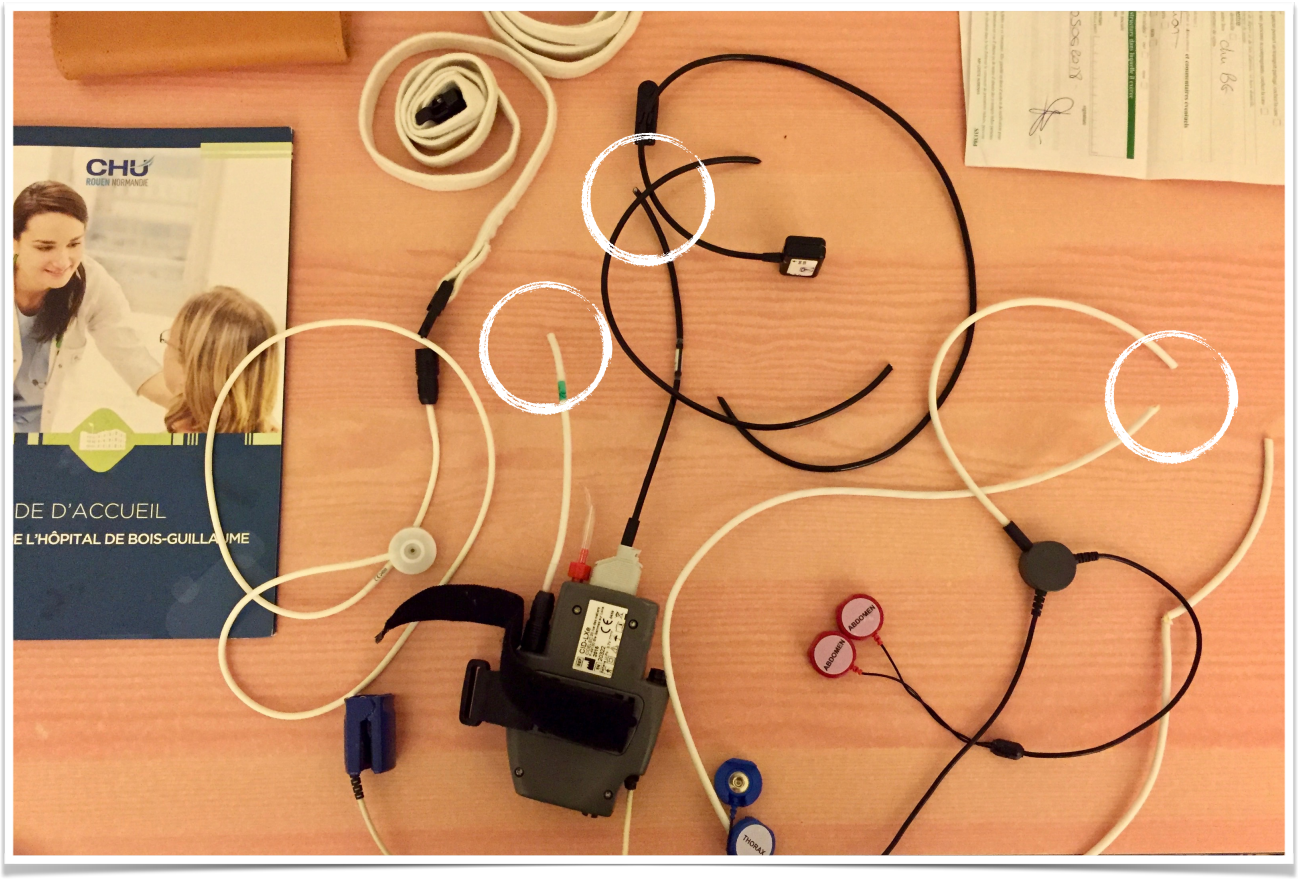
	Symptômes	Gaz du sang	EFR	Capnographie
Neuromusculaires	Oui	> 45mmHg	CV assis/couché Force musculaire	Hypoventilation
Pathologies de paroi	Oui	> 45mmHg		
BPCO		> 50mmHg		
SOH sans apnée		> 45mmHg		

Un âge limite?

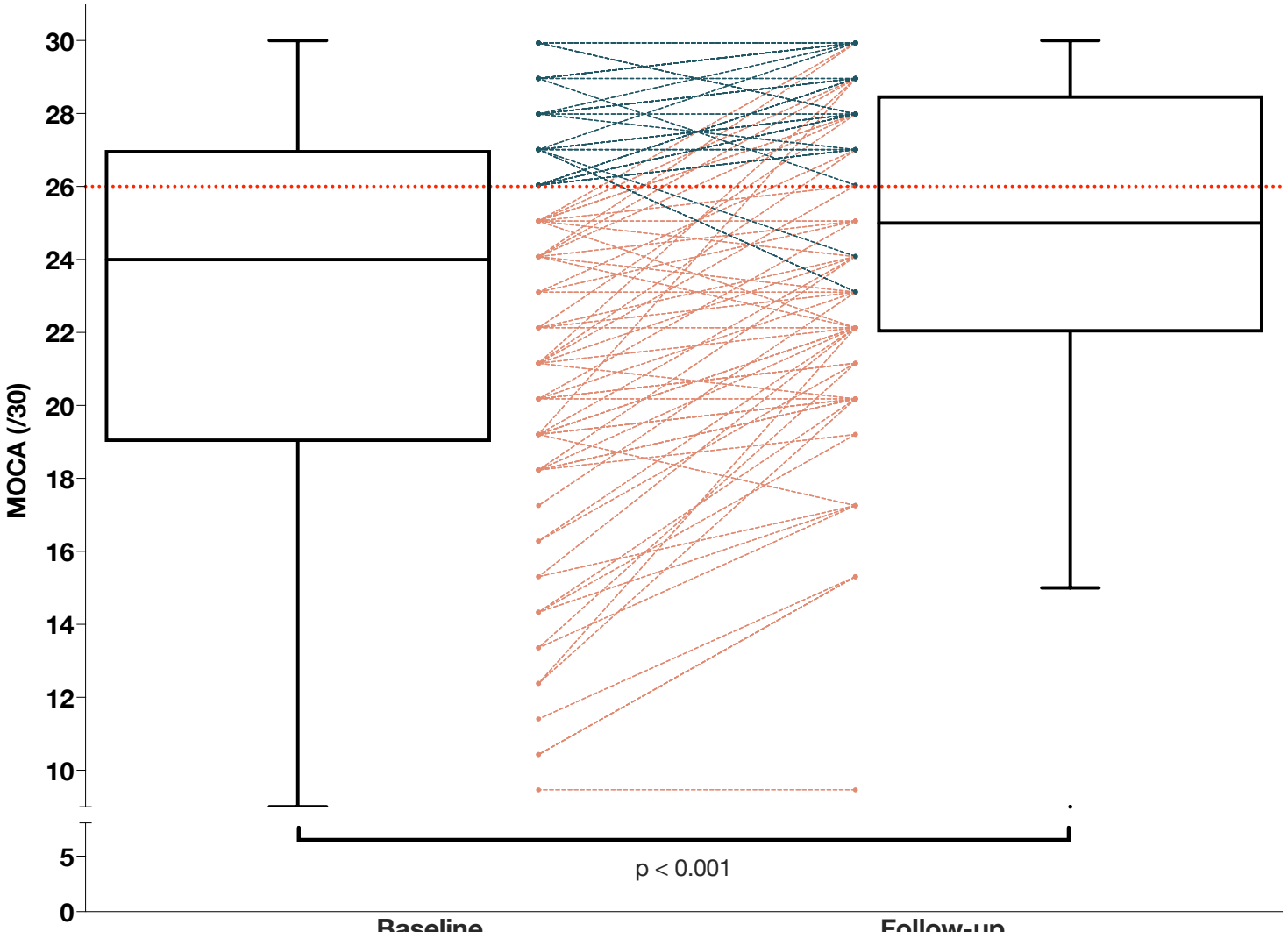


Couturier H. Respir. Med Res. 2023

Une compréhension limite?



Une compréhension limite?



Patout M. *AJRCCM 2023*

Asthme/BPCO

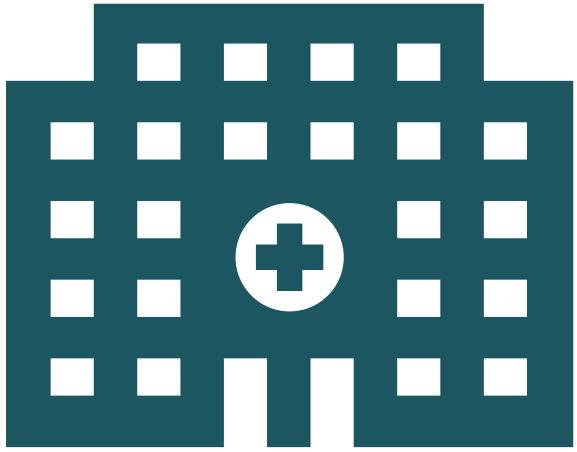
VNI

Critères des éprouvés

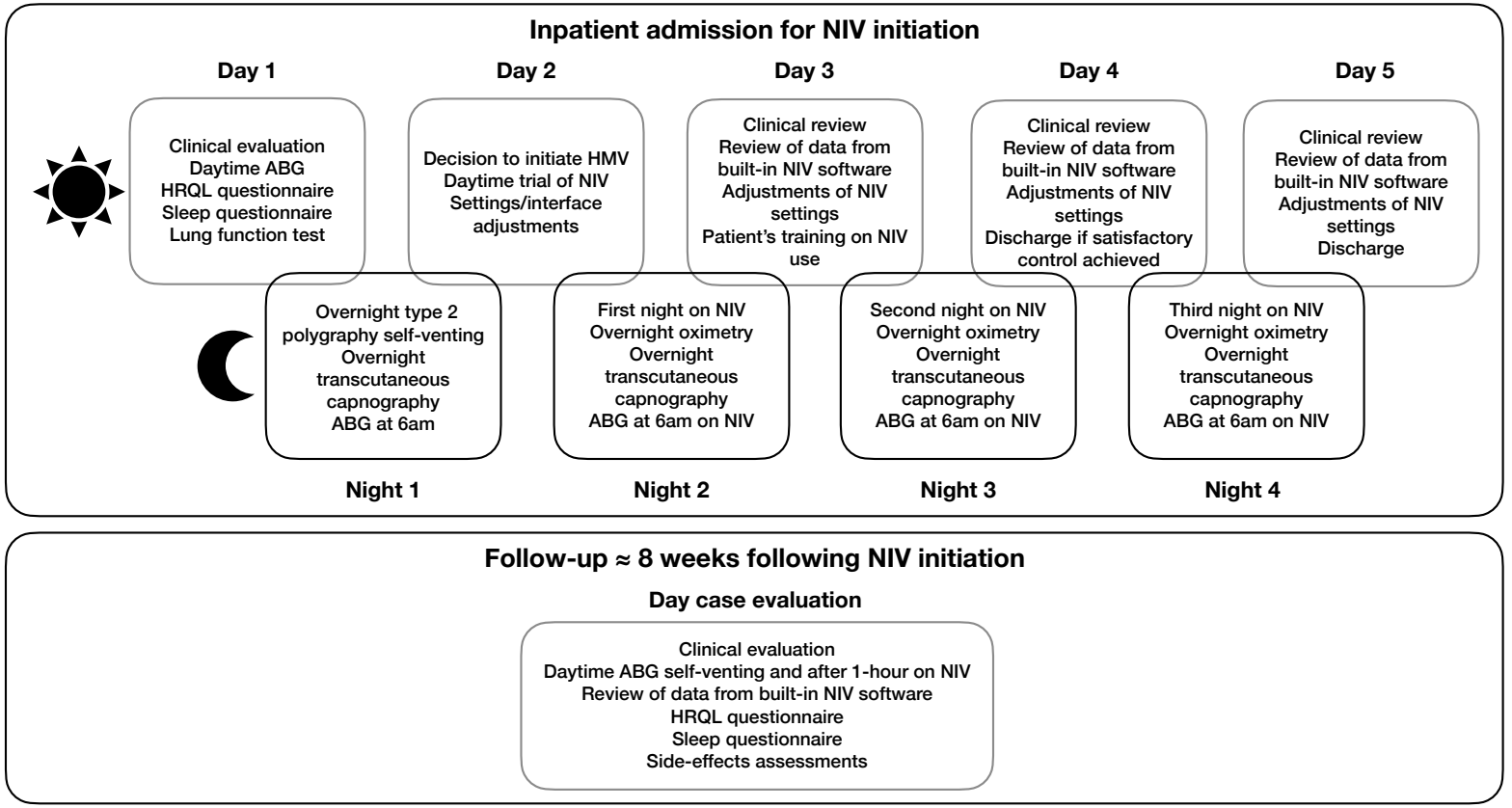
« Pour tous »

