



Scientific letter

High-Flow Nasal Therapy Trends in Spain: A Survey-Based Perspective



Terapia de alto flujo nasal. Encuesta de tendencias de uso en España

Dear Editor,

Home respiratory therapies (HRT) are a set of therapeutic services in Spain designed to treat patients with various respiratory diseases, prescribed mainly by pulmonologists to treat patient's own home.¹

Approximately a million patients in Spain currently receive HRTs, with a continuous increase each year. By reducing exacerbations and hospital visits due to respiratory problems, HRTs have been shown to be cost-effective and improve the quality of life, while also improving their level of care.^{2,3}

High-flow nasal therapy (HFNT) has been shown to be useful in the management of acute respiratory failure, and in chronic respiratory pathology such as stable COPD,^{4,5} interstitial lung disease,⁶ bronchiectasis,⁷ and hypoxaemia in palliative care.^{7,8} The use of HFNT at home is now recognized by the worldwide medical community and was proved to be cost-effective in patients with respiratory failure.^{9,10} Moreover, two important clinical trials are currently ongoing in Europe to assess the reduction of the occurrence of a second exacerbation (HiFAE),¹¹ and to evaluate the effect of this therapy on hospital readmission or death (EPiC-HFT)¹² in COPD patients. However, in Spain, the lack of scientific evidence on home HFNT remains important: although the Madrid Community report showed an increase of up to 20% of the prescription rate of "other at home therapies" (including HFNT) between 2021 and 2022 the exact rate of HFNT prescription is not known.¹³

Therefore, a survey on the use of HFNT at home throughout Spain was conducted to SEPAR (Spanish Society of Pneumology and Thoracic Surgery) members specialized in the Sleep and Ventilation area between April and June 2023. The questionnaire was developed before by the authors, experts in non-invasive respiratory therapies. The questionnaire was to fill online anonymously through the Google Surveys platform and included ten questions about the demographics, the at home high flow therapy and its characteristics, the possibility or not to prescribe it, the steps required to prescribe HFNT and the feelings of the physicians about this therapy. All data were analyzed confidentially. The survey can be found here: <https://docs.google.com/forms/d/1z-B9aTSiPSvMnr9qH3oiNXr0zBbK23leSqAwmqzJNU/edit>.

Among the 2349 pulmonologists that received the survey, 87 replied. Responders were spread all over the Spanish territory, representing 16 out of the 19 autonomous communities, picturing the regional administrative situation. Indeed, regions as Asturias or Extremadura representing only 1.15% of the responses while

Barcelona, the Valencia Community and Madrid Community represented the higher rate of the answers (respectively, 6.90%, 12.64% and 21.84%). The survey highlighted the fact that a majority of the physicians (52.9%) thought that prescribing HFNT at home is possible in their province and 35.6% thought it isn't possible. Asking about that if it is included in their technical specifications only 21.8% answered affirmatively, although near of 50% thought it is possible to prescribe out of technical specifications exceptionally. It is also noteworthy that although 63.2% of them ever considered prescribed at home HFNT, only 33.3% actually did it. The main reason for not having prescribed HFNT were administrative problems (20.7%) or issues with the respiratory therapy service providers (RTSPs) (19.5%). Severe chronic respiratory failure with a need for high FiO₂ (18.4%), diffuse interstitial lung disease (17.2%) and hypersecretory COPD (4.6%) were among the main indications that led to HFNT prescription.

Interestingly, some of the physicians that prescribed HFNT are established in regions where this therapy was not included in the specifications and should be prescribed by specific agreements, such as Catalonia, Seville, or the Basque Country.

From an evidence perspective, HFNT is proven to be an efficient and cost-effective therapy for patients with respiratory diseases,⁴⁻⁸ which is commonly accepted by Spanish physicians as reported in our survey, with 63.2% of the responders acknowledging that they have considered prescribing HFNT. However, our questionnaire also demonstrated that this therapy remains under-prescribed by physicians, showing that administrative issues and lack of communication with the respiratory therapy service providers are the main barriers to the development of at home HFNT in Spain. The fact that important disparities exist between regions regarding the status of HFNT and the financing model of home respiratory therapies seems to add even more complexity to the establishment of at home high flow therapy as a relevant alternative for patients affected by respiratory diseases.

