

## The Cost of Non-Communicable Diseases in the European Union: A Projection towards the Future

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**Abstract :** Non-communicable diseases (NCDs) are responsible for the vast majority of deaths in the European Union (EU) and represent a large share of total health care spending. A future increase in this health and financial burden is likely to be driven by population ageing, lifestyle changes and technological advances in medicine. Without adequate prevention measures, this burden can severely threaten population health and economic development. To tackle this challenge, a correct assessment of the current burden of NCDs is required, as well as a projection of potential increases of this burden. The contribution of this paper is to offer perspective on the evolution of the NCD burden towards the future and to give an indication of the potential of prevention policy. A Non-Homogenous, Semi-Markov model for the EU was constructed, which allowed for a projection of the cost burden for the four main NCDs (cancer, cardiovascular disease, chronic respiratory disease and diabetes mellitus) towards 2030 and 2050. This simulation is done based on multiple baseline scenarios that vary in demand and supply factors such as health status, population structure, and technological advances. Finally, in order to assess the potential of preventive measures to curb the cost explosion of NCDs, a simulation is executed which includes increased efforts for preventive health care measures. According to the Markov model, by 2030 and 2050, total costs (direct and indirect costs) in the EU could increase by 30.1% and 44.1% respectively, compared to 2015 levels. An ambitious prevention policy framework for NCDs will be required if the EU wants to meet this challenge of rising costs. To conclude, significant cost increases due to Non-Communicable Diseases are likely to occur due to demographic and lifestyle changes. Nevertheless, an ambitious prevention program throughout the EU can aid in making this cost burden manageable for future generations.

**Keywords :** non-communicable diseases, preventive health care, health policy, Markov model, scenario analysis

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