Title: High socioeconomic impact on prescription behavior despite unrestricted access to on-label disease-modifying therapies in Multiple Sclerosis patients

Running Title: Prescription behavior in multiple sclerosis

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Abstract:

Objective: We aimed to identify potential factors associated with the prescription behavior of mild and highly active immunotherapies in a prototypical chronic immunological disease (Multiple Sclerosis (MS) against the background of a health care system devoid of economic and drug availability restraints.

Methods: Prescription data of all members of the German statutory health insurance from 2013 to 2017 (70.7 million insured persons) were analyzed retrospectively. MS was chosen as a model disease due to its chronic character, incidence, and high socioeconomic impact. Germany was used as a model country given that drug prescription is independent of a major health economic bias and all approved drugs are available for all patients regardless of their socioeconomic status. Prescriptions of the mild platform and high-efficacy disease-modifying therapies (DMTs) were analyzed. The number of university hospitals and neurologists as well as the gross domestic product (GDP) in 2015 in million Euros were analyzed as potential factors of prescription behavior.

Results: The prescription volume increased over time in almost all federal states with variations in the degree of incline. Univariate regression analysis showed that the prescription volume of both platform and high-efficacy therapies correlated with the number of university hospitals and neurologists, as well as the GDP per federal state. Stepwise forward regression analysis including GDP, number of neurologists per federal state, and number of university hospitals as factors revealed a statistically significant overall model for both platform (R-squared=0.98, p<0.005) and high-efficacy DMT (R-squared=0.67, p<0.005). The independent analysis of these predictors confirmed statistical significance for the GDP in platform therapy.

Conclusions: The present study illustrates that even in a country without overt inequity regarding on-label drug access for all patients, access to medication is not evenly distributed but instead strongly depends on economic strength and regional medical care density. This health policy and the sociopolitical issue deserve attention.