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Modelling a budgetary impact analysis for funding drug-based smoking-cessation therapies for patients with major depressive disorder in Spain

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Smoking remains the leading cause of preventable death worldwide. Despite growing awareness of the harm caused by smoking, the proportion of the global population who smoke remains high. On the other hand, smoking is associated with high healthcare resource utilization and cost to society. Individuals suffering from major depressive disorder (MDD) are considered to be a vulnerable smoking population due to the greater risk of developing nicotine dependence compared to smokers without comorbid psychiatric disorders. Varenicline, bupropion and nicotine-replacement-therapy (NRT) are all indicated for smoking cessation. However, funding by the Spanish National Health System (SNHS) is limited. We modelled a budgetary impact analysis (BIA) to estimate the impact of the SNHS funding drug-based therapies for smoking cessation in smokers with MDD. The BIA compared the current unfunded scenario versus a funded scenario (varenicline, bupropion, NRT combined with medical counselling) using the SNHS and societal perspectives in year 2016. The BIA design was a hybrid model using a decision tree algorithm (population size: smokers with MDD) and Markov chains (smoking cessation attempts) over a 5-year horizon (Figure 1). Smoking-cessation drug efficacy was derived from clinical trials, and smoking cessation costs avoided were taken from an analysis of the 2011/2012 Spanish National Health Survey. Results were shown as incremental cost-savings. Scenarios and threshold univariate sensitivity analyses tested model robustness. The funded scenario resulted in an increase of 43,478 cessation attempts and 8,930 fewer smokers after 5 years compared to the unfunded scenario. The cost of funding was €25.3 million and costs avoided were €26.5 million. There was a cumulative 5-year incremental cost-saving of €1.2 million to Spanish society. Results were robust using alternative scenarios. Funding smoking cessation drugs in patients with MDD is of economic benefit to Spain and could produce net savings from the third year of implementation.

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