Importance de l'éducation thérapeutique

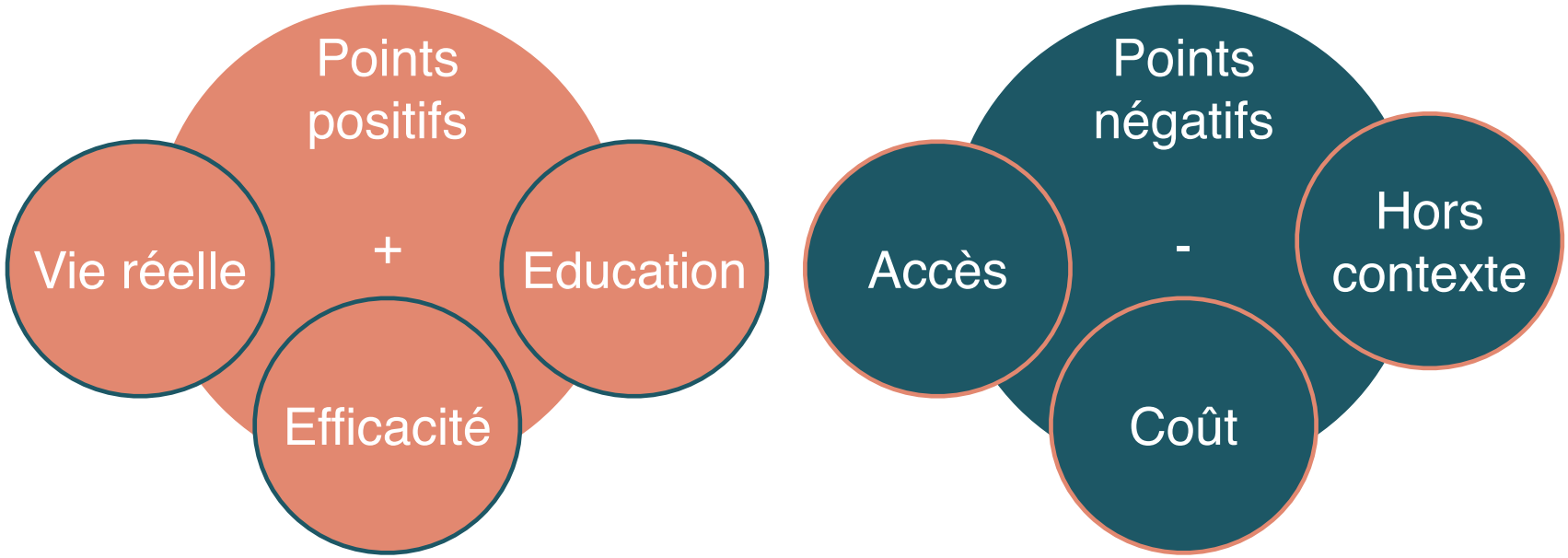
Il faut se poser la question

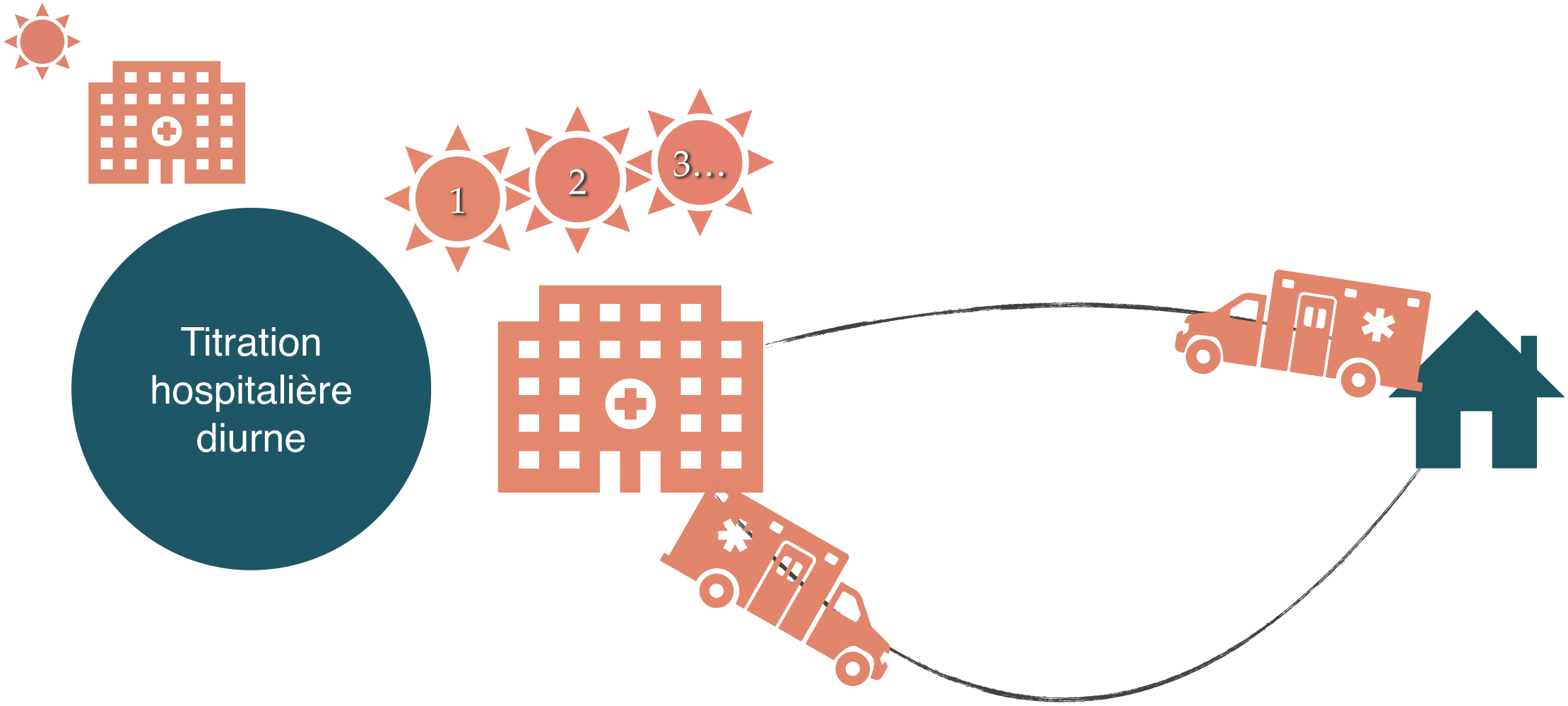


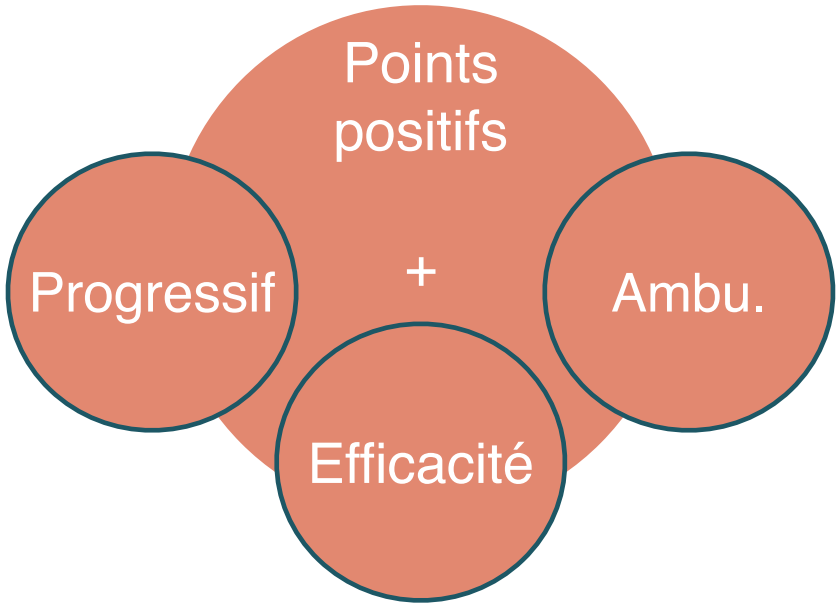
Titration hospitalière nocturne

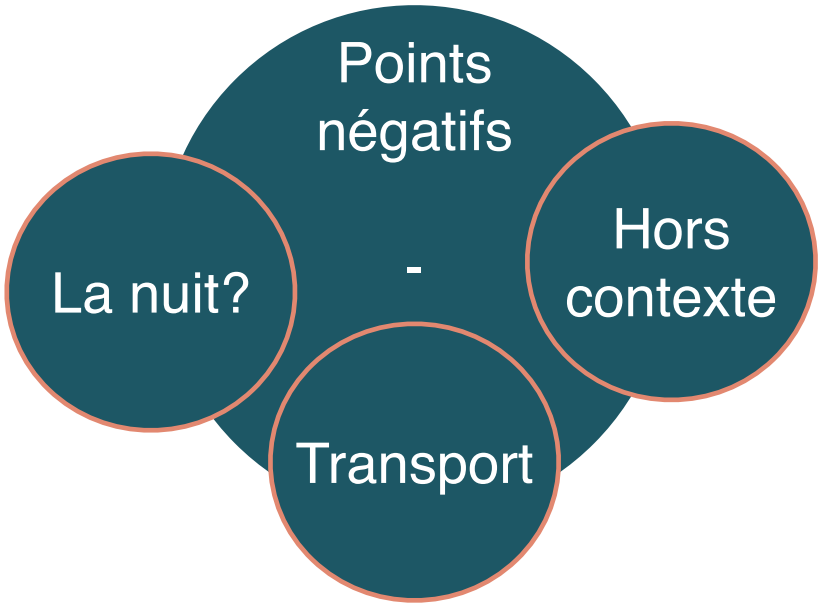


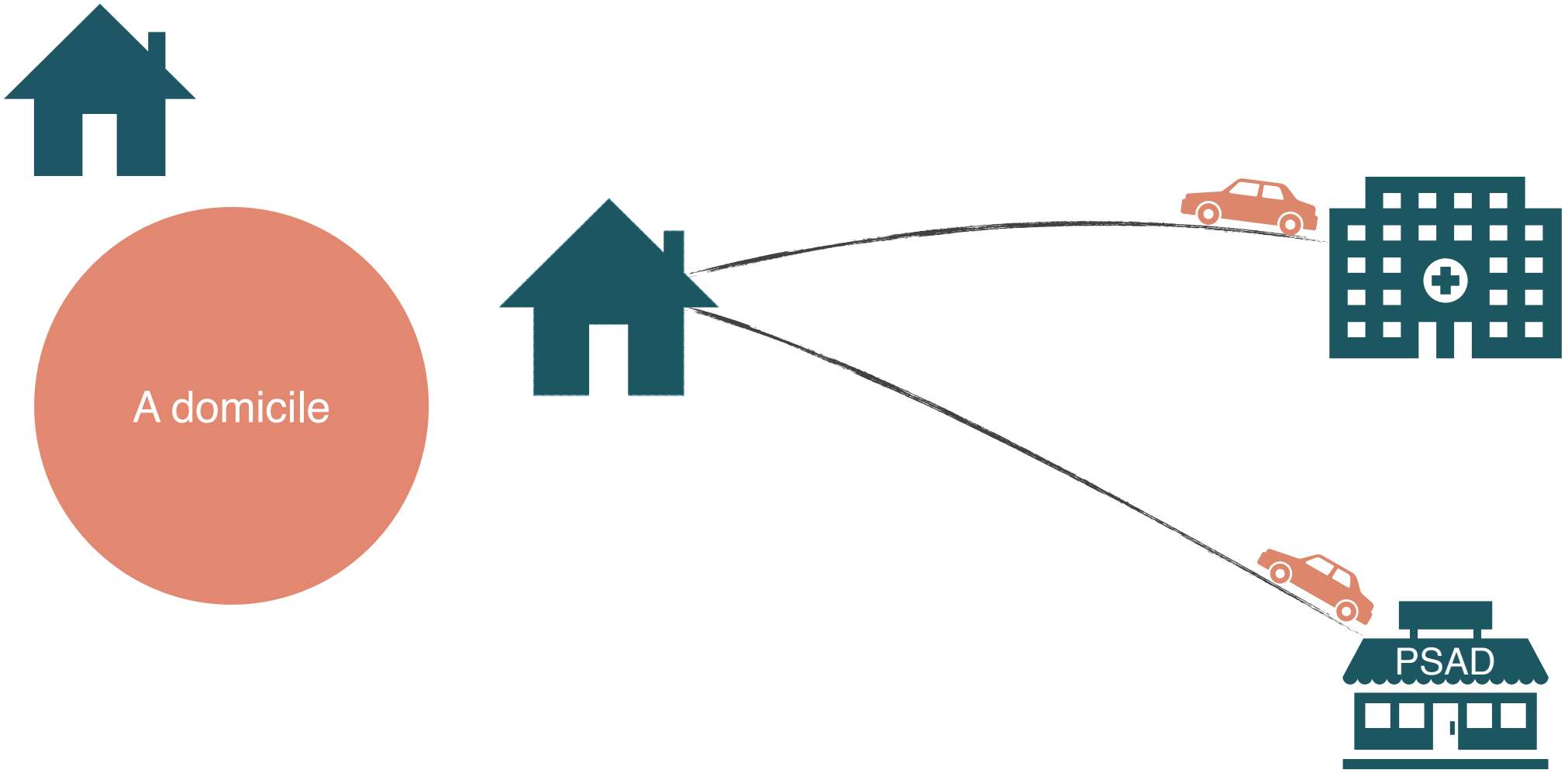
Jolly G. Respirology 2021

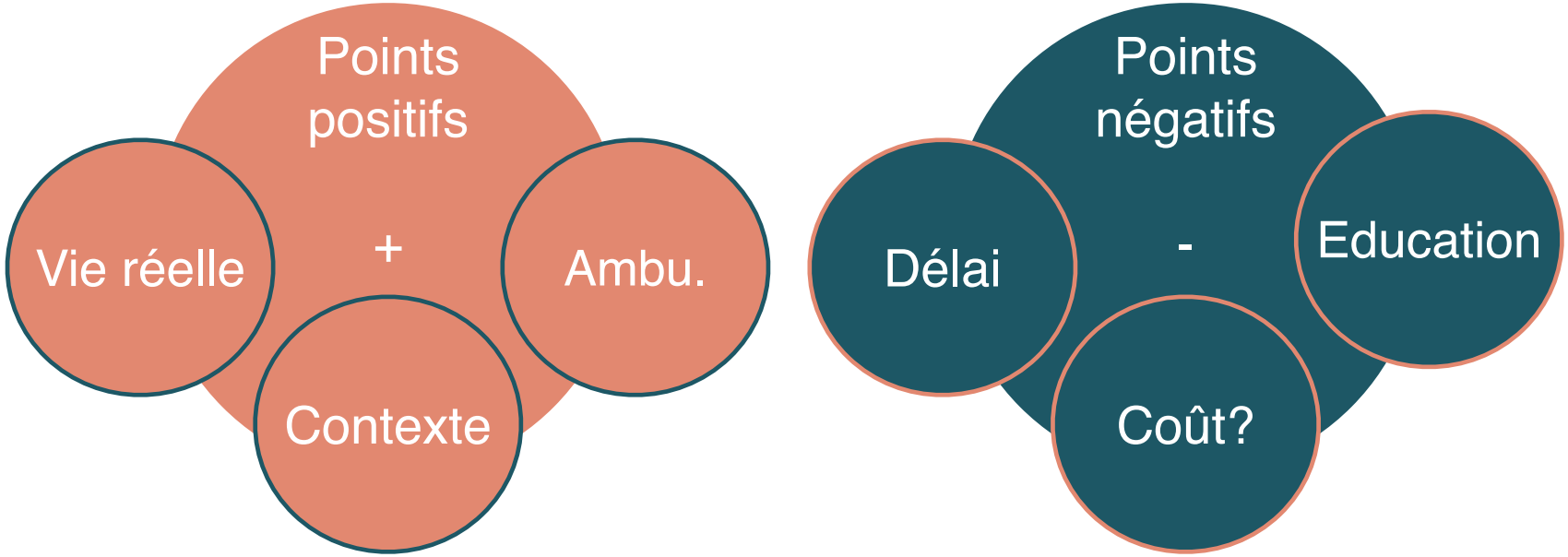

Points positifs
+
Vie réelle
Education
Efficacité
Points négatifs