From an economy perspective, HFNT – as all HRTs – is administered to the patients through (RTSPs),¹⁴ which are supported via public funds in a public-private partnership.² Two financing models can be distinguished, the "Fee for Service" or the "Fixed Rate" model, according to the region of the country (Fig. 1A). Regardless of the financing model, modulation mechanisms can be set up based on quality indicators of the service, adherence to therapies or other health outcomes (percentage of hospital readmissions within the first three months of therapy). Indeed, health administrations and RTSPs can set up technical specifications aiming to personalize and stratify care complexity, allowing resources to be optimized and distributed according to the patients' needs.

Specifically regarding HFNT, approximately half of the specifications published since 2018 include it, notably in areas such as Ceuta, Extremadura, Galicia, Madrid Community, Murcia and the Basque Country (Fig. 1B). While in Aragon, a new contract was

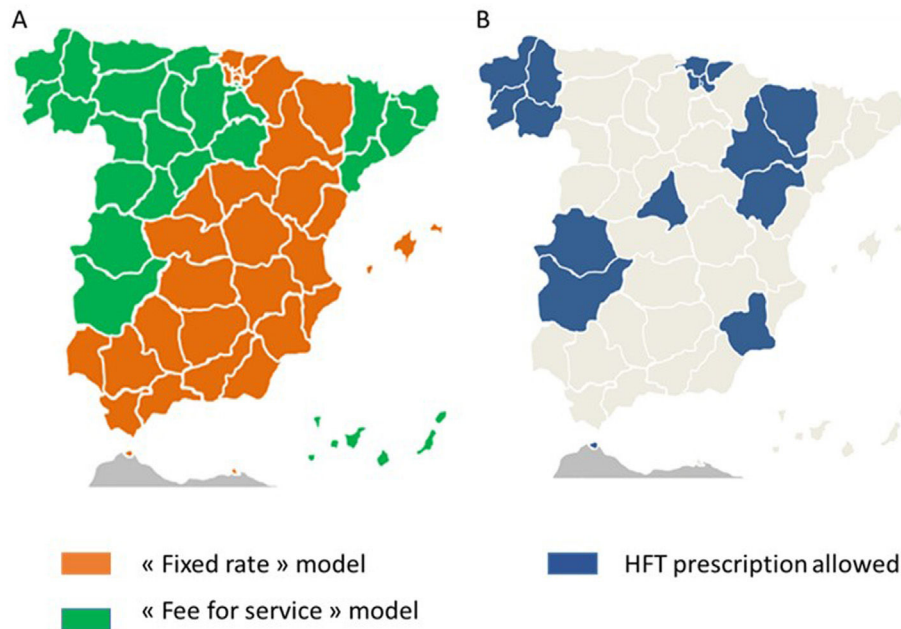


Figure 1. (A) Type of financing model for Home Respiratory Therapies in Spain (orange: fixed price, green: fee for service model). (B) Areas where the high-flow therapy is already introduced.

made exclusively to set up HFNT specifications, they are still lacking in some regions such as Catalonia, Balearic Islands, and the Andalusian provinces of Cordoba, Jaen and Malaga. Indeed, HFNT inclusion in therapy tenders seems to be independent of the established financing model and does not seem to be influenced by the budgetary allocation of the contract, suggesting that the technical specifications are influenced by clinical considerations rather than by economic ones.

In conclusion, this brief review highlights the current status of HFNT uptake and the most common barriers to its prescription. Although devices are available on the market and have even been included in the RTSP portfolio in some areas, in Spain, the prescription of HFNT at home is still rare. Future directions should focus on addressing regional inequalities, encouraging further scientific research on HFNT and following-up on the results of the current clinical trials and continuing the transition to a patient-centred model of care.

