

Real-world-data analyses:

Does health services utilisation meet needs in multiple sclerosis health care?

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Process of defining needs-based MS care

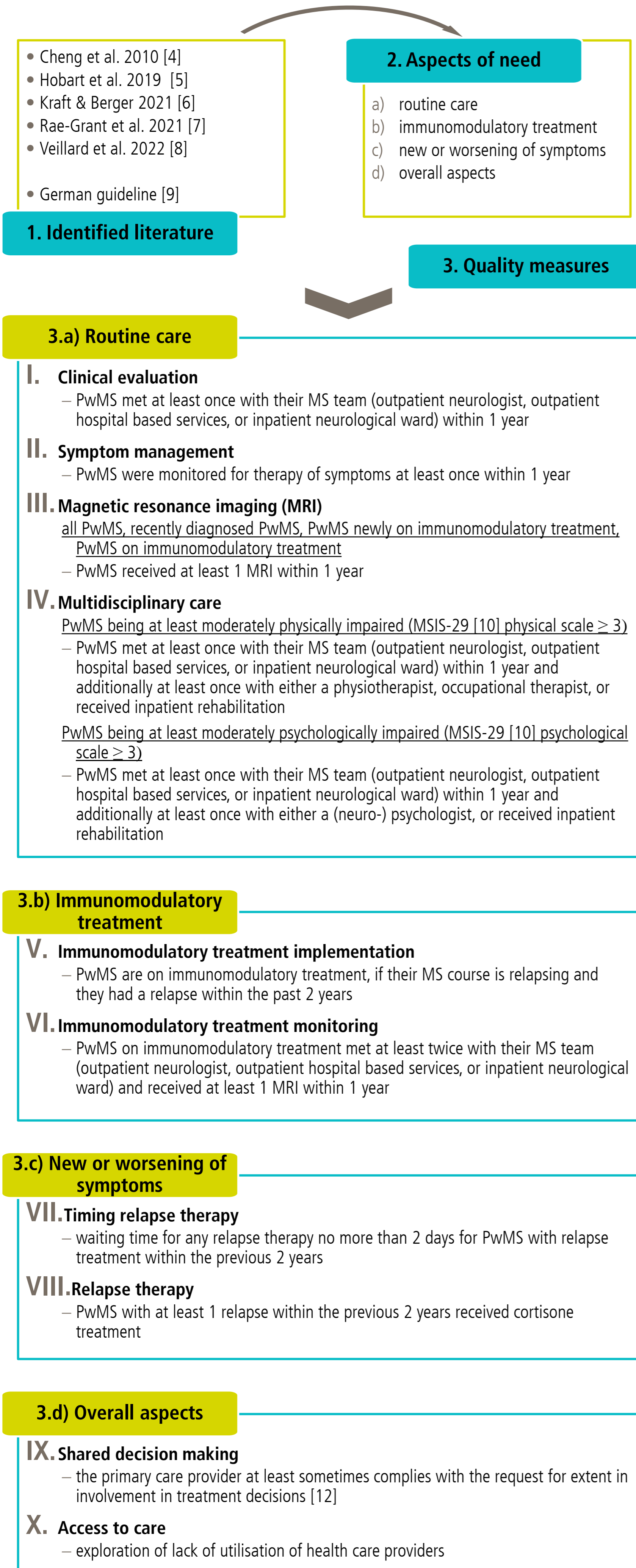


Figure 1. Identified aspects of need and definition of corresponding outcome measures

Introduction As multiple sclerosis (MS) is the most common immune mediated and neurodegenerative disease of the central nervous system [1], it is crucial to understand the adequacy of MS-specific health services delivery. Few studies define needs-based health care quality measures from a health services perspective.

Objectives/Aims To investigate differences in needs-based MS care from a health services perspective by deriving and analysing a set of relevant quality measures.

Methods The analyses are realised as part of the *Multiple Sclerosis-Patient-Oriented Care in Lower Saxony (MS-PoV)* [2] project. Based on a comprehensive literature review and expert discussions we identified 10 relevant quality measures that address the provision of needs-based health services, covering a) routine care (e.g., clinical evaluation), b) immunomodulatory treatment (e.g., treatment monitoring), c) new or worsening symptoms (e.g., relapse therapy) and d) overall aspects (e.g., access to care). Statistical analyses are based on merged real-world- (health insurance claims) and online survey data.