-
Accès
Hors contexte
Coût

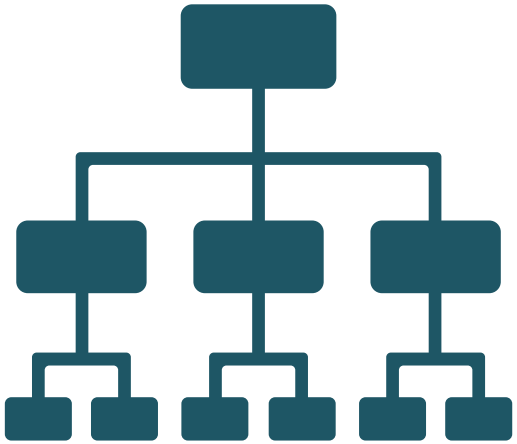

1
2
3…
Titration hospitalière diurne


Points positifs
+
Progressif
Ambu.
Efficacité


Points négatifs
-
La nuit?
Hors contexte
Transport


A domicile
PSAD

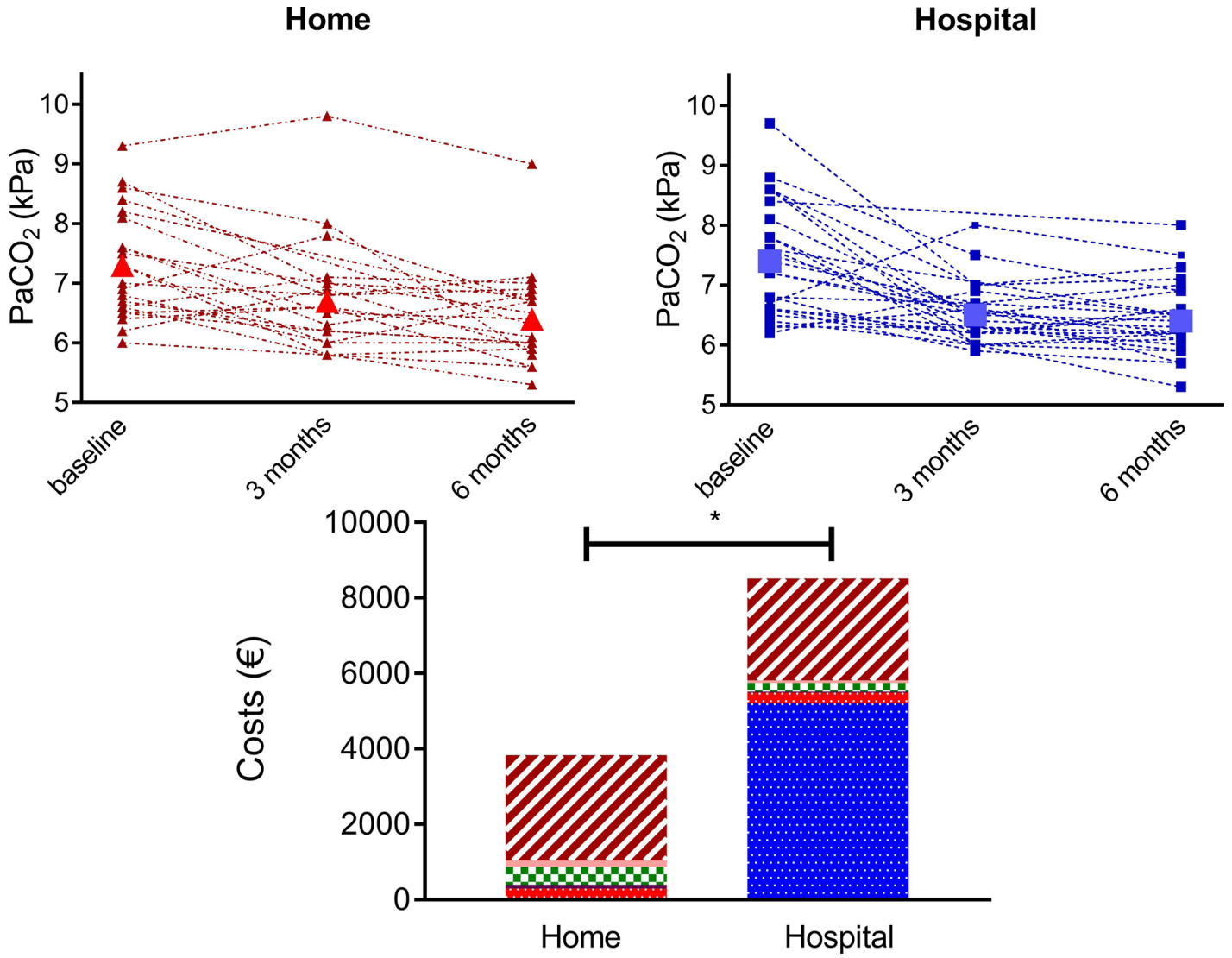

Points positifs
+
Vie réelle
Contexte
Ambu.
Points négatifs
-
Délai
Coût?
Education



Est-ce efficace?

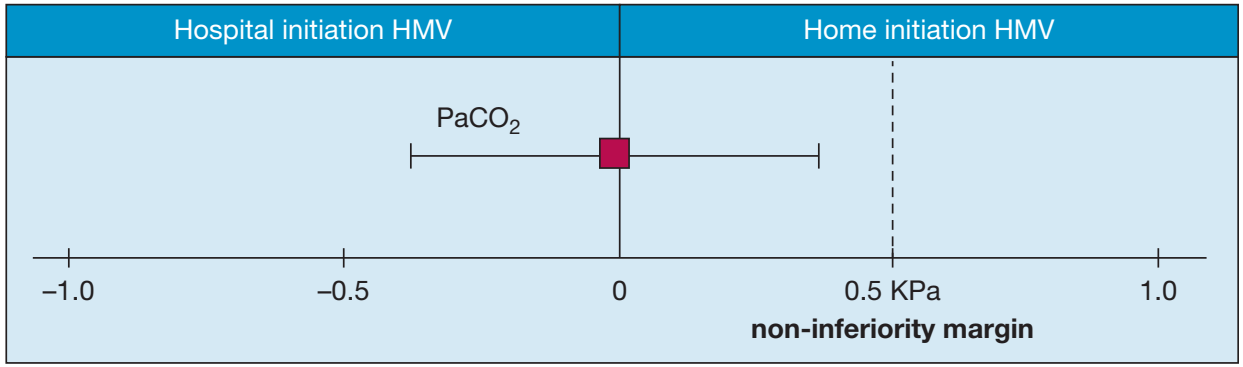
Pour quels patients?