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Authors' contributions

All authors regarding conception and design of the study, drafting and revision of the article and approval of the final version.

Conflicts of interests

The authors state that they have no conflicts of interests.

References

- BOE (boletín Oficial del Estado), 13/03/1999, núm. 62, pág 10252–3.
- EY 2021. Terapias Respiratorias personalizadas: calidad asistencial, eficiencia y resultados en salud.
- Mangado NG, Egea-Santaolalla CJ, Vives EC, Mediano O. Apnea obstructiva del sueño. *Open Respir Arch.* 2021;2:46–66.
- Bräunlich J, Dellweg D, Bastian A, Budweiser S, Randerath W, Triché D, et al. Nasal high-flow versus noninvasive ventilation in patients with chronic hypercapnic COPD. *Int J Chron Obstruct Pulmon Dis.* 2019;14:1411–21. <http://dx.doi.org/10.2147/COPD.S206111>.
- Frat JP, Thille AW, Mercat A, Girault C, Ragot S, Perbet S, et al. High-flow oxygen through nasal cannula in acute hypoxemic respiratory failure. *N Engl J Med.* 2015;372:2185–96. <http://dx.doi.org/10.1056/NEJMoa1503326>. Epub 2015 May 17: PMID: 25981908.
- Bräunlich J, Köhler M, Wirtz H. Nasal high-flow (NHF) improves ventilation in patients with interstitial lung disease (ILD) – a physiological study. *J Clin Med.* 2023;12:5853. <http://dx.doi.org/10.3390/jcm12185853>. PMID: 37762795; PMCID: PMC10531871.
- Impellizzeri P, Nolasco S, Campisi R, Cipolla A, Borgese A, Alia S, et al. Acute and long-term management of severe bronchiectasis with high flow nasal therapy: a case report. *Monaldi Arch Chest Dis.* 2022;93. <http://dx.doi.org/10.4081/monaldi.2022.2333>. PMID: 35929643.
- Mercadante S, Adile C, Ferrera P, Giuliana F, Grassi Y. High-flow nasal OXYGEN therapy. *BMJ Support Palliat Care.* 2022. <http://dx.doi.org/10.1136/bmjspcare-2022-003606>. Epub ahead of print. PMID: 35332026.
- Nagata K, Horie T, Chohnabayashi N, Jinta T, Tsugitomi R, Shiraki A, et al. Home high-flow nasal cannula oxygen therapy for stable hypercapnic COPD: a randomized clinical trial. *Am J Respir Crit Care Med.* 2022;206:1326–35. <http://dx.doi.org/10.1164/rccm.202201-01990C>. PMID: 35771533; PMCID: PMC9746854.
- Díez Izquierdo A, Torrent-Vernetta A, Morillo-Soriano M, Balsells-Costa M, Iglesias-Serrano I, Rovira-Amigó S, et al. High-flow nasal cannula (HFNC) at home as an alternative therapy in children in Spain. *Eur Respir J.* 2022;60:2428. <http://dx.doi.org/10.1183/13993003.congress-2022.2428>.
- Clinicaltrials.gov website: NCT05196698: home high flow oxygen to reduce acute exacerbation of COPD (HIFAE). <https://classic.clinicaltrials.gov/ct2/show/NCT05196698?term=hifae&draw=2&rank=1> [accessed 3.1.24].
- King's college of London website: effect of home high-flow therapy vs. usual care on hospital readmission or death after an acute Chronic Obstructive Pulmonary Disease (COPD) exacerbation: a UK-based multicentre randomised clinical trial (EPiC-HFT) <https://www.kcl.ac.uk/research/epic-hft> [accessed 3.1.24].
- Memoria 2022 del Servicio Madrileño de Salud. <https://www.comunidad.madrid/servicios/salud/memorias-e-informes-servicio-madrileno-salud> [accessed 15.11.23].
- González-Moro JMR, et al. Oxigenoterapia continua domiciliaria. *Open Respir Arch.* 2021;2:33–45.

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