



RESPIRATORY
Continuous Positive Airway Pressure

Boussignac CPAP

Breathe easy,
recover effectively

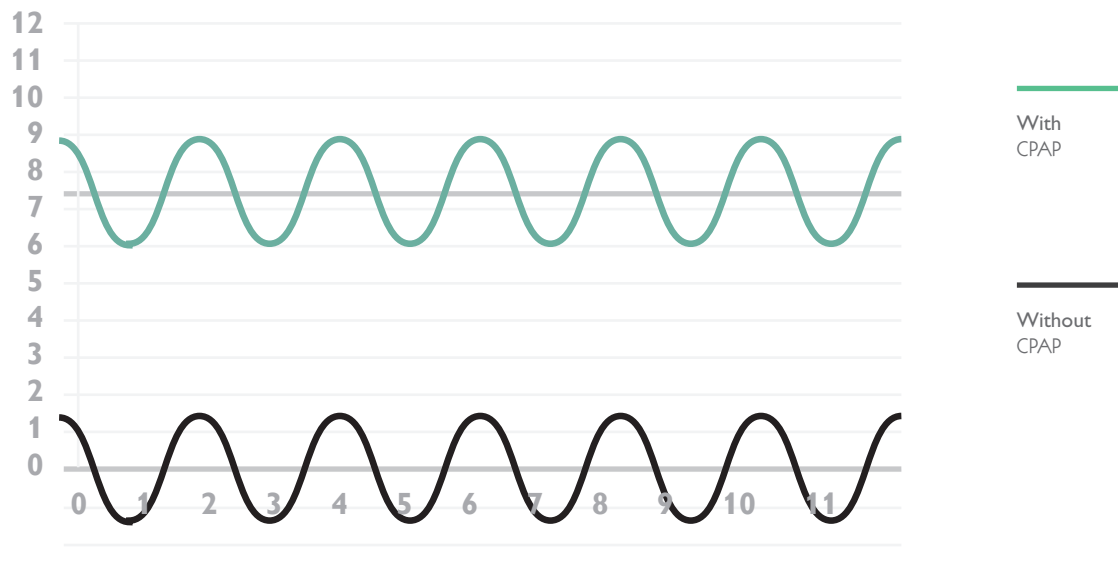
Clinical performance Studies



Value Life

What is CPAP ?^(1, 2)

Continuous Positive Airway Pressure, (CPAP), is the **conservation of positive pressure** during the complete respiratory cycle, (inspiration and expiration), while breathing spontaneously.



PEEP ≠ CPAP

CPAP is not the same as Positive End Expiratory Pressure or PEEP.

Positive End Expiratory Pressure, (PEEP), only provides positive pressure at the end of expiration.

The best way to determine if a device really provides CPAP is to get a pressure manometer in-line. Having a pressure manometer is essential for determining pressure administered and patient safety.

CPAP raises inspiratory pressure above atmospheric pressures and then applies PEEP to exhalation.

CPAP **helps prevent** the need for **mechanical ventilation** and **intubation** by delivering positive end expiratory pressure (PEEP) while decreasing the incidence of barotrauma and volotrauma. It also **avoids complications** from intubation-related sedation or paralysis, in addition to such unexpected difficulties as hypoxia, lethal dysrhythmia, tissue trauma, aspiration and undetected oesophageal intubation.

