

Montana OHS

Impact of home NIV
in patients with OHS¹

> Context

Obesity hypoventilation syndrome (OHS) is a severe form of obesity-related respiratory failure, which is associated with high morbidity and mortality and is increasing in prevalence.² The Montana OHS study¹ uses real-world data to explore healthcare trajectories of patients with OHS leading to NIV initiation and to evaluate how different care pathways can impact clinical outcomes, including mortality and hospitalisations.

> Study details



Population

- OHS patients receiving home NIV in France during the study period (n = 8,842). This is currently one of the largest cohorts of NIV-treated patients with OHS to be studied worldwide.
- **Inclusion criteria:**
Patients with ≥ 1 NIV reimbursement between 1 January 2015 and 31 December 2019.
- **Study population:**
Median age ~62 years, 55% female.
64% with ≥ 1 comorbidity, ~60% with coexisting obstructive sleep apnoea (OSA).



Objectives

- Describe patient health trajectories before and after starting NIV.
- Compare post-NIV outcomes (mortality, hospitalisations, therapy pathways) across clusters.



Methodology

- Retrospective observational cohort study using the French national health insurance reimbursement system (SNDS), a large, unbiased, anonymised claims database that covers >99% of the French population and holds data on nearly 68 million individuals.
- Median follow-up: 3.1 years.
- Patients were classified into different clusters based on their healthcare journey before starting NIV therapy.



Investigators

- **Prof. Jean-Louis Pépin**
(University Hospital Grenoble), principal investigator
- **International academic collaboration**
(INSERM*, HEVA**, Resmed Science Center)

* INSERM is the French National Institute of Health and Medical Research (Institut national de la santé et de la recherche médicale).

** HEVA is a certified independent company approved by the Health Data Hub (HDH) and the French data privacy agency (CNIL) to carry out studies on all of the databases that make up the National Health Data System (SNDS).

Results

The Montana OHS study identified four clusters representing different care pathways before NIV initiation, highlighting major heterogeneity in OHS management.

Cluster	% of cohort	Patient type and pathway to NIV initiation	1-year therapy termination rate	1-year mortality rate
1	66.2%	- Newly diagnosed, lowest mean age, highest proportion of female patients by study group (62%), most bariatric surgery around the time of NIV initiation - Stable, ambulatory NIV initiation with no CPAP prescription prior to NIV despite coexisting OSA, contrary to guidelines	51.8%	5.5%
2	8.6%	- Sickest, multi-morbid undiagnosed patients - NIV started during or after ICU hospitalisation	34.3%	9.1%
3	5.9%	Treatment in accordance with guidelines: initial CPAP trial (~3 months), then switch to NIV after reassessment³	23.0%	2.1%
4	19.3%	- Oldest mean age, lowest proportion of female patients, least bariatric surgery around the time of NIV initiation - Adherent to guidelines: long-term CPAP before switching to NIV after reassessment in ambulatory care	18.4%	4.5%

Key learnings and perspectives

OHS management is highly heterogeneous

The MONTANA OHS study highlights distinct care pathways, reflecting variability in patient profiles and real-world practices.

Alignment with guidelines matters

Care pathways consistent with guidelines (e.g. CPAP first, followed by reassessment and switch to NIV when needed) are associated with reduced risks of mortality, hospitalisation, and therapy discontinuation; yet CPAP remains under-prescribed in practice.¹

Regular reassessment is essential

OHS management should be dynamic, with ongoing evaluation—particularly for patients on CPAP—to ensure a timely switch to NIV when needed.

Earlier diagnosis remains a priority

OHS is still underdiagnosed, leading to delayed treatment initiation and poorer prognosis. Earlier identification and initiation after hospitalisation could reduce the mortality rate.⁴

Supporting patient adherence

High rates of NIV discontinuation, especially in clusters 1 and 2, highlight the need for improved treatment selection in line with guidelines and close follow-up to support long-term therapy use.

Bariatric surgery

NIV use around bariatric surgery reflects a non-evidence-based practice. Higher discontinuation of NIV in these patients is likely driven by OSA improvement or resolution following surgery, which therefore removes the need to continue NIV. This practice requires further investigation as it does not conform to current guideline recommendations.

This content is intended for health professionals only.

CPAP: continuous positive airway pressure; ICU: intensive care unit; NIV: non-invasive ventilation; OHS: obesity hypoventilation syndrome; OSA: obstructive sleep apnea

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