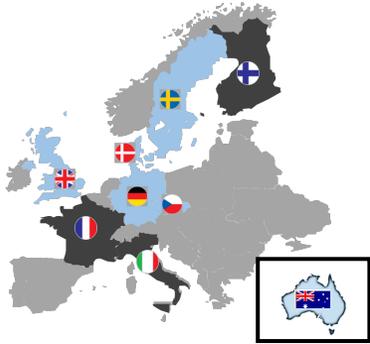


Objective classification of multiple sclerosis disease course results in frequent reclassification to secondary progressive multiple sclerosis

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Objective: To determine the proportion and characteristics of patients with relapsing-remitting (RRMS) and secondary progressive (SPMS) multiple sclerosis (MS) after applying an objective disease course classifier in five clinical MS registries.

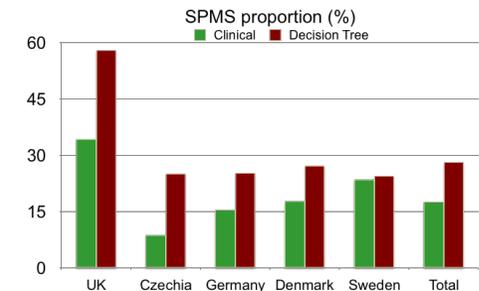
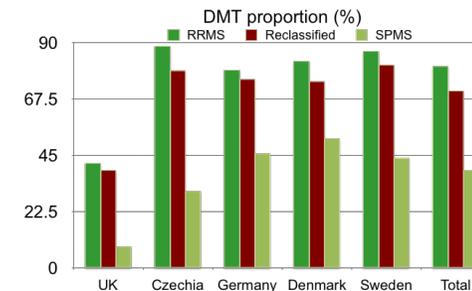
Background: The assignment of SPMS in clinical practice is complicated given lack of objective criteria and less therapeutic options raising a question of accuracy of clinically assigned RRMS and SPMS courses.

RCN on SPMS: The Research collaboration network for secondary progressive MS was started in 2019 as a collaboration between nine national MS registries and the international database MSBase. So far the RCN is supported financially from Novartis but is principally open for collaborations with other sponsors.

Design/Methods: We used data from MS registries in the Czech Republic, Denmark, Germany, Sweden, and the United Kingdom, including patients with RRMS or SPMS with age ≥ 18 years at the beginning of the index period (1 January 2017 – 31 December 2019). We applied a decision tree MS course classifier developed at Karolinska Institutet (Ramanujam R, et al, 2020. medRxiv, Reference)

Conclusions: The SPMS proportion increased markedly after application of an objective classifier, indicating an under-assignment of SPMS in clinical practice. The group that was reclassified to SPMS generally displayed a higher age and higher EDSS scores compared to the patients that remained in the RRMS group. Misclassification was most pronounced in patients on DMTs, indicating an important bias.

Results: Of 61,950 MS patients, 8,273 were reclassified from RRMS to SPMS, increasing the overall SPMS proportion from 18% to 28%. As a result of the reclassification, the average age in the RRMS group changed from 44.4 to 42.8 years and from 57.9 to 57.2 years in the SPMS group. Those who were reclassified from RRMS to SPMS were on average 55 years old and had a mean EDSS score of 5.26 compared to mean EDSS scores of 2.53 and 5.85 in the clinically assigned RRMS and SPMS groups respectively. In the reclassified group a majority of 71% were on disease modifying treatments (DMTs) compared to 81% and 39% among the clinically assigned RRMS and SPMS patients respectively.



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