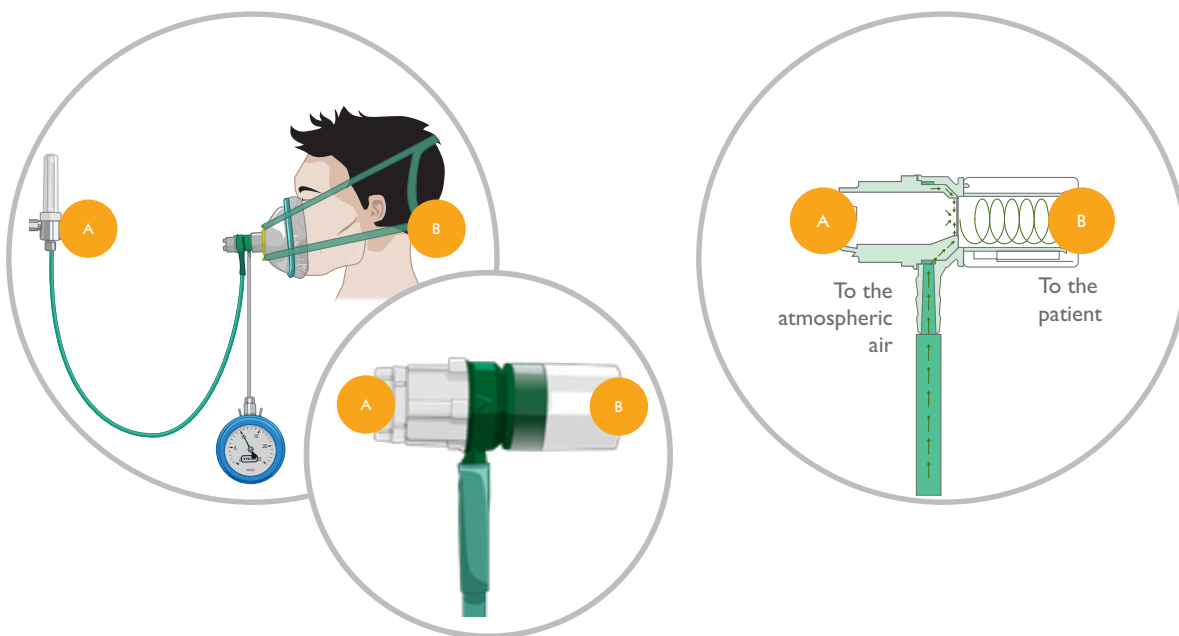
CPAP produces an increase in tidal volume with a subsequent reduction in the work of breathing.

What is **Boussignac CPAP** ?

A unique mechanism of action

Boussignac CPAP is a Non Invasive Ventilation device Generating Continuous Positive Airway Pressure (CPAP).

The system uses the incoming flow of oxygen to generate a turbulent virtual pressure valve in the open expiratory side of the mask⁽³⁾ by injecting high speed gas into a cylinder through angled side chanel. ⁽⁴⁾

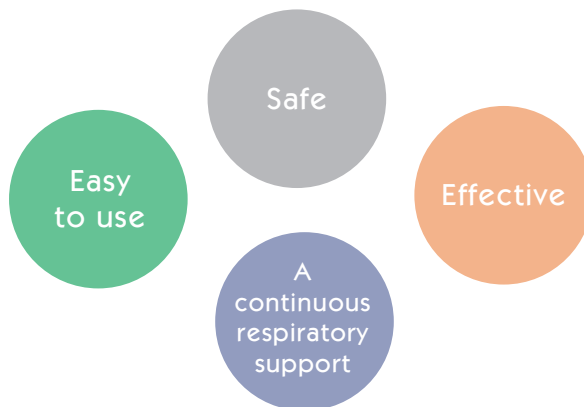


Boussignac CPAP has been specifically designed with an open system preventing any barotrauma and volotrauma.

Pressure in the virtual valve directly depends on the flow rate of gas. When you increase the flow rate, you increase the pressure. When you decrease the flow rate, you decrease the pressure. ⁽⁴⁾

Boussignac CPAP is titrated by adjusting the oxygen flowmeter, and a side port can be connected to a manometer to measure the pressure generated. ⁽⁵⁾

Boussignac CPAP is...



Easy To Use

- Light ⁽¹¹⁾
- User friendly

Safe

- Open System: the patient can breathe atmospheric air and constantly breathe required volume of gas.
- No risk of misconnection
- No mechanical parts
- No risk of barotrauma/volutrauma
- No risk of hypoventilation

Effective

- Decreases the work of breathing
- Delta P (Difference between Inspiration - Expiration) close to the spontaneous ventilation
- better ratio of delivered FiO_2 (72-100%) ⁽⁴⁾

A continuous respiratory support

- **Boussignac** CPAP is a lightweight portable device, effective and compatible both in extra-hospital phase and hospital phase.