Here, we report upon exemplary quality measures (*clinical evaluation, multidisciplinary care, immunomodulatory treatment implementation*) and subgroup analyses of the quality measure *clinical evaluation* that provide an initial impression of the adequacy of needs-based MS care. Underuse of *clinical evaluation* was defined as less than one neurological consultation within a one-year period. Descriptive analyses were conducted using health insurance data (10/2020-09/2021). Additional information was derived from the online survey conducted in 2021. Subgroup analyses using the Chi-squared-test [3] were performed for people with MS (PwMS) living in Lower Saxony, Germany.

Results We identified 5 studies [4-8] reporting quality measures. Additionally, we included the German guideline [9] to derive measures of needs-based health services provision (figure 1). Underuse of *clinical evaluation* was identified in 230 (11.9%) of 1,935 PwMS, with significant differences between age groups (18-35 years: n=22 [7.5%], 36-50: n=54 [8.2%], 51-65: n=110 [13.4%], ≥65: n=44 [27.3%], p<0.001). Sex, region of residence, self-reported MS course, and comorbidity (Charlson Comorbidity Index, CCI [10]) did not yield statistical significance (figure 2). The extent of underuse varies by analysed quality measures (figures 2, *clinical evaluation*, 3, *multidisciplinary care*, and 4, *immunomodulatory treatment implementation*).