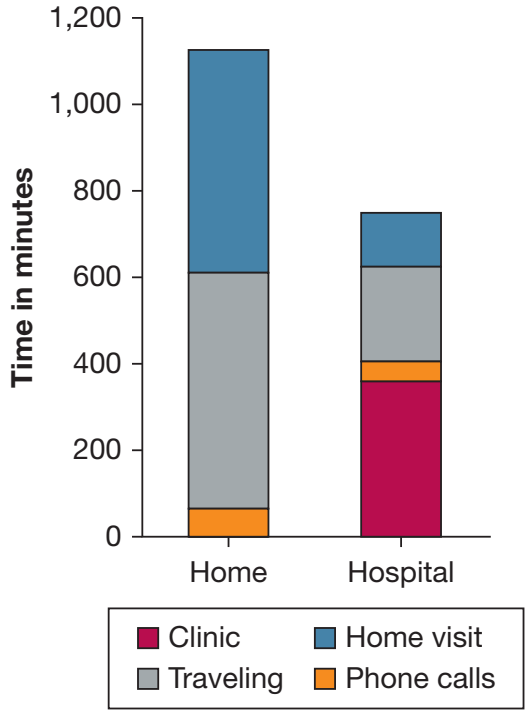
Patients atteints de BPCO



Duivermann ML. Thorax 2020

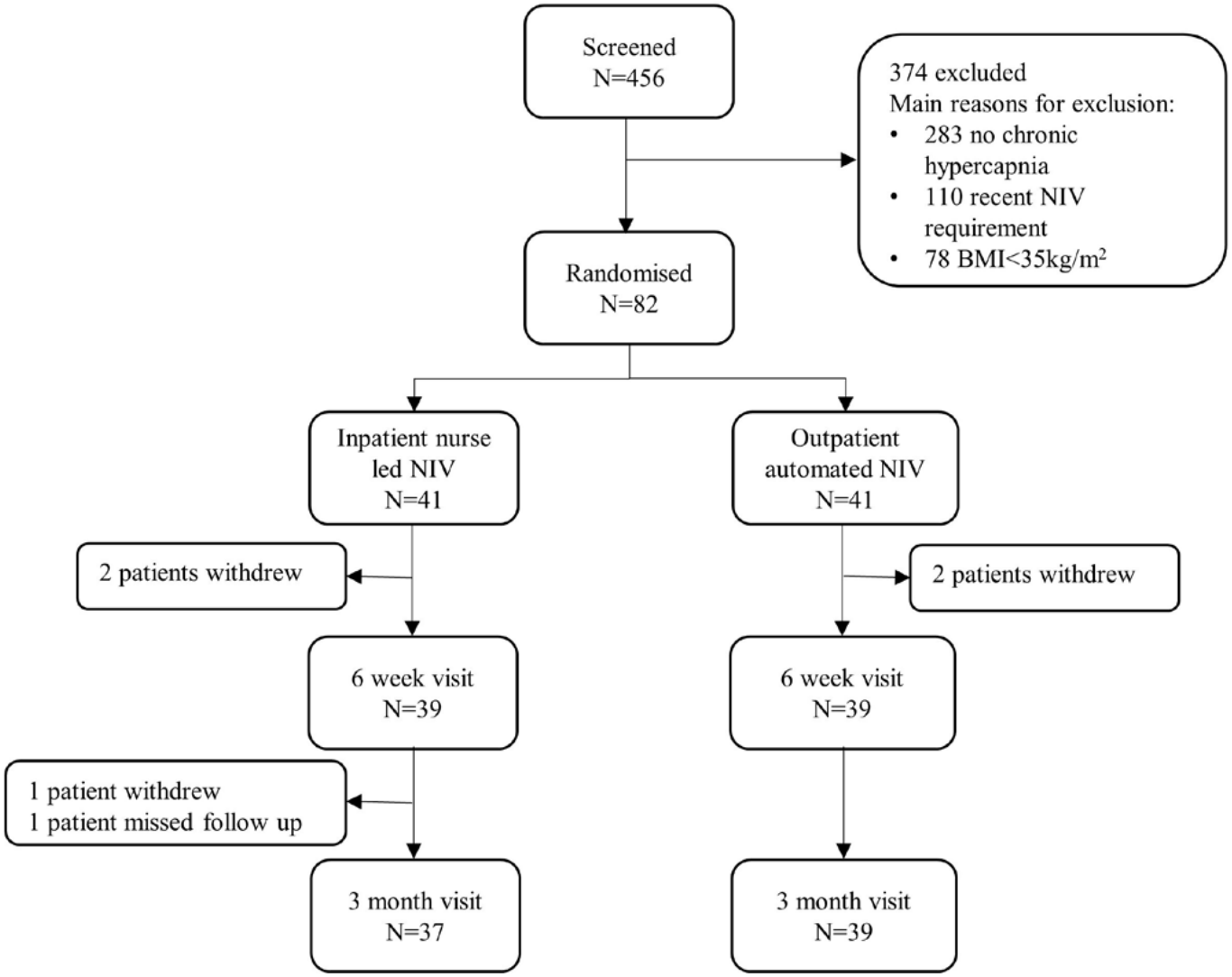
Patients atteints de SLA / restrictifs





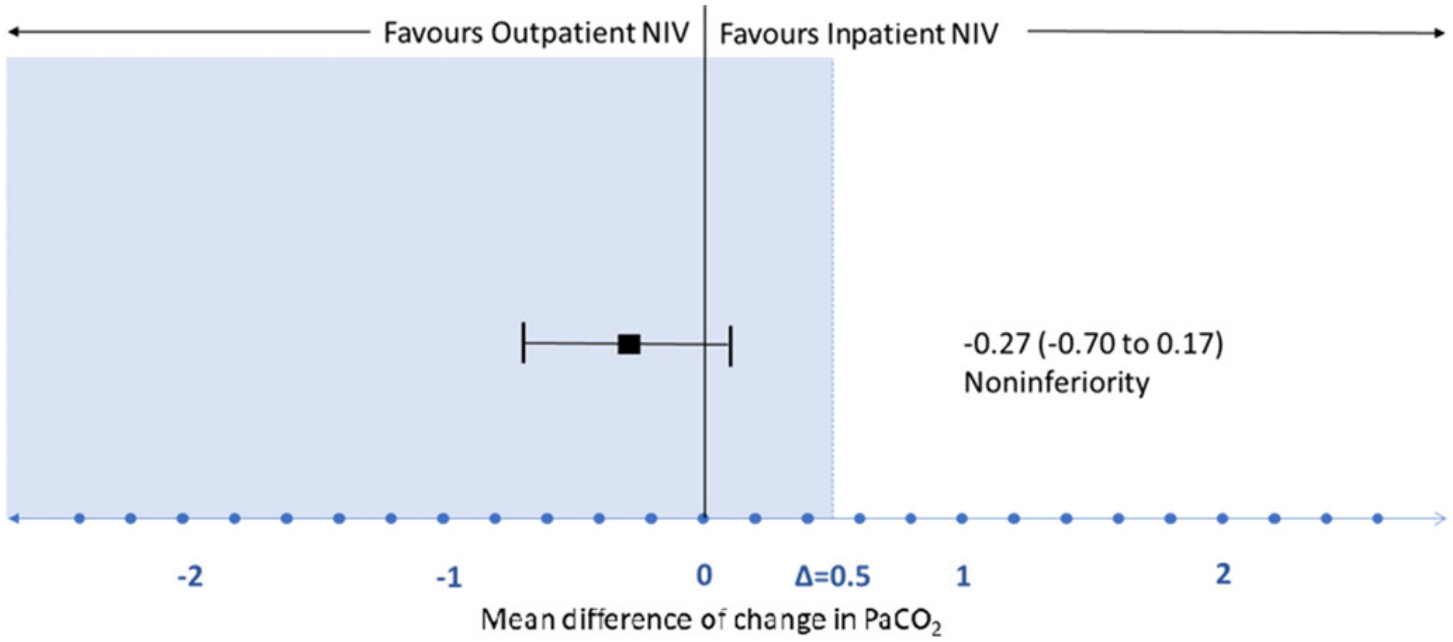
van den Biggelaar RJM. Chest 2020

Patients atteints de SOH



Murphy P.B Thorax 2022

Patients atteints de SOH



Murphy P.B Thorax 2022

Patients atteints de SOH

	France	
	Difference (outpatient–inpatient) (n=28)	**95% CI***
Fixed costs (£)	360.46	
OHS healthcare utilisation costs	317.32	55.95 to 578.69
Non-OHS healthcare utilisation costs	22.40	–13.36 to 58.17
Total costs (£)	700.18	435.85 to 964.51
Seemingly unrelated regression	Difference (n=28)	95% CI†
Total costs (£)	700.18	449.04 to 951.32
QALM	–0.57	–1.50 to 0.37
SRI summary score‡	–1.49	–10.96 to 7.97