Clinical benefits

What does **Boussignac** CPAP bring to clinical practice?

Numerous clinical studies highlight, among other things, a better alveolar recruitment, a rapid correction of hypoxemia, a decrease in respiratory work and a decrease in therapeutic escalation.

Boussignac CPAP **HAS BEEN USED SUCCESSFULLY IN HOSPITAL AND PREHOSPITAL SETTINGS**

Continuous care, without interruption, without risk taking



“ CPAP should be the first line of respiratory therapy in carefully selected patients based on local protocols⁽²⁾ ”

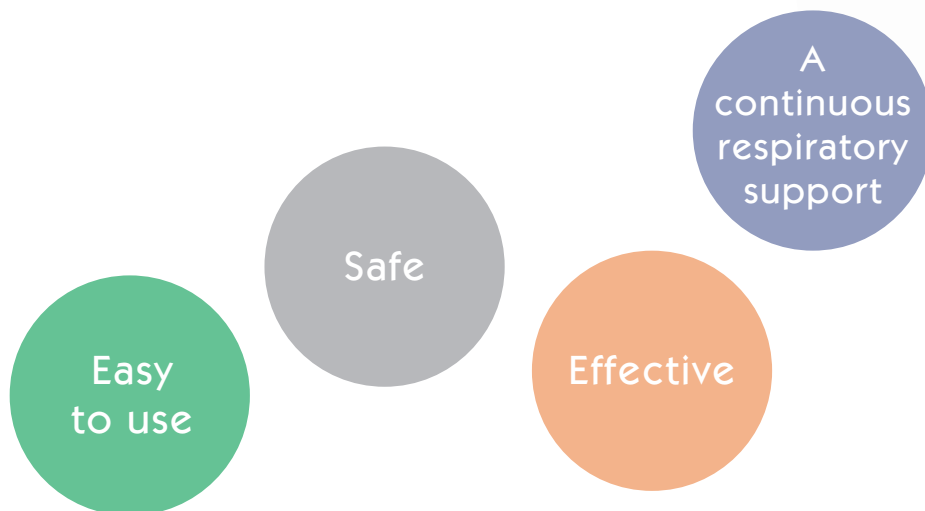
Discover below the indications of the CPAP Boussignac according to your clinical practice.

What are the indications for **Boussignac** CPAP ?

Pre hospital & intra hospital emergency treatment

Early NIV appears to be a safe and feasible therapy that results in: ⁽⁹⁾

- faster improvement of physiological parameters
- decreased need for intubation



Easy To Use

Boussignac CPAP allows easy use in extra hospital without heavy equipment ⁽⁴⁾

Safe

Boussignac CPAP - and its open system allows a secure use, accessible to all health care workers: nurses, paramedics, doctors ⁽¹⁰⁾

Effective

Boussignac CPAP rapidly and significantly improves physiological parameters ⁽⁹⁾, even during transport ⁽⁴⁾

- Reduction of mortality in APE ⁽¹²⁾ and other acute respiratory failures ⁽¹³⁾
- Reduction of the need for intubation

A continuous respiratory support

- **Boussignac** CPAP is a lightweight portable device in critical situations, whatever the environment ⁽¹⁴⁾ and significantly decreases the use of intubation ⁽⁹⁾
- **Boussignac** CPAP has already proven its efficiency in hospital treatments (bronchoscopy, ICU) ⁽²¹⁾

• Acute Pulmonary Edema (APE)⁽⁸⁾

Several studies indicate that early administration of CPAP in ACPE reduces the number of endotracheal intubations and shortens intensive care unit (ICU), coronary care unit (CCU) and hospital length of stay.⁽¹⁰⁾