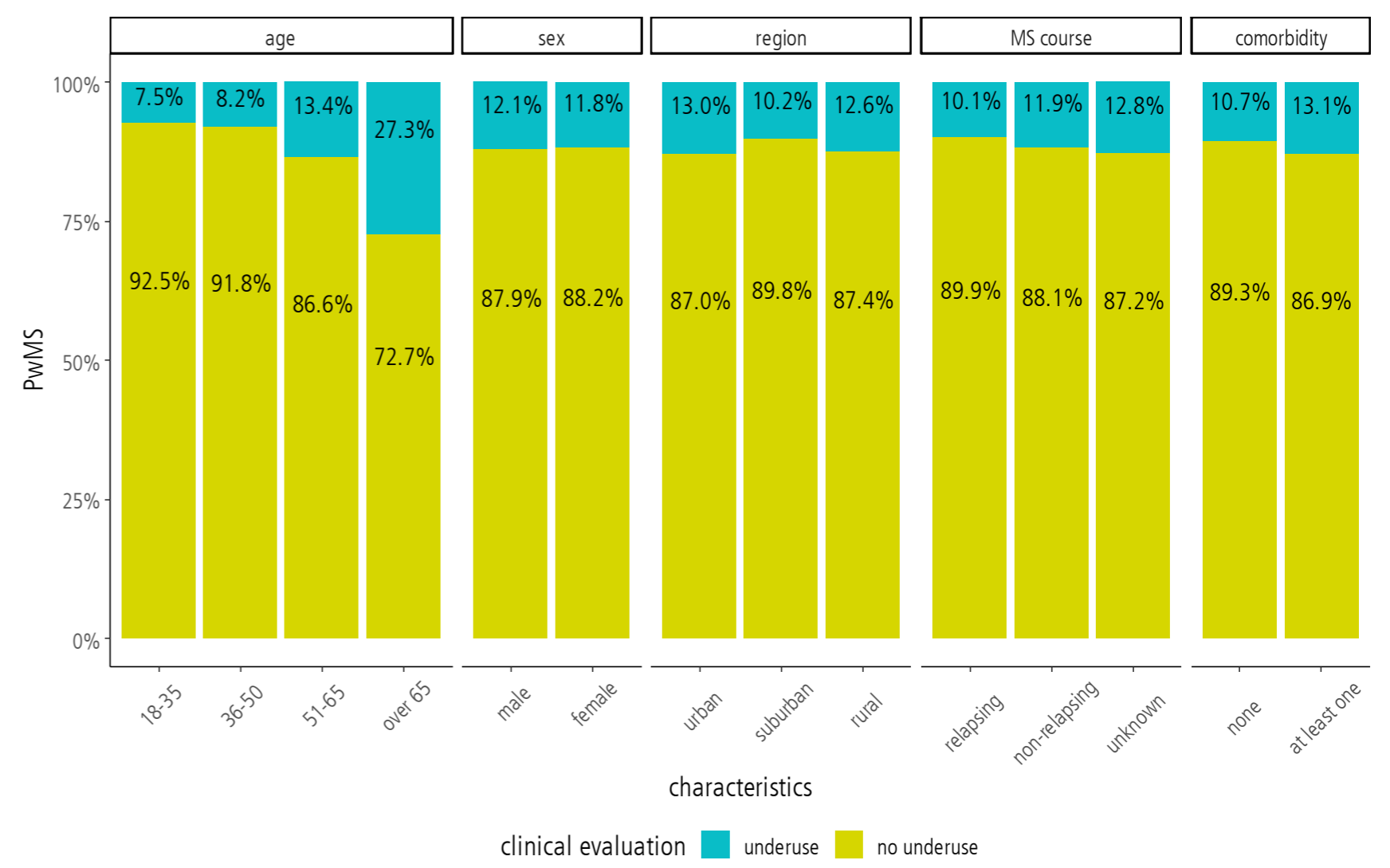


Figure 2. Underuse of I. clinical evaluation – subgroup analysis

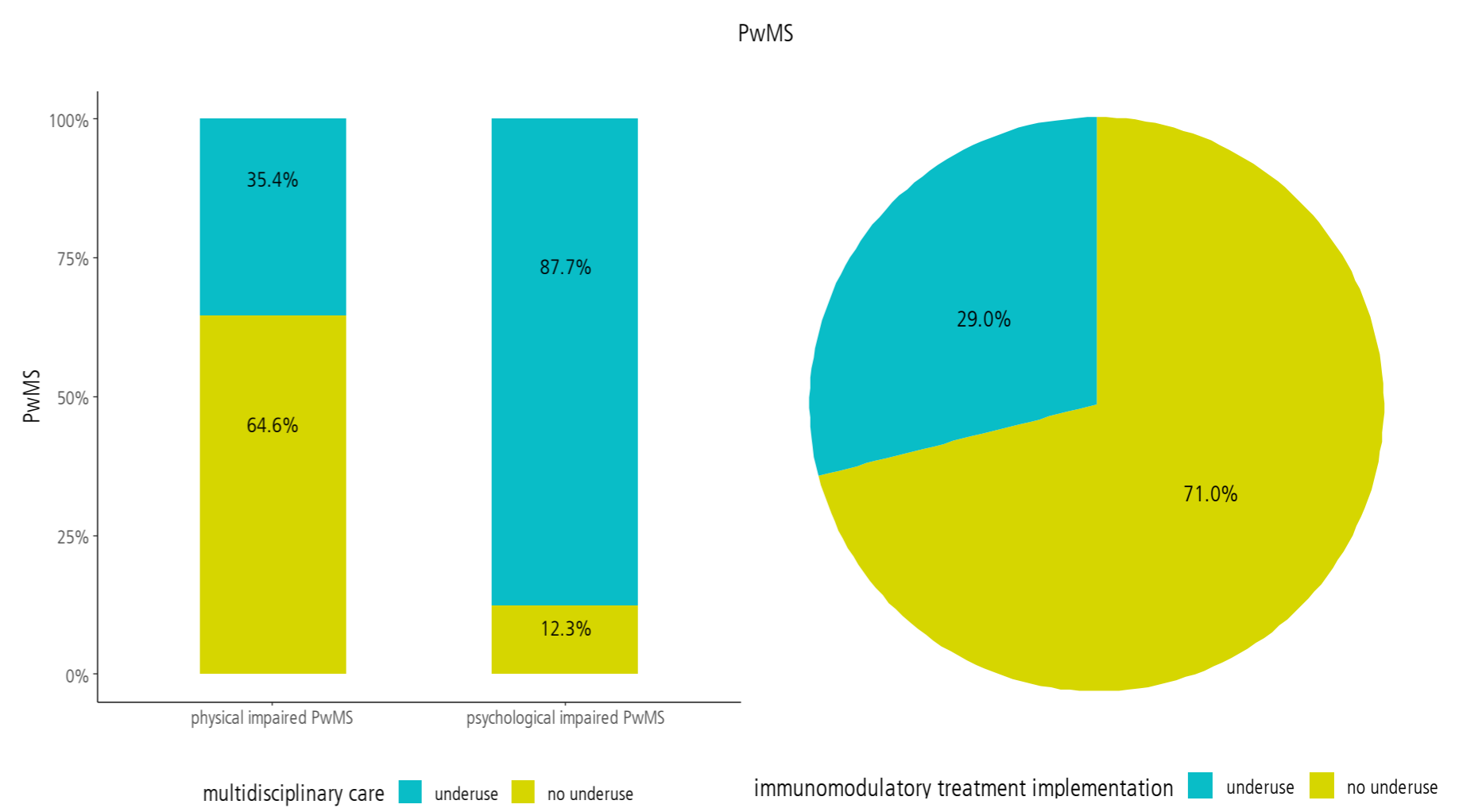


Figure 3. Underuse of IV. multidisciplinary care

Figure 4. Underuse of V. immunomodulatory treatment implementation

Conclusion Analysing *clinical evaluation* we identified differences between age groups as expected. Contrary to our expectations of a higher percentage of undersupply in more rural areas, we did not find significant differences by region of residence. The extent of underuse differs depending on the examined quality measure. The reasons for not using health services are yet to be discovered. Further (subgroup) analyses will be conducted.

Acknowledgements: We thank all persons who pre-tested and all PwMS who participated in the online survey.

Literature: [1] Walton C, King R, Rechtman L, et al. Rising prevalence of multiple sclerosis worldwide: Insights from the Atlas of MS, third edition. *Multiple Sclerosis Journal*. 2020;26:1816-1821.; [2] Krüger K, Fricke LM, Dilger EM et al. How is and how should healthcare for people with multiple sclerosis in Germany be designed? The rationale and protocol for the mixed-methods study Multiple Sclerosis-Patient-Oriented Care in Lower Saxony (MS-PoV). *PLoS One*. 2021;16(11):e0259855.; [3] R Core Team. R: A language and environment for statistical computing. Vienna, Austria: R Foundation for Statistical Computing 2021.; [4] Cheng EM, Crandall CJ, Bever CT, et al. Quality indicators for multiple sclerosis. *Multiple Sclerosis Journal*. 