Murphy P.B Thorax 2022

Adaptation à la typologie de patients

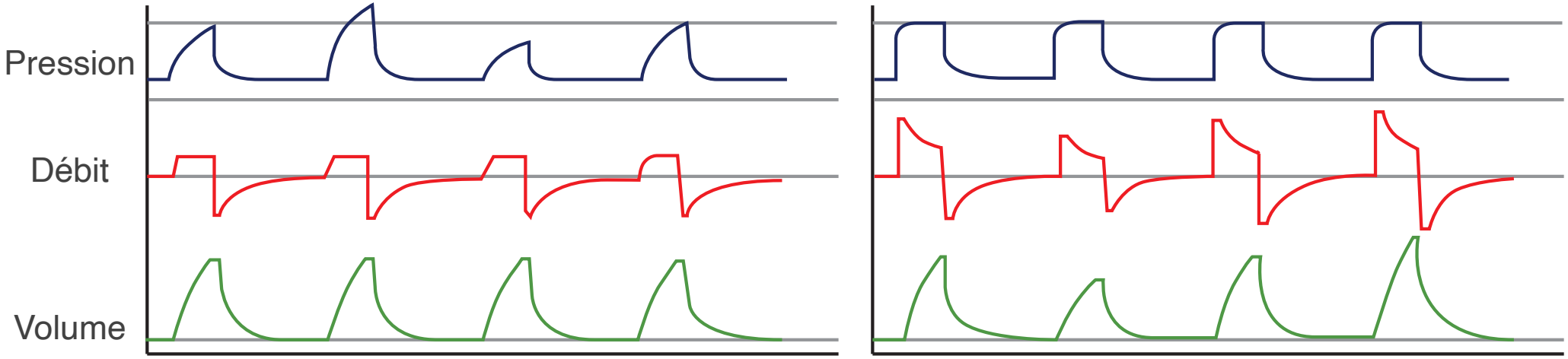
Adaptation à son organisation

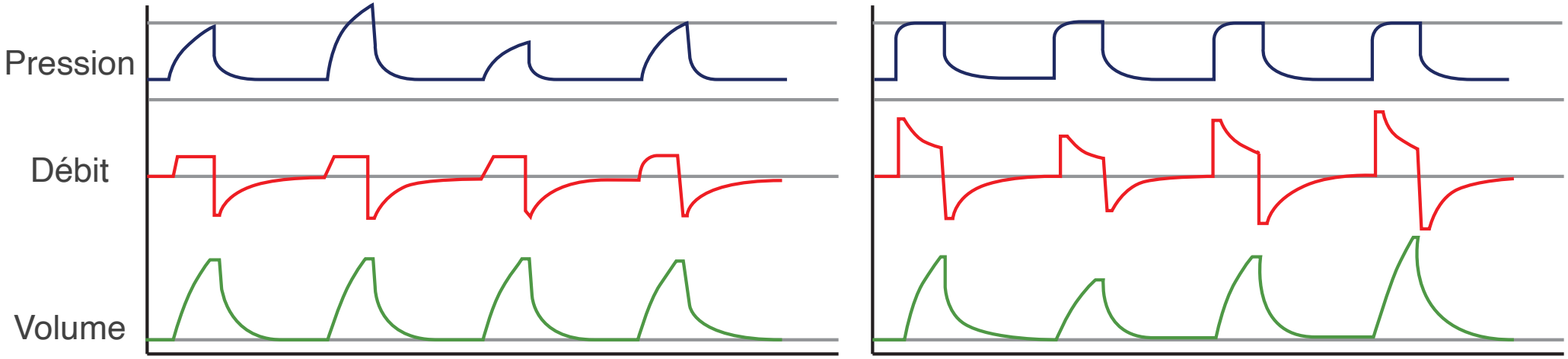
Accompagnement indispensable

Choix du mode ventilatoire

Les réglages

Choix de l’interface


Pression
Débit
Volume

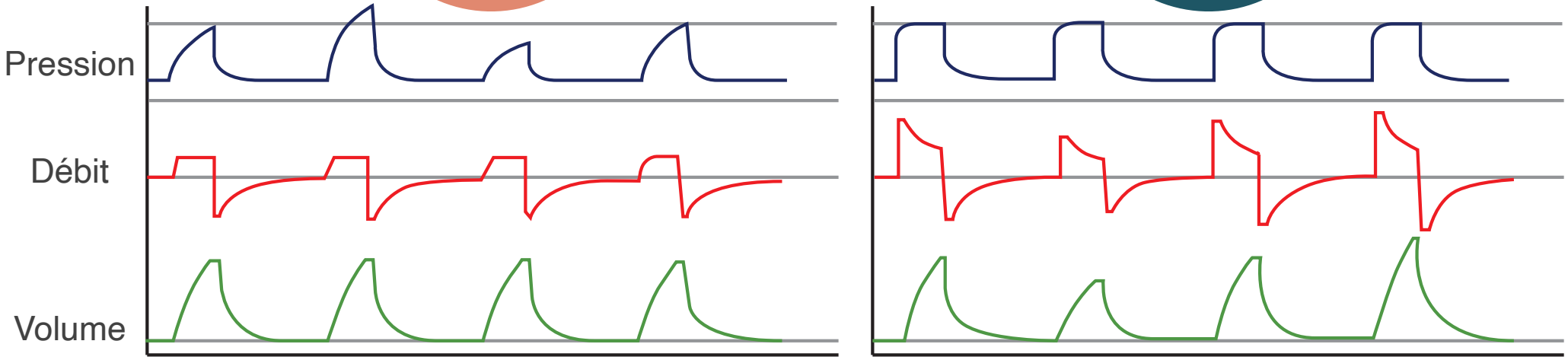


Volumétrique

Barométrique

Consigne en volume

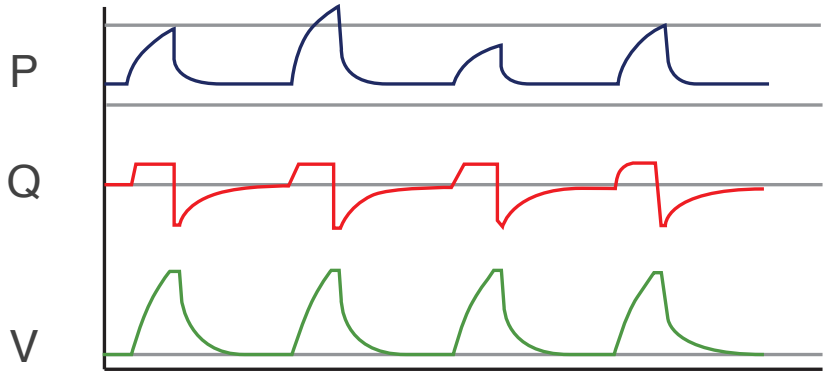
Consigne en pression



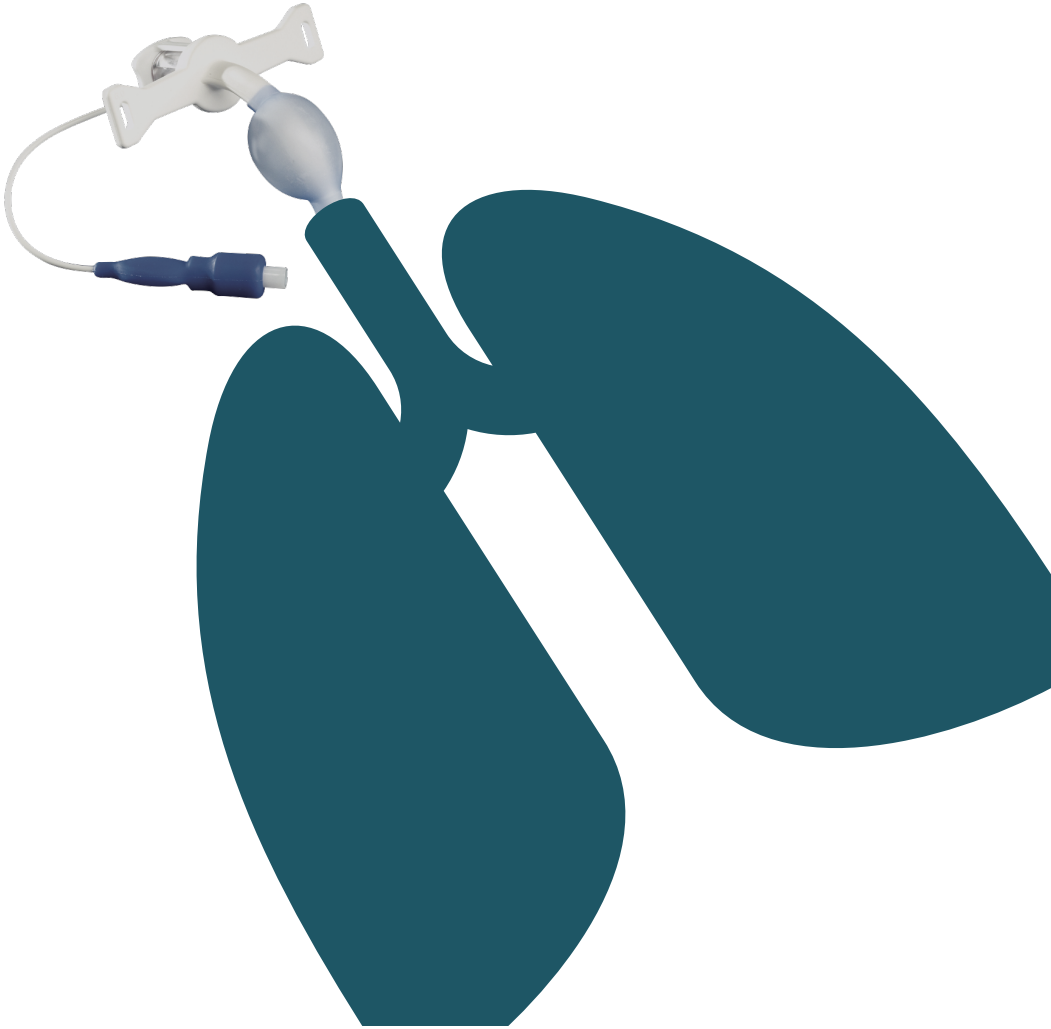
Volumétrique

Barométrique

- Un volume prédéfini sur une durée prédéfinie
  - Un débit prédéfini
- Principal facteur limitant
  - Les fuites

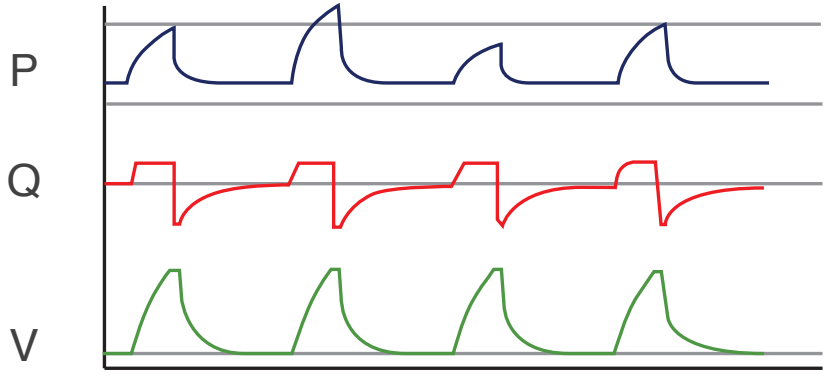


- Comment limiter les fuites?

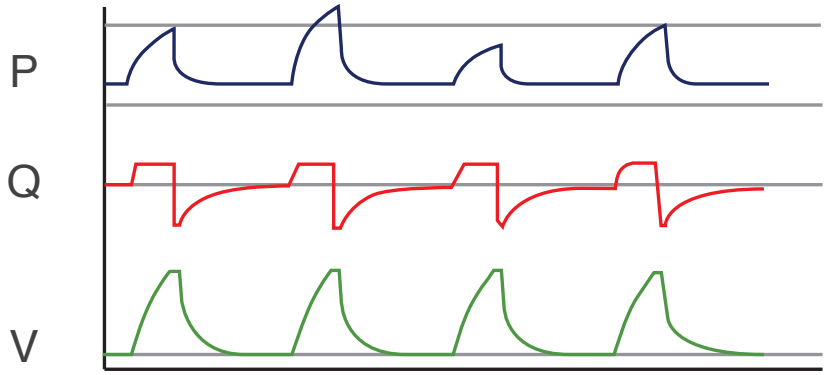


- Ventilation sans fuite

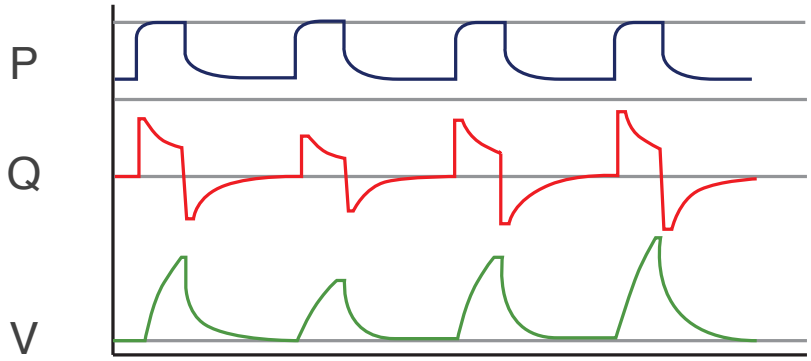
- Mode anecdotique en ventilation non invasive de domicile
  - Mauvaise compensation des fuites
  - Circuits plus encombrants
  - Moins d'interfaces disponibles

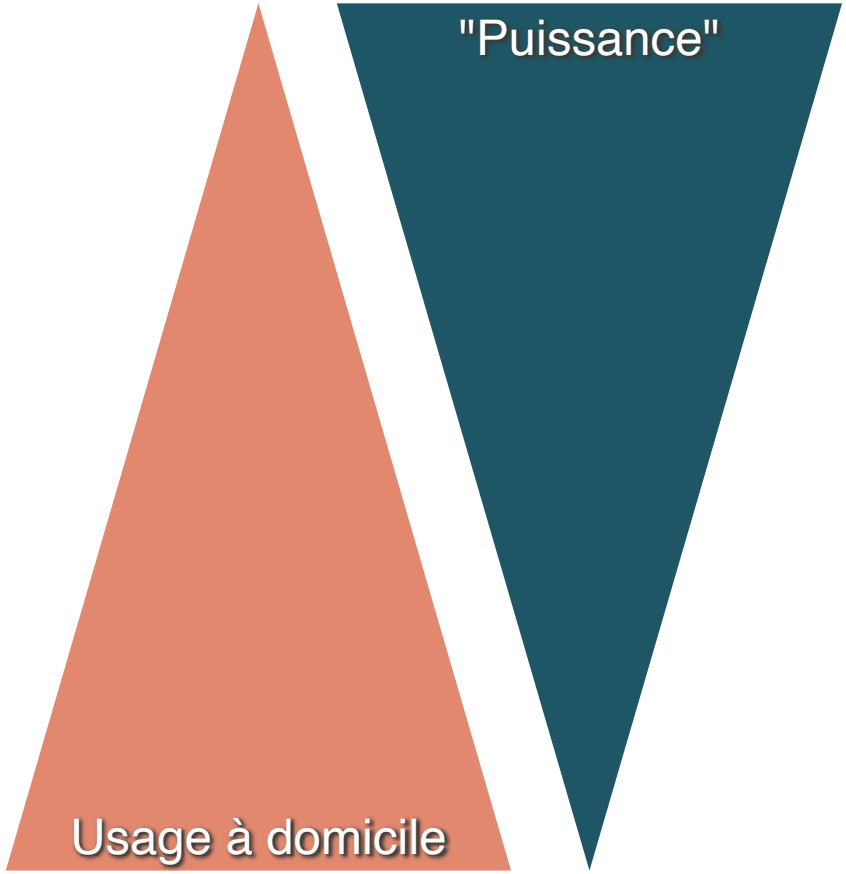


- Non
- Hormis en ventilation
  - Aiguë
  - Sur canule de trachéotomie



- Génération d'une pression cible:
  - Volume courant dépendant :
    - De la compliance du système respiratoire
  - Débit variable permettant de compenser les fuites





Ventilateurs réanimation

V60

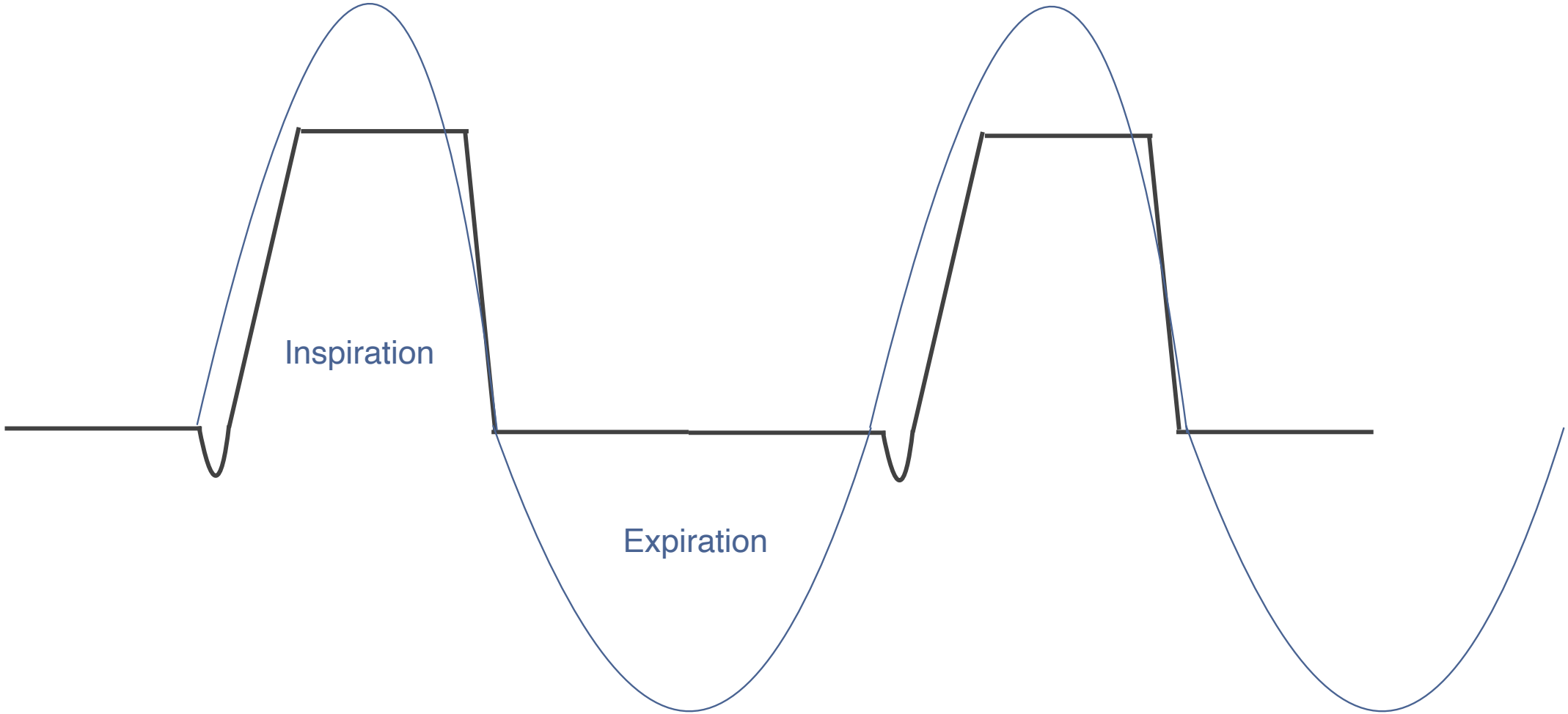
Astral / Vivo 60 / Trilogy / Eove / Vent 40