Challenges

“ACPE is the 1st cause of acute respiratory distress worldwide.
Conventional treatment is not optimal to reduce the respiratory distress”

Solutions

“CPAP improves gas exchange, a decrease need for intubation and a decrease risk of mortality”
“CPAP has been assessed as effective as BiPAP”

• Dyspnoea and severe respiratory distress^{(15) (16) (17)}

Challenges

“Acute dyspnoea is one of the most frequent causes of out of hospital EMS (Emergency Medical Service) activation”
“Dyspnoea is challenging due to its variety of origins (COPD, APE, pneumonia etc.)”
“Out-of Hospital providers have few options for treating severe respiratory distress”

Solutions

1st recommended treatment in case of haemodynamic compromise and respiratory distress is NIV.
CPAP reduces the risk of in-hospital mortality and need for invasive ventilation compared to standard therapy.
It is highly recommended to administer effective therapy as early as possible.
NIV reduces mortality by 50% and shortens length of stay.

• Acute Severe Asthma⁽¹⁸⁾

Challenges

“Severe Asthma generates dynamic hyperinflation creating dyspnoea and increase of work of breathing

Solutions

NIV decreases arterial CO₂ & reduces the work of breathing.
NIV is a safe, effective and well tolerated treatment with a low need for subsequent intubation.

• Drowning^{(2) (19)}

Challenges

“The major clinical consequence is hypoxemia [...] persisting after restoration of ventilation and circulation.”
“Submersion injuries are pulmonary injuries associated with atelectasis and altered surface tension in the alveoli. This sets up a ventilation perfusion mismatch leading to hypoxemia.”

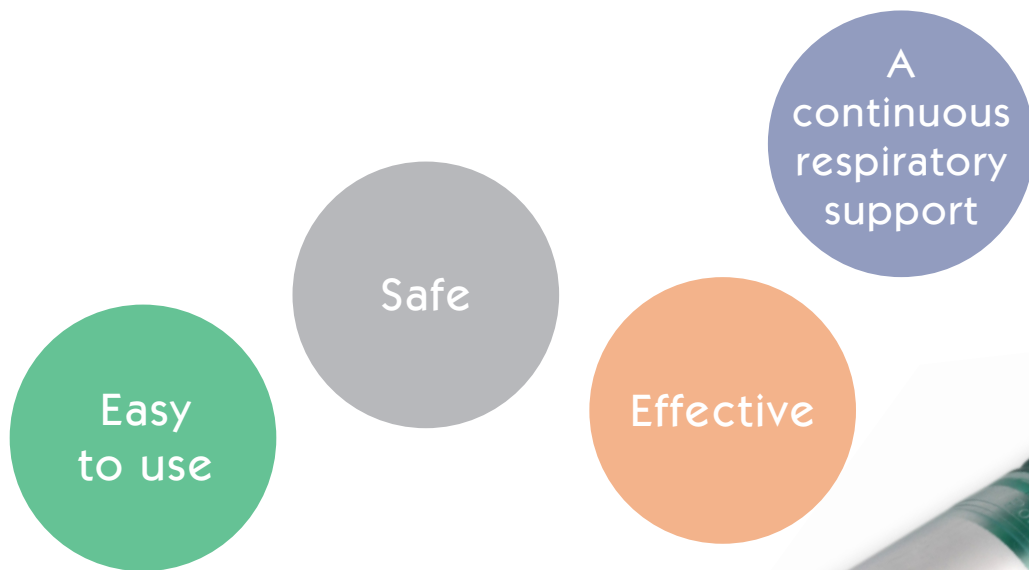
Solutions

The most effective treatment in treating hypoxemia is the application of CPAP by face mask or tracheal intubation.

Intra hospital treatment

Boussignac CPAP significantly reduces the risk of intubation as well as the mortality rate ⁽⁶⁾

The average cost to hospitals to treat a single patient's ventilator-acquired pneumonia (VAP) is \$56,000. CPAP helps hospital avoid costly VAP, a common and significant complication of intubation. ⁽²⁾



Easy To Use

- **Boussignac** CPAP has a simple interface accepting standard nebulizers and the port of the FiO₂ ring (code 5566).

