diffusion capacity for carbon monoxide. A value of 99 mL is closer to the predicted value of 92.4 mL. This brings us to a second and related reason why the DLCOs at rest and during exercise may have been slightly elevated. As reported in our discussion,1 the alveolar PO2 was reported as 120 mm Hg. However, due to the dilution of CO/He/O2 diffusion mixture with the 232 ppm NO (balance N2), the oxygen concentrations in the inspiratory bag may have been approximately 15%. As such, the alveolar PO2 during inspiration would have decreased to approximately 90 mm Hg, and therefore that would increase FCO by 14%, resulting in an overall increase in DLCO. Therefore, if we take the DLCO value of 42 mL/min/mm Hg that was obtained from the DLCO method1 (NO/N2 mixture is absent), and use the 1/9CO value of 1.252, according to Roughton and Forster,2 the VC will have further decreased to 58.5 mL and would be much closer to the predicted value of 92.4 mL. We have since corrected the problem of having the subjects inspire low oxygen concentrations during a DLNO maneuver by using a higher concentration of nitric oxide (900 ppm) in a NO/N2 tank, and thus the dilution in the inspiratory bag is minimal (the oxygen concentration is now approximately 20%). We have verified the modifications in our laboratory by looking at a group of male subjects (mean height, 181.4 ± 6.8 cm; weight, 86.4 ± 9.5 kg [± SD]), and the average VC at rest was 84 ± 21 mL, calculated from simultaneous measurement of nitric oxide and carbon monoxide gases from the single-breath method. This is quite close to the predicted value.4

Their second issue is concerning the calculation of DMCO. As mentioned in our article,1 we decided to use the theoretical ratio of 1.97 since the diffusivity of nitric oxide is approximately 1.97 times greater than carbon monoxide. Other authors6–9 have used 1.97 as the theoretical ratio of DLNO to DMCO during single-breath maneuvers. The ratio of 2.42 has been determined during rebreathing maneuvers,10,11 not single breath as was the case in the present study. Interestingly, a ratio of 2.42 results in a resting DMCO of 86.9 mL/min/mm Hg, a value more in line with the current normative values. Obviously, more research is required to determine the true DLNO to DMCO in humans.

Their third concern is that we used high levels of nitric oxide gas (mean concentration on inspiration, 67 ppm). Previous studies12–14 have used 40 to 50 ppm of NO during a single-breath maneuver, while other studies have had subjects rebreathe between 20 ppm and 40 ppm for at least 16 s10,11 to 5 min,14 so our inspiratory nitric oxide levels are not that high as van der Lee and Zanen have suggested. Nevertheless, those studies10,11,14 demonstrated that there is no effect of either repeated single-breath maneuvers or rebreathing maneuvers on pulmonary gas exchange and lung diffusion capacity, so we are confident that the inspiratory levels of nitric oxide from our study did not cause vasodilation of the pulmonary capillaries leading to the high DLCO levels. In fact, data in our laboratory have shown that even four repeated single-breathhold maneuvers interspersed with 5 min rest does not increase DLNO or DLCO.

Despite the concerns with the methods, the overall findings of our study1 holds up, namely the dependence of DLNO on alveolar volume and workload, and that the relationship between DLNO vs workload, and DLCO vs workload is linear. We appreciate the comments by Drs. van der Lee and Zanen.

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**French Health System: More Work Is Needed**

**To the Editor:**

We are flattered by the article1 and the editorial2 on the French system of homecare. It is nice to know that our system has been noticed and recognized. However, things change continuously, and the world changes around us. Your article describes the system up to the year 2000, and since then things have changed. ANTADIR is facing challenges related to rising health costs in France and structural changes in the health service industry that have forced regional associations to make choices of direction. Attempts to simplify reimbursement procedures and to reduce costs have led to a weakening of the Observatory as in-depth data are more difficult to accumulate. Doctors “in the field” find it
difficult to see the usefulness of centralized data. Thus we have tended to publish more subset analyses of the Observatory data.3–5

The enhancement of regional services as you describe requires political vision and clear definition of requirements. Thus ANTADIR has developed its activity as a purchasing agency and as an assessor of technology as described on our website: ANTADIR.com. Expansion has occurred in other homecare areas such as perfusion, nutrition and insulin pump therapy. However the academic base moves more slowly than the commercial arena, and we find ourselves with healthy competition from the private homecare sector. We wonder how a very liberal economy, such as that found in the US, would cope with our nonprofit system?

We worry that France may be deconstructing the integration of the components of homecare that you vaunt, but we are heartened by a government commitment to the creation of integrating groups by supporting the creation of thematic unions (reseau de soins). For the moment, these mechanisms are bureaucratically complex and time consuming and do not promote national cooperation with a centralizing force such as ANTADIR.

We remain optimistic that our system will evolve while conserving such important tools as the Observatory. Nonprofit associations rely heavily on voluntary input; thus, we need committed volunteers like Dominique Robert, who recognize the benefits of quality and research. Budget restrictions and the demand for immediate value for money have made such pioneering more difficult today.

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To the Editor:

All nations with a commitment to treating the increasing numbers of patients and families with chronic health conditions face growing economic restraints. A French law in 1901 authorized the formation of not-for-profit associations to serve the public good in ways that could be best done by, for, and in “a community.” For half a century, French associations dedicated to the treatment of chronic respiratory insufficiency have proven their worth for patients and their families who require long-term mechanical ventilation.1–5 Over time, the associations evolved to serve the needs of patients with other respiratory conditions and expanded services for additional long-term health conditions. There has been awareness for nearly a decade that these not-for-profit associations are being challenged by competition from for-profit organizations, which benefit from laws and regulations put in place to serve the comprehensive health and social needs of their target populations.