2010;16(8):970-980.; [5] Hobart J, Bowen A, Pepper G, et al. International consensus on quality standards for brain health-focused care in multiple sclerosis. *Multiple Sclerosis Journal*. 2019;25(13):1809-1818.; [6] Kraft AK & Berger K. Quality of Care for Patients With Multiple Sclerosis-A Review of Existing Quality Indicators. *Frontiers in Neurology*. 2021;12:708723.; [7] Rae-Grant A, Amezcua L, English J, et al. Quality Improvement in Neurology-Multiple Sclerosis Quality Measurement Set 2020 Update. *Neurology*. 2021;97:134-141.; [8] Veillard D, Deburghgraeve V, Le Page E, et al. Developing tools to evaluate quality of care management for patients living with multiple sclerosis: An original French initiative. *Revue Neurologique*. 2022;178(7):722-731.; [9] Hemmer B et al., Diagnose und Therapie der Multiplen Sklerose, Neuromyelitis-optica-Spektrum-Erkrankungen und MOG-IgG-assoziierten Erkrankungen, S2k-Leitlinie [German], 2023; in: Deutsche Gesellschaft für Neurologie (ed.), Leitlinien für Diagnostik und Therapie in der Neurologie.; [10] Charlson ME, Pompei P, Ales KL, et al. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. *Journal of chronic diseases*. 1987;40:373-383.; [11] Hobart J, Lamping D, Fitzpatrick R, et al. The Multiple Sclerosis Impact Scale (MSIS-29): a new patient-based outcome measure. *Brain*. 2001;124:962-73.; [12] Solari A, Giordano A, Kasper J, et al. Role preferences of people with multiple sclerosis: Image-revised, computerized self-administered version of the Control Preference Scale. *PLoS One*. 2013;8:e66127.

Gemeinsamer Bundesausschuss Innovationsausschuss
funded by the German Innovation Fund (G-BA) (01VS19046)