Stellar / A40 / Vivo 40 / Vent 40

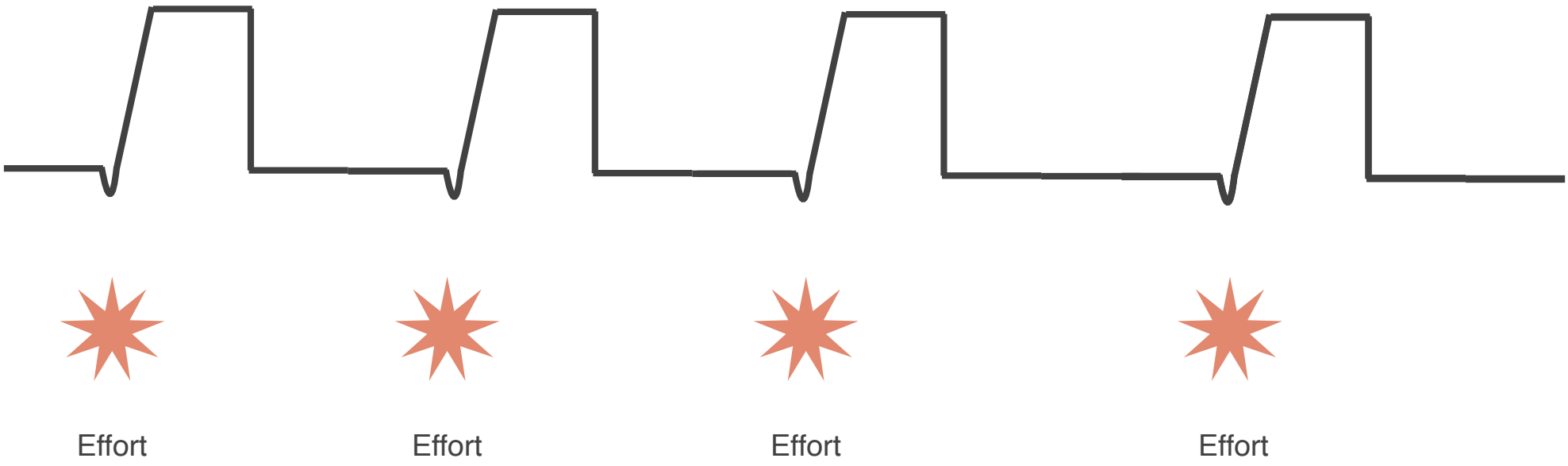
Dreamstation / Lumis / Vivo 30 / Vent 30

PPC

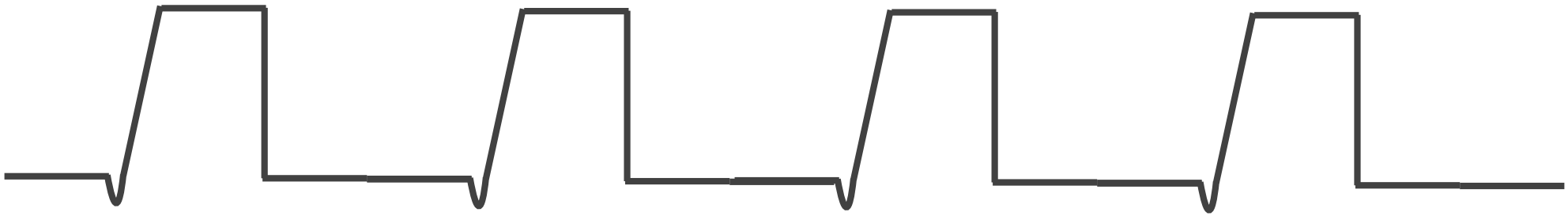
- Fermé / sans fuite
  - un tuyau inspiratoire et un expiratoire
  - pas de fuite sur le masque
- Ouvert / à fuite
  - un seul tuyau
  - fuites intentionnelles sur le masque


Inspiration
Expiration

Mode spontané



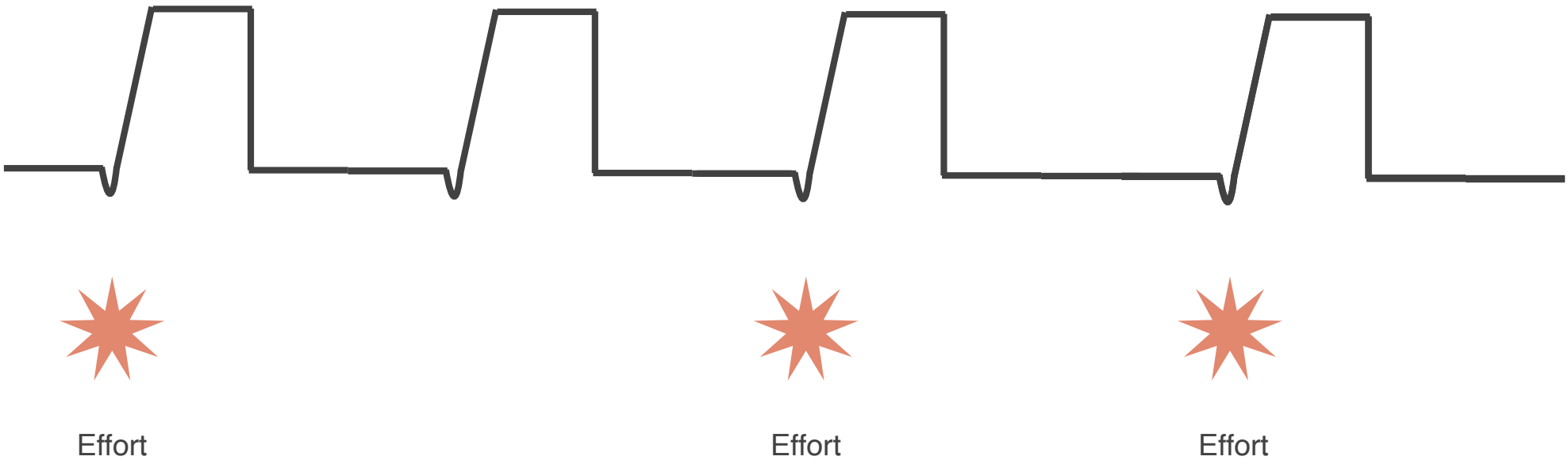
Mode
Timé

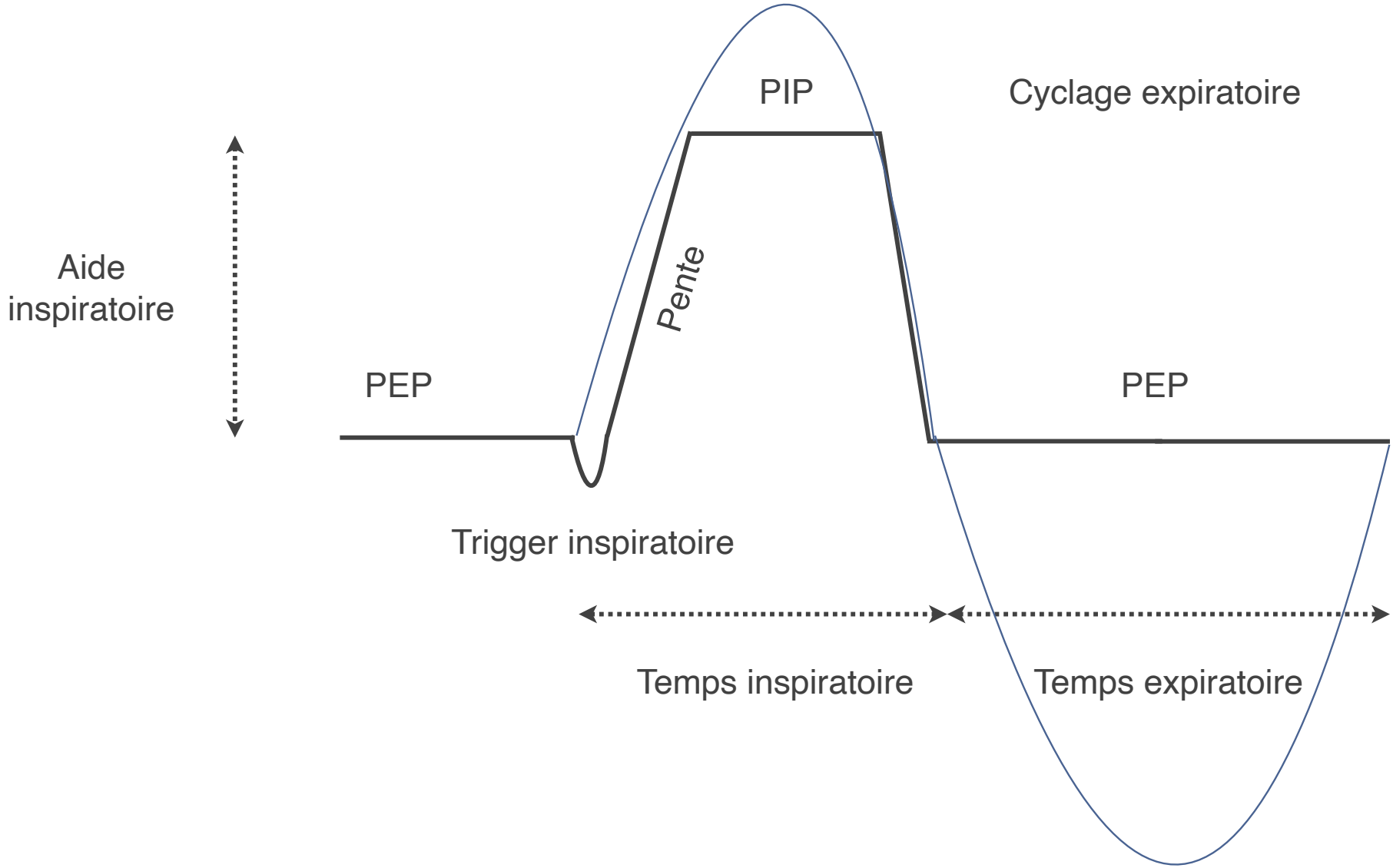


Effort

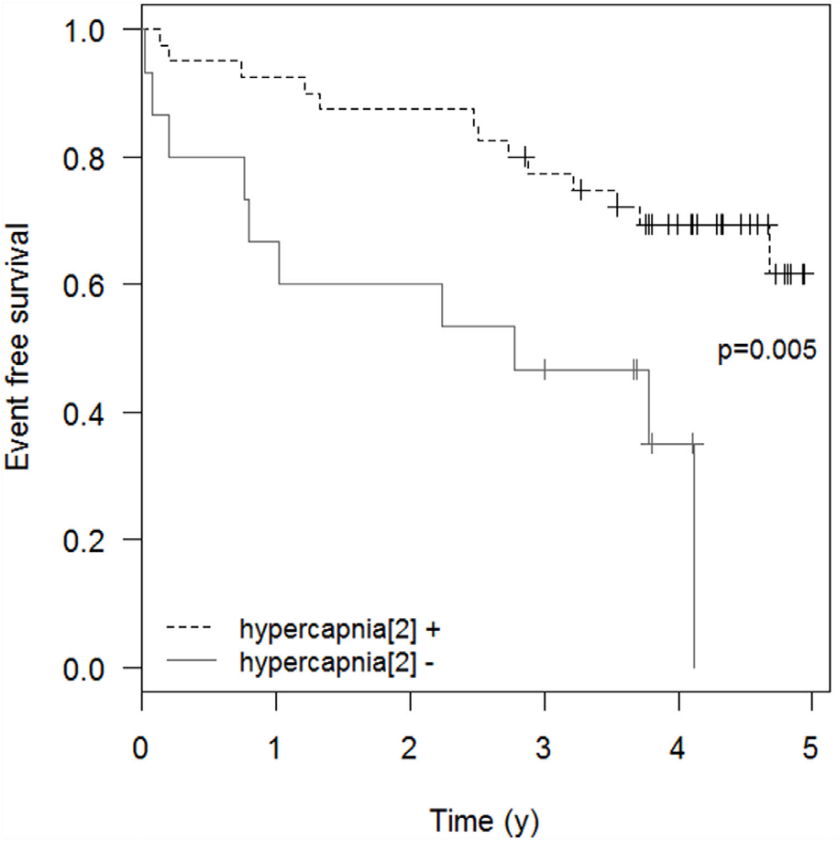
Effort

Mode spontané timé

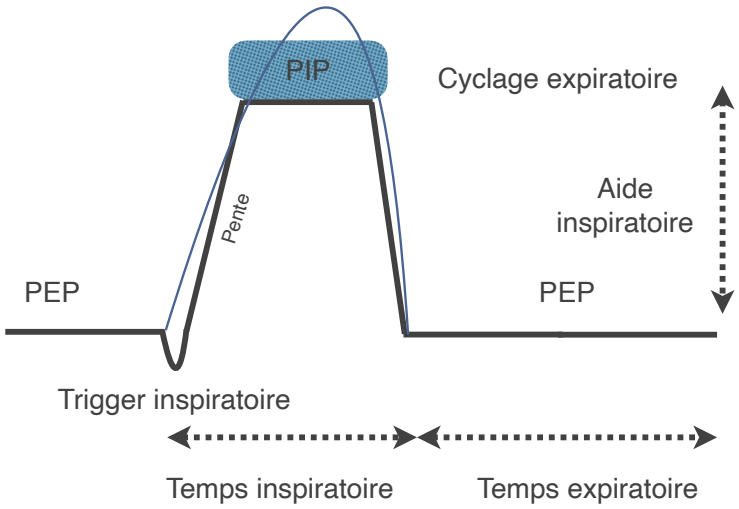



PIP
Cyclage expiratoire
Aide
inspiratoire
Pente
PEP
PEP
Trigger inspiratoire
Temps inspiratoire
Temps expiratoire