A strong cultural tradition in France encouraged the establishment and development of associations as the best way to meet societal needs. As an American, I have been privileged to follow with great admiration the “French system” of associations, which is focused on the following aspects of long-term care:

1. French associations can collect essential information to improve the quality of clinical practice, to justify public policy support, and to determine appropriate service delivery. Rigorous clinical, social, and economic outcomes (health service research) comparing not-for-profit and for-profit experiences could reveal insights that would be valuable for all.
2. Some association programs and functions are better accomplished at a national level, where the national public policy debate takes place. Others are more appropriate at the regional/local level, where direct services and funding are provided.
3. The patient and family with long-term health-care needs must be included in a larger “community of interests” that is dedicated to meeting the comprehensive needs of this population. The solutions must be global, taking into consideration the psychological, social, and economic impacts of chronic illness on families and communities.

Health-care and social service funding should require outcome evidence to compare the not-for-profit and commercial approaches. The French national and regional associations have a medical/social model that works. They face an opportunity to work together to obtain the needed evidence of their worth. This would benefit greatly the patients in France and others around the world who require long-term care.

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To the Editor:

We thank Dr. d'Orbcastel for his update on the evolution of the French system of home care for patients with respiratory insufficiency. He reflected on the key role that Dominique Robert played in the initiation and development of the French system, and commented that, “such pioneering is more difficult today with budget restrictions and immediate value for money being demanded.” How our societies will support and encourage innovation as we seek cost-effective systems that will increase the quality of life for people with chronic disabilities remains a fundamental question for the future. The interactions between publicly financed and privately financed medical care organizations and the academic enterprise are complex, and, to our knowledge, have not been thoroughly worked out in any industrialized nation. While private enterprise has the potential to encourage innovation and to develop new and more cost-effective paradigms for the delivery of care, there is also the very real potential that privately financed medical systems will seek to “cream” the less complex and less severely afflicted patients. Thus, the public sector is at risk for being left with the care of only the patients with the most costly conditions. In addition, the private market is limited as a mechanism for promoting innovations because of the low profit potential, which can be a problem with technology that is designed for small, highly specialized markets of disabled consumers, who are more likely to be unemployed or living on low fixed incomes when compared to the general public.

In this context, we have found that a central database like the ANITAOIR Observatory offers policy makers and program managers a valuable tool in the cost-effective management of care for people with chronic diseases. There is a saying drawn from business experience in the United States: “If you can’t measure it, you can’t manage it.” Given the value of your database as a management tool, perhaps financial incentives can be offered to the doctors “in the field” to encourage them to provide the data. This type of approach has proved to be beneficial in the United States, where it is recognized that one of the fundamental conditions for an “efficient marketplace” is good data.

We wish you the very best as you rise to the challenges of changing conditions.

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Underuse of Spirometry in Primary Care

To the Editor:

We read with great interest the article recently published by Buffels et al in CHEST (April 2004).1 According to the authors, spirometry in general practice is feasible to perform and is sufficiently accurate. In addition, spirometry allows us to establish diagnoses of COPD and asthma in patients with formerly unknown obstructive lung disease (OLD). The authors concluded that the use of spirometry is mandatory if the early stages of OLD are to be detected in a general practice, since it is quite probable that the majority of the patients with unidentified COPD first consult with a general practitioner (GP). In the experience of Buffels et al1 screening for airflow obstruction, doubled the number of patients known to have OLD.

However, reality is quite different. In our health system, spirometry is a technique that is largely unknown in primary care centers. In an urban area that depends on our teaching hospital for health care, there are 24 primary care centers attending a population of 700,000 inhabitants. Previous studies2 have demonstrated a COPD prevalence of 9% among people 35 to 60 years of age in our country, of whom 78% are unaware that they have the disease. Despite this situation, only 18 centers have spirometry equipment, 3 of which do not perform spirometry at all. The remaining centers perform an average of two spirometry procedures per week. It is evident that, as a result, there is a loss of motivation to perform spirometry and a loss of sensitivity in using this useful and necessary diagnostic tool on the part of the GP.

It is clear that it is important to receive adequate respiratory training in general practice, including aspects of the diagnosis and management of asthma and COPD, as well as training in the performance of spirometry and the interpretation of its results. Health authorities must be sensitive to this problem and must provide continuous technical and methodological support to the GP. Primary care doctors should be stimulated to search for patients with OLD that is in the early stages, and to take the results of spirometry into account.

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To the Editor:

We agree with the authors that spirometry remains an unknown technique to a majority of general practitioners. Microspimeters that enable the widespread use of office spirometry are a relatively new phenomenon. Until now, only a few studies have tested the accuracy and the reliability of these devices. The technique is probably too recent to reach a generalized use in primary care.

Furthermore, in several countries, the performance and the interpretation of lung function tests are not included in the basic training of general practitioners. The potential importance of spirometry has probably been underestimated until now. We agree with Salvador Díaz-Lobato that adequate respiratory training should be encouraged for primary care physicians. This could optimize early detection and appropriate care for patients suffering from asthma or COPD. In Belgium, we are starting with