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EDITORIAL COMMENT

Indirect costs associated with cardiovascular events in Portugal

Custos indiretos associados a eventos cardiovasculares em Portugal

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In his seminal contribution to the foundations of health economics, Michael Grossman[1] established that the reasons that people invest in their health are twofold. The first is the most obvious: people invest in health to improve their well-being and to extend their lifespan. The second reason is that having better health allows people to be more productive, richer, and therefore able to achieve more in life. This includes wider choices in the use of time, investment in education, consumption of goods and services, leisure, and even health care. The extent to which health care improves our health is naturally the subject of countless clinical trials and many other types of assessment. On the other hand, the extent to which health care reduces the productivity costs of illnesses and therefore makes us richer, more productive, and better educated, has usually received less attention.

As these words are being written the world is suffering from the Covid-19 pandemic, in which these issues are at the forefront of our common concerns, as they have seldom been before. Major improvements in dealing with the disease, such as the appearance of effective vaccines, are likely to have a sizable positive impact on population health and an enormous effect on economic activity. Just to give an idea of the extent of this effect, if a vaccine allows GDP per capita in Portugal to be 5% higher in the next five years, that means we will each be richer by more than €5000. Whatever the cost of a vaccine turns out to be, it will likely constitute a small fraction of the value it helps to create.

Covid-19 is obviously an exceptional case, but we should have the same concerns for most important health problems. As time passes and science, health care, and health care systems improve, to what extent does this progress contribute to our welfare by decreasing the productivity cost of disease and by making us richer? One of the most important health areas is certainly cardiovascular and cerebrovascular disease, the leading cause of death in many countries, including Portugal. To what extent do these diseases impoverish us and to what extent do improvements in health care help reduce the associated productivity costs?

If there is better prevention and treatment of acute coronary syndrome (ACS) and stroke, we reap all the health gains, but we also have a more productive population as fewer temporary and permanent disabilities lead to less working time being lost to illness. The effects are long-term, with prevention and treatment decreasing the numbers of withdrawals from the labor force, for example by reducing early retirement. They can also be short-term when they involve absenteeism (missing work because of illness and need for health care visits), or presenteeism, when workers

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do not miss work but their productivity suffers a significant reduction attributable to the disease.

Little information is available on how productivity losses due to circulatory diseases have changed over time in Portugal. However, we are now starting to amass data and information on the current levels of these costs, thus enabling yardsticks to be established that will make it possible to measure progress in the future.

A recent contribution published in the *Journal* was a paper by Timóteo et al.[2] that studied the indirect costs of myocardial infarction (MI) in the first year after admission. The study included 219 patients from a major cardiac center, of whom 66.2% were working. The patients were followed over a one-year period and reported missing work days. The results obtained showed that in the first year after the index hospitalization the average number of work days lost was 84 and the productivity loss per worker was estimated at €5246.

This issue of the *Journal* includes a novel contribution by Marques et al.[3] that constitutes a significant step forward in our knowledge of productivity costs generated by circulatory disease. The paper quantifies the loss in work days generated by ACS and stroke in Portugal and its monetary value. The paper concentrates on the partial results for Portugal of a project carried out simultaneously in several European countries.[4] The main results are that an episode of ACS generates a loss of 47 work days and stroke a loss of 76 work days for patients and caregivers. The monetary estimates of productivity costs are €5403 for ACS and €8726 for stroke.

It is interesting to note the differences in methodology and data availability between the two papers and to see the value added by the more recent contribution. One advantage of Timóteo et al.'s study is that it uses a much larger sample of patients, follows these patients with fewer constraints over time, and estimates the cost differences between ST-elevation MI (STEMI) and non-STEMI events. Additionally, the data include unemployed patients, enabling the employment rate of MI patients to be factored into national estimates of productivity costs. However, despite some limitations in the timing of sampling of the patients, and the fact that unemployed patients were not included in the analysis, the paper by Marques et al. possesses some distinct advantages. Since it is part of an international effort, the standardization of criteria and methodology enables better international comparisons of the results. In particular, this applies to the use of a standardized instrument to collect information from patients on productivity costs, the Productivity Cost Questionnaire. The estimates in Marques et al. take into account other forms of ACS besides MI as well as new information on stroke. Adding to these advantages, the paper also estimates the costs of presenteeism and the productivity costs for care providers, a brave new effort in the literature on the estimation of productivity costs of circulatory diseases in Portugal.

There is still progress to be made. For example, both papers focus on short-term consequences only and add little on the subject of early retirement. Hopefully, future studies will examine these under-researched areas and, more importantly, provide information that will enable quantification of developments, and hopefully progress, in the ability of the health care system to improve the country's productivity.

Conflicts of interest

The author has no conflicts of interest to declare.

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