- Le choix de la pression inspiratoire positive
  - Doit permettre un contrôle de l'hypoventilation

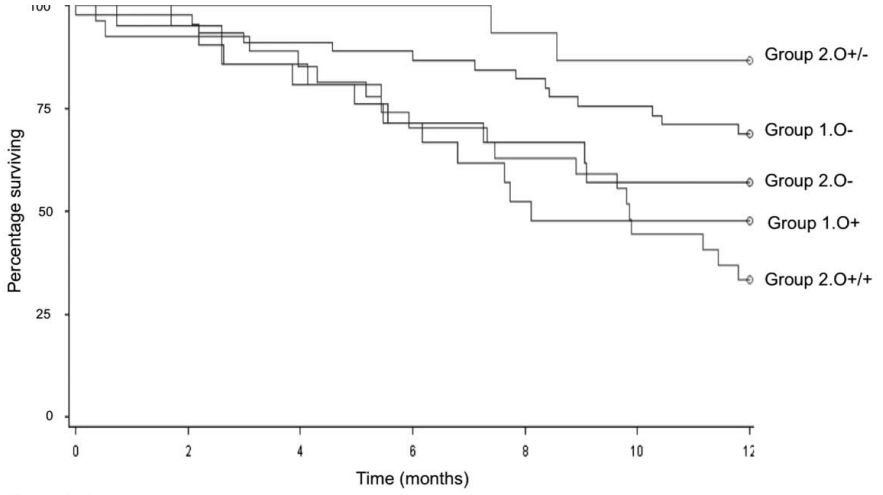


Ogna A. Frontiers in Medicine 2016

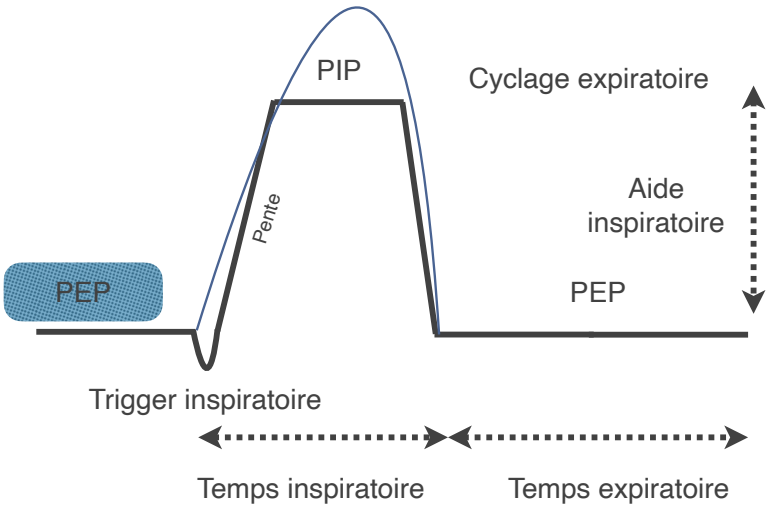


- Pression inspiratoire positive
  - PIP-PEP = Aide inspiratoire
  - Déterminant essentiel du volume courant
  - Selon la capnie du patient
  - Selon la mécanique du système respiratoire
  - Selon les objectifs que l'on se fixe
  - Selon la tolérance / les fuites

- Le choix de la pression expiratoire positive
  - Doit maintenir les voies aériennes supérieurs ouvertes

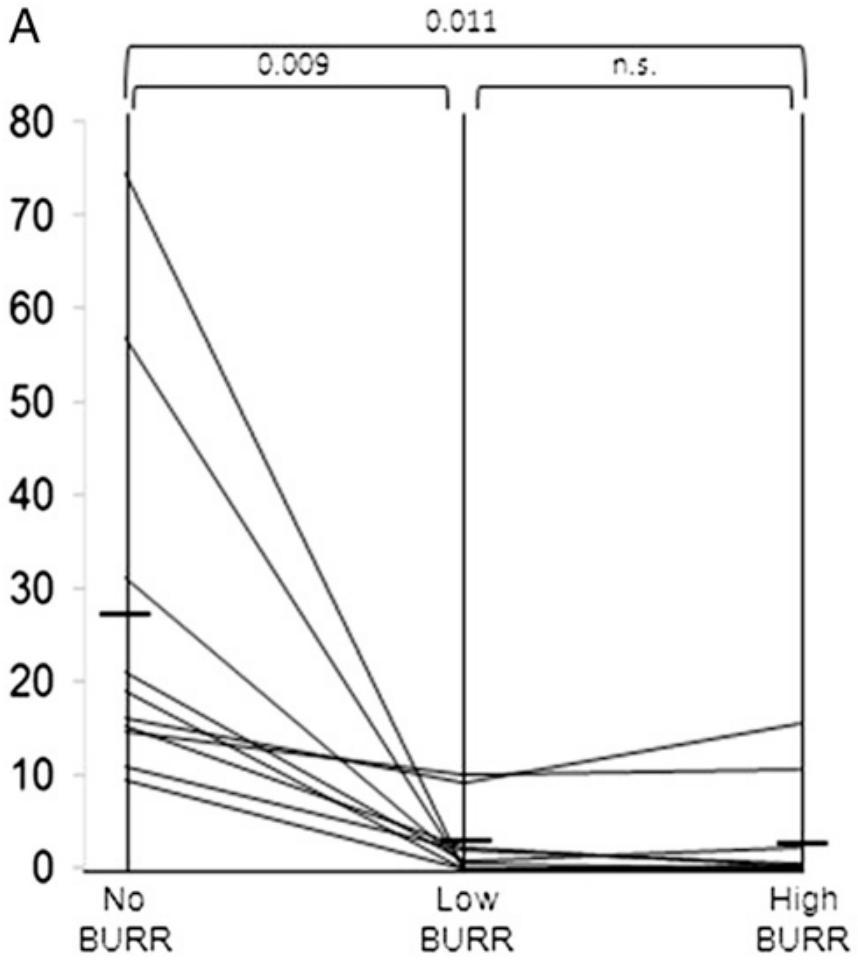


Georges M. J. Neurol. Neuros. Psy 2015

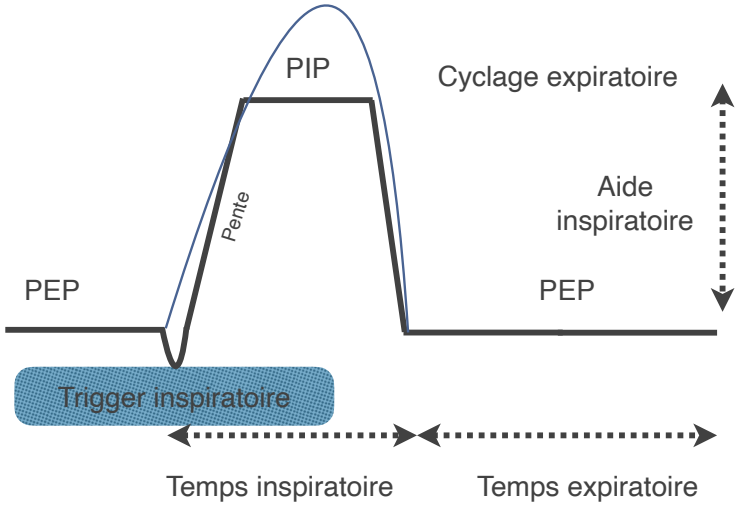


- Choix de PEP
  - PEP intrinsèque du patient
  - Obstruction des voies aériennes supérieures
  - Niveau d'aide inspiratoire désiré
- Classiquement 4cmH2O

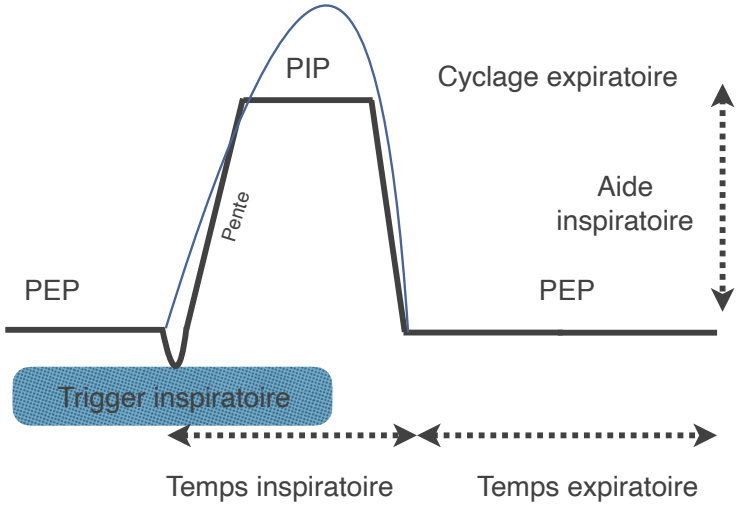
- Le choix de la fréquence respiratoire minimale
  - « - 2 par rapport à la fréquence respiratoire spontanée »



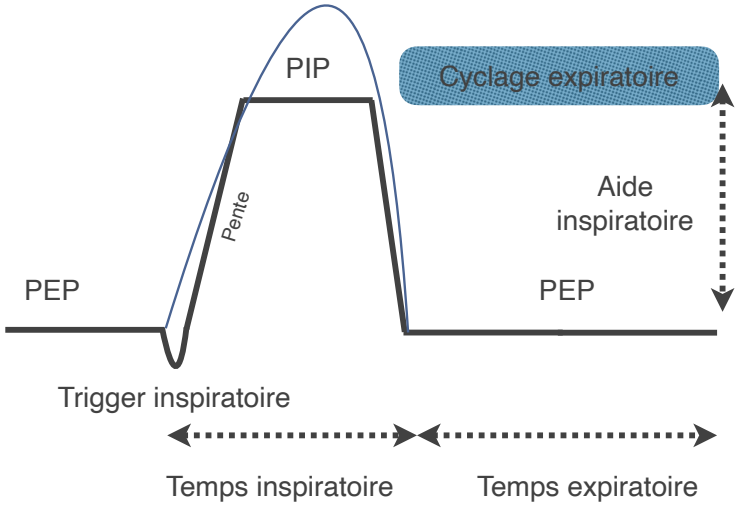
Contal O. Chest 2013



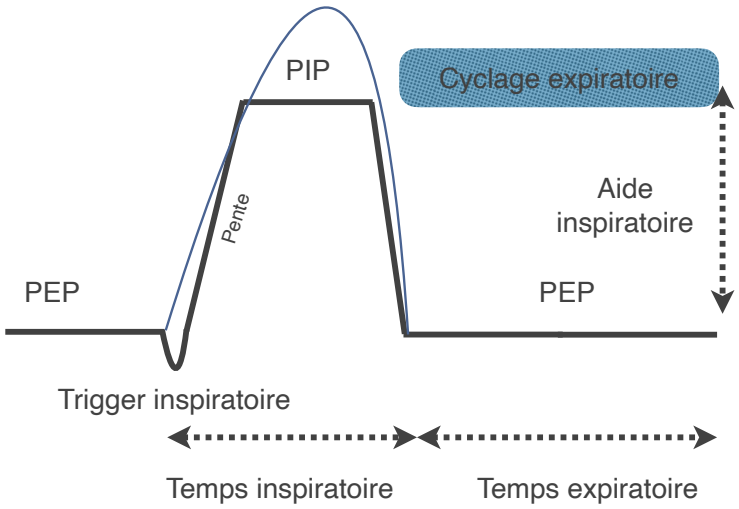
- Trigger inspiratoire
  - Déclenchement de la pressurisation
  - Limiter l'effort du patient
  - Sans que la machine s'emballe
- Nomenclatures « constructeurs »



