

## The Public Health Cost of Chronic Obstructive Pulmonary Disease

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The aim of cost of illness studies is to measure the extent of the problem, justify the distribution of resources, and define a framework within which programs can be assessed.<sup>1</sup> The usefulness of this type of study is, however, debatable.<sup>2</sup> Knowing whether we spend a lot or a little on treating patients with a particular disease provides no information about the appropriate use of resources. A low expenditure could be insufficient to meet needs or a superfluous expense if it is being used to finance irrelevant programs or treatments. It would, therefore, seem more appropriate to direct our efforts towards economic analyses that relate expenditure to outcomes.

The healthcare cost of treating patients with chronic obstructive pulmonary disease (COPD) will increase in the coming years, in terms of both direct and indirect costs.<sup>3</sup> In order to assess the real social impact of the cost of COPD, we would have to analyze certain specific aspects of the illness, the role played by variability, and the amount of the cost currently hidden as a consequence of underdiagnosis.

During recent years, various papers have been published that attempt to analyze the breakdown of the expenditure on COPD. Strassels et al<sup>4</sup> report that 68% of the annual cost of treating patients with COPD is due to hospitalization. Furthermore, as would seem reasonable, the cost of treating COPD increases according to the severity of the patient's condition.<sup>5</sup> Soler et al<sup>6</sup> report that 12% of patients account for 57% of hospitalizations and nearly 60% of visits to emergency departments. Thus, when discussing the cost of COPD, we must take into account the cost of hospitalization.

In Spain over 40% of the cost of treatment is related to hospitalization.<sup>7</sup> Analysis of the cost of admitting patients with COPD to our hospital reveals that hospitalization costs (the overhead of maintaining a hospital bed) represents 70% of the total cost of treating a patient admitted with this disease.<sup>8</sup> This means that medical treatment, medication, and tests account for less than a third of the total cost. In this case, optimization of resources cannot be achieved by reducing the number of tests, for example, but rather by the overall reduction of the days spent in hospital.

A study carried out by Verdaguier et al<sup>9</sup> demonstrates the impact of variations in clinical practice within the hospital (with respect to avoidable hospital stays and the reduction of medication). These authors indicate that variations in the mean length of stay in hospital can be attributed to the organization of each hospital. Variability in clinical practice is a common phenomenon, which owes more to differences between medical professionals than to the characteristics of the patient (or the way the illness presents). There are many explanations for variability,<sup>10</sup> for example: factors related to the patient (cultural conditions and morbidity); the enthusiasm of a particular professional for a specific procedure (which may be used in some patients and not offered to others); and uncertainty about treatment (variability occurs when there is little agreement about the best treatment in a particular type of situation). In short, variability always gives rise to the suspicion that resources are being used inappropriately (either expenditure is excessive or not everything that needs to be done is being done).

Naturally, variability in the treatment of patients with respiratory diseases is not limited to in-hospital practice. In a study by Sebastián et al,<sup>11</sup> the prevalence of domiciliary oxygen therapy (DOT) was 164.6 patients per 100 000 people, and 52% of them used a tank as a supply source. During the same period, in the health region served by the Hospital Universitari de Bellvitge, near Barcelona, the prevalence of DOT was 71.8 patients per 100 000 people, and only 16.4% of them used tanks. Obviously the lower prevalence of DOT does not automatically signify a better situation, even though the global cost may be lower. Besides, when chronic patients survive for longer periods, prevalence increases. In this respect, an increase in prevalence could be considered to represent therapeutic "success." However, the qualitative differences (very different use of supply sources) indicate that variability is due to differences in clinical practices.

Although the cost of suboptimal practice may be considered not very relevant from the individual point of view, its global impact is very high because of the prevalence of the disease.<sup>12</sup> The case of DOT is a good example of the global cost of treatments which, while costing very little on a daily basis, are used over a long period of time. For example, the daily cost of using DOT is low in comparison with the cost of inpatient hospital treatment, but because a given patient may use this treatment for years,<sup>13</sup> the overall cost of the long term

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treatment should be taken into account.<sup>14</sup> Moreover the cost may be even more significant if the patient is supplied with the oxygen but does not use it, or needs oxygen therapy but fails to make use of the oxygen supplied.

We should not discuss the cost of COPD without taking into account that it is an underdiagnosed disease in all western countries.<sup>15</sup> The work of Rennard et al<sup>16</sup> reveals the global situation of COPD treatment: patients underestimate their symptoms, do not receive adequate instructions on the appropriate use of inhalers, or have not had spirometric testing. Furthermore, the use of resources is high: 12.8% of patients have been hospitalized in the past year and 23.8% require a monthly medical visit because of their condition. There are many ways of dealing with the underdiagnosis of COPD, but promoting the use of spirometry is, nonetheless, critical.<sup>17</sup> In any case, an accurate assessment of the real prevalence of the disease would greatly change the estimate of the burden of COPD.

This burden will increase over the coming years owing to a number of medical "successes": aging (a success, not a failure!); the introduction of new treatments and the financing of others such as rehabilitation; the success of tobacco cessation therapy and the increasing survival rate of patients suffering from chronic respiratory insufficiency<sup>18</sup>; and especially the end of the nihilistic attitude that has characterized the therapeutic approach to COPD of many physicians.<sup>19</sup>

The responsibility of pulmonologists will increase. It is not enough to try to do things well but rather, as Muir Gray<sup>20</sup> points out, we must do the correct thing correctly. We must offer treatment options that do more good than harm: effective, safe, and acceptable interventions. We also must take into account social effectiveness: the achievement of the best result for the greatest number of patients.<sup>21</sup> It is not easy to make decisions, and it seems clear that scientific evidence alone is not a sufficient basis for them.<sup>22</sup> The clinical situation (in the hospital, at home, or in an emergency), patient preferences, medical evidence and the abilities of the clinician involved are all part of the framework within which decisions are made.

The treatment of patients with complex chronic illnesses such as COPD should, therefore, be approached from a perspective different from that of the treatment of acute illnesses.

The treatment of illnesses such as COPD should take into account the presence of comorbidities and associated conditions (social problems or cognitive dysfunctions).<sup>23</sup> A holistic approach to treatment (responding to all of the patient's needs) and ongoing care are essential.

Despite the obvious differences between chronic diseases, there are common features that can point towards the best way of organizing patient care. Chronic diseases alter the daily habits of patients, who must face the emotional and social impact of their symptoms and disabilities. Such conditions generally involve several family members in caretaking roles, and also require treatment and frequent contact with the healthcare system.<sup>24</sup> Successful care of patients with chronic illnesses such as COPD requires multidisciplinary teams including

pulmonologists, qualified nurses, physiotherapists, social workers, primary caregivers, support personnel, and other professionals. These teams implement effective care plans in which patients are highly involved in their own care, and the attention of different kinds of professionals is a guarantee of access to and transmission of information.

In short, in order to do things well, we will have to do them differently.

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