Safe

- **Boussignac** CPAP and its open system allows a secure use and a misconnection proof system.

Effective

- **Boussignac** CPAP significantly improves oxygenation and prevents the risk of atelectasis
- Decreased rates of ventilator-associated pneumonia with NIV ^(5, 18)

A continuous respiratory support

- **Boussignac** CPAP is a lightweight portable device, effective and compatible both for extra-hospital treatment and in-hospital treatment.
- Compatible with other techniques without interruption of treatment: Mucus suctioning, fibroscopy.
- Open system allowing to help the patient to drink, to eat, and allowing easy mucus suctioning. ⁽²⁰⁾

• Overweight patient⁽⁵⁾

Challenges

“Morbid obesity has emerged as a serious public health threat, affecting more than 300 million people”.

“Morbid obesity is associated with reduced FRC (Functional Residual Capacity), altered ventilation, perfusion mismatch, shunting, atelectasis, sleep apnea leading to postoperative hypoxemia”.

“General anaesthesia + surgery have a major impact on respiratory physiology postoperatively caused.

Solutions

Boussignac CPAP significantly improves postoperative pulmonary function in morbidly obese patients.

Boussignac CPAP significantly improves the PaO₂ in morbidly obese patients.

Boussignac CPAP improves the ventilation/perfusion matching.

• Procedural^(20, 21, 22)

Challenges

Fiberoptic Bronchoscopy (FOB) can worsen oxygenation and clinical status in severely hypoxemic patients.

Bronchoscopy is associated with temporary alterations in gas exchange, hemodynamics and lung mechanics.

Performing endoscopic procedures in spontaneously breathing patients with severe hypoxia causes worsening of hypoxia, leading to intubation, and even arrhythmias and hemodynamic instability.

Fibrobronchoscopy is contraindicated in non-intubated spontaneously breathing patients with severe hypoxia.

Solutions

Boussignac CPAP allows better tolerance of FOB (fiberoptic bronchoscopy) than oxygen supplementation in terms of oxygenation and clinical outcome.

Boussignac CPAP minimizes alteration of gas exchange and prevents subsequent respiratory failure.

Boussignac CPAP precludes any unforeseen risk of excessive airway pressure and prevents disconnection or leaks during the FOB.

• Weaning^(23, 24)

Challenges

Ventilatory

The post extubation period is a potentially hazardous time due to the risks of airway obstruction, narcosis, residual anaesthesia, and residual neuromuscular blockade in obese patients.

Bariatric patients lose significant lung volume after extubation. The use of CPAP in the recovery room appears to be too late to restore lung volumes.⁽²³⁾

Tracheostomy

Patients are often awake and can be mobilized, due to the large and heavy tubing of the systems. The forces exerted on the Tracheostomy Tube (TT) by the heavy tubing can cause tracheal wall damage.

When the patient is disconnected from the ventilator, adequate humidification becomes very important as dried mucus can easily obstruct a TT.

Solutions

Ventilatory

Boussignac CPAP reduces the loss of lung volume when applied directly after extubation.

Tracheostomy

Boussignac CPAP provides pressure, oxygen and humidification in tracheotomised patients. Boussignac CPAP appears to be safe and efficient in weaning tracheostomised patients



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Notes

ANAESTHESIA & EMERGENCY

For further information, please contact: marketingbenelux@vygon.com


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SA Vygon NV • Haachtsesteenweg 1650 • Chaussée de Haecht 1650 • 1130 BRUSSELS • BELGIUM

Tel.: +32 (0)2 706 09 50 • www.vygon.be

Vygon Nederland BV • Kerkhofstraat 21 • 5554 HG VALKENSWAARD • NETHERLANDS

Tel.: +31 (0)40 208 93 80 • www.vygon.nl

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