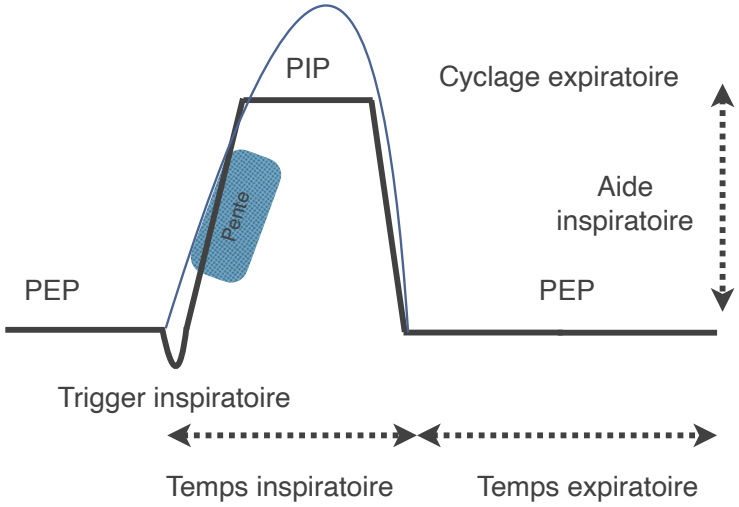
	Trigger Inspiratoire
Lumis et Stellar	Très haute à très faible
Dream Station	Automatique
Prisma 30 ST	1 – 3 ou automatique
A40	1 – 9 l/min ou automatique
Vendom 30/40	Sensible Moyen Dur
Prisma Vent 40/50	1 - 8
Astral	Très haute à très basse
Trilogy 100 /200	1 – 9 l/min ou automatique
Vivo 50/60	1 - 9
EO 150	1 – 5 et « pseudo-auto »



- Cyclage
  - Indique la fin de la pressurisation
  - Déterminant important de la durée de l'expiration
  - Précoce pour les pathologies obstructives
- Tardif pour les pathologies restrictives



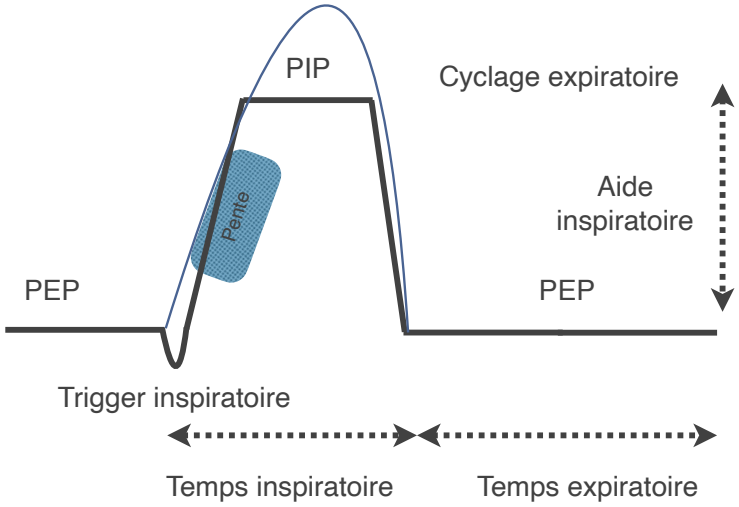
	Cyclage expiratoire
Lumis et Stellar	Très haute à très faible
Dream Station	Automatique
Prisma 30 ST	1 – 3 (90%-70%-50%)
A40	90 à 10% ou automatique
Vendom 30/40	95 à 5%
Prisma Vent 40/50	75%-50%-25%
Astral	90 à 5%
Trilogy 100 /200	90 à 10% ou automatique
Vivo 50/60	1 - 9
EO 150	90 à 10%



Notre route est droite, mais la pente est forte

Jean-Pierre Raffarin

5 - Choisir ses réglages - Le choix de la pente



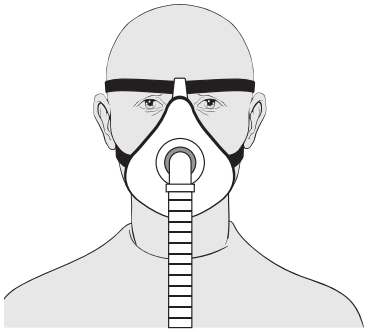
	Pente inspiratoire
Lumis et Stellar	Min à 900 ms
Dream Station	1 – 6
Prisma 30 ST	0 – 3 (10%-20%-40%-60%)
A40	1 – 6 (100 – 600 ms)
Vendom 30/40	1 - 4
Prisma Vent 40/50	1 – 3 (200-400-700 ms)
Astral	Min à 900 ms
Trilogy 100 /200	1 – 6 (100 – 600 ms)
Vivo 50/60	1 - 9
EO 150	1 - 5

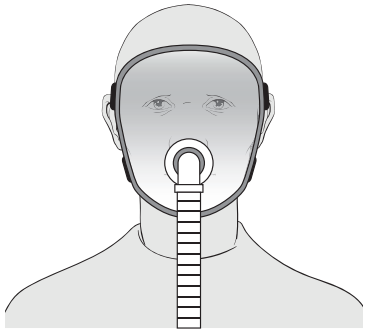
Gold-standard

Avec masques avec fuites intentionelles

Bonne compensation des fuites

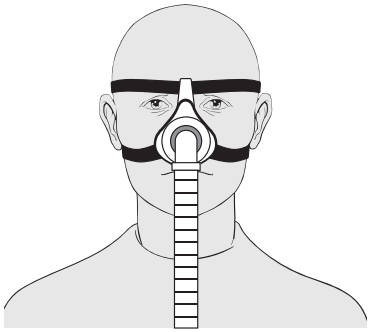
Naso-buccaux

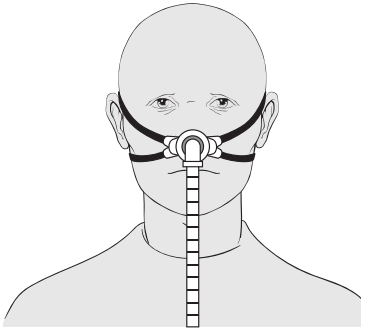




Intégraux

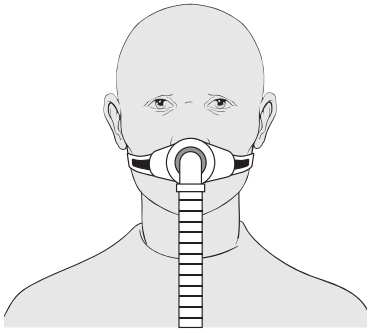
Nasaux

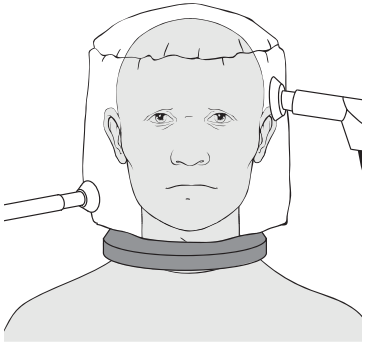




A coussinets

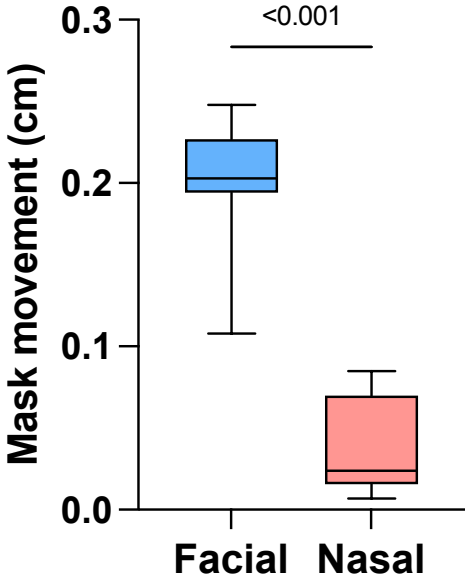
Oraux

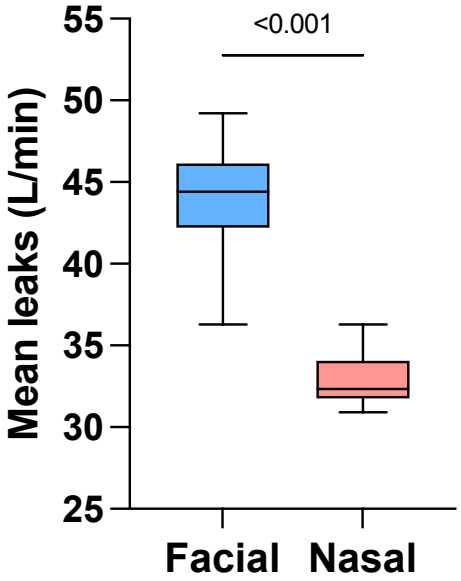


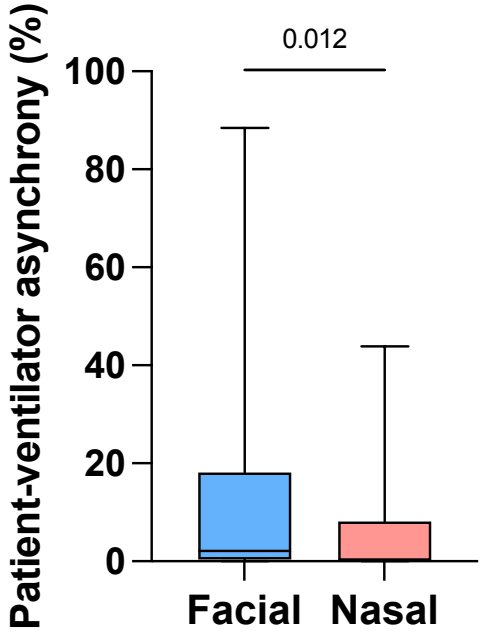


Casque

Le type de masque n'est pas neutre







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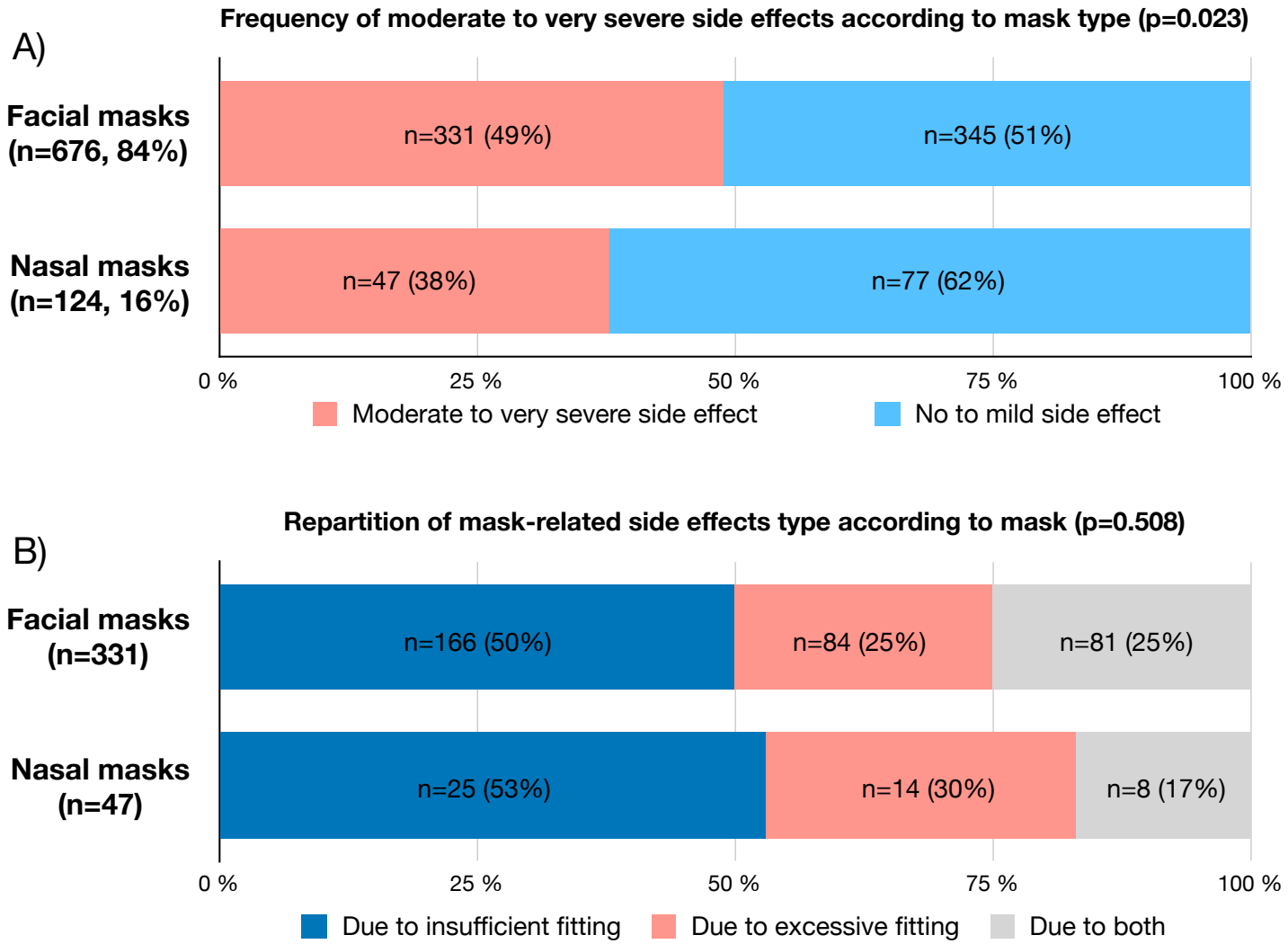

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Merci de votre attention

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