

Approach to Home Mechanical Ventilation Prevalence: Databases or Surveys?

The prevalence of patients who receive mechanical ventilation at home is growing in developed countries. At the same time, and despite recommendations about the use of home mechanical ventilation in specific underlying conditions, geographic differences in patterns of use and variability in its prescription are reported, and both are topics with important clinical and economic consequences.^{1,2}

In this issue of *RESPIRATORY CARE*, Povitz et al³ describe the patterns of use of home mechanical ventilation in the Ontario area in Canada and its changes over a 12-year period. According to their data, prevalence in home mechanical ventilation prescription increased by 0.3/100,000 per year of study, in the same range as prevalence rates reported in some countries in Europe. Two important topics related to any description of home mechanical ventilation prescription should be analyzed: the reliability of the sources of data, and the underlying reasons that justify variability and increase of prevalence.

The way in which home mechanical ventilation prevalence is measured is worth noting, because most previous studies that have focused on this topic are primarily based on surveys. For example, updated surveys on the use of home ventilation in subjects with COPD have been published recently.⁴ In addition, in the same setting and country as the current work by Povitz et al,³ the CANuVent group conducted a prevalence study based on surveys of service providers.⁵

There are, however, some issues regarding primary sources of information. When using surveys to estimate the prevalence of home ventilation, there is a clear risk of so-called champion bias in the response rate, as noted in the study by Crimi et al,¹ who showed a trend toward higher response rates by high-prescribing doctors and ventilation expertise centers. Such bias in the response rate may explain why there is not only inaccuracy in the reported prevalence values, but also different patterns of

prescription. Adherence to guidelines for prescription is thus highly variable.

On the other hand, the use of mandatory administrative databases of home ventilation prescription may provide a

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more accurate picture. It may also highlight some inequities and variability in prescription, as noted in studies from Spain and Sweden.^{2,6} Nationwide or regional prospective administrative databases that require the patient to get a home ventilation prescription may present a more complete picture of the distribution and prevalence of such prescriptions. It should be noted that data extracted from administrative prescriptions usually lack sufficient clinical data, and thus should be managed with caution.^{7,8} Cohort assembly, case ascertainment, code checking, and establishing a mechanism to correct them, as well as searching for missing data through different databases, are methods used to mitigate the consequences of this lack of clinical information.

Despite recognizing the authors' effort and appropriate compensation for the lack of information, data about adherence, quality of life, and comorbidities were scarce. The absence of a change in mortality over time suggests that the increase in home mechanical ventilation prescription and its potential implications (ie, by more experienced or less experienced prescribers, indications in advanced stages of disease as a rescue, or even palliative therapy) did not decrease the overall quality of therapy.³

Concerns about adherence to local recommendations should also be noted. For example, while Canadian guidelines are highly restrictive in the indication of home mechanical ventilation in COPD, up to 20% of prescriptions presumably belong to individuals with COPD.⁹ This pattern of prescription is seen in some European countries as well, suggesting that prescribers, despite a lack of evidence, perceive some clinical benefits of home mechanical ventilation in this subset of patients.¹ In recent years, the evidence of a trend toward prescription for stable COPD patients is growing, reinforcing the validity of these patterns of prescription.^{9,10}

Regarding prevalence and variability, Dybwik et al¹¹ recently explored different reasons for inequity in home mechanical ventilation prescription in Norway. Using focus groups, they detected broad enthusiasm, high compe-

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tence, spreading competence, a multidisciplinary approach, and individual attitudes as factors that drive the prescription of home mechanical ventilation. Whether similar factors affected the increase of prescriptions during the years studied by Povitz et al³ is unknown. There are probably other underlying causes that were not considered, such as device-related factors (eg, affordability, ease of use, monitoring tools) and social determinants (eg, associative movements, social awareness of conditions leading to home ventilation, aging).

Finally, as noted by Povitz et al,³ the design and data collection for this study did not answer some meaningful questions that should be addressed in future research. The administrative database seems to be a robust starting point, but this information should be combined with home care respiratory equipment suppliers' databases or with other sources of information that allow a better characterization of the population. The first step to know how we are performing home ventilation is to measure what we are prescribing, and administrative databases are excellent tools. Developing large, global, open-research, home-ventilation databases with medical records, such as the International Society for Heart and Lung Transplantation transplant registry, would allow us to answer many questions that this study put on the table.

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