

Supplementary Text

Measures

Adherence was measured using pharmacy refill data related to the 12 months prior to the patient's start date as well as the following self- or parent-reported measures. The *Morisky Adherence Measure* is a widely used 8-item patient-reported measure with documented reliability and validity (20). It assesses whether the respondent missed medicine doses, and reasons for missing doses (e.g., traveling, forget, feel worse due to medication, feel better due to medication and thus skip it, etc.). We used a scoring algorithm that yielded higher scores for better adherence, with a score of 8 reflecting high adherence, a score of 6-7 reflecting medium adherence, and less than 6 reflecting low adherence. The *Multiple Sclerosis Treatment Adherence Questionnaire (MSTAQ)* is a measure that assesses missed doses, side effects and barriers of taking DMTs, and behavioral coping strategies used (e.g., icing the injection site, taking pain medication) (21). We adapted the MSTAQ to include items for oral medications as well as the (originally included) injectable medications. We created standardized scores (i.e., mean=50, sd=10), with higher scores on the MSTAQ reflecting higher numbers of missed doses, side effects, barriers, or behavioral coping strategies. We created patient and parent versions of each self-report measure. Parental involvement in DMT administration was tracked with three items tracking the proportion of time the parent reported (1) reminding the child to take her/his DMT; (2) being present when the child took her/his DMT; and (3) administering the child's DMT. Response options were 0-25-50-75-100%. Whereas for most analyses we kept the adherence variables continuous, for those analyses where we sought to characterize a non-adherent subgroup, we used a cut-point of 20% for characterizing non-adherence on the basis of pharmacy refills or missed doses, which is standard across current adherence research (6).

Psychosocial risk factors were measured using the following patient- and parent-reported outcome measures. The *MS Self Efficacy Scale (MSSE)* is a reliable and valid 18-item measure of confidence in one's ability to manage disease symptoms (MSSE Function subscale); and reactions to disease-

related limitations and the impact of the disease on life activities (MSSE Control subscale) (23). The autonomy, environmental mastery, and self-acceptance 7-item subscales from the *Ryff Scales of Psychological Well-Being* (24) were used. This theoretically grounded measure of eudemonic well-being has documented reliability and validity, and has been used successfully with adolescents (28). The 23-item PedsQL measure of physical, social, emotional, and school functioning was used. Patients age 8-12 completed the Child-report PedsQL version, whereas patients age 13-18 completed the Teen-report version. The PedsQL has documented reliability and validity (22), and has been used in a large number of pediatric quality-of-life studies. *Neurocognitive Functioning* was assessed using the parent-report version of the Multiple Sclerosis Neuropsychological Screening Assessment Questionnaire (MSNQ) (25). This 15-item tool has documented high test-retest stability, predictive validity, and construct validity. Parent reports are documented to be reliably correlated with cognitive dysfunction and be less biased by patient depression.

Demographic Characteristics. We collected demographic information to characterize the sample, and the *Patient-Determined Disease Steps* (PDDS) (19) to assess perceived MS-specific disability. This measure was modeled after and correlates highly with the EDSS. It characterizes disability level into one of nine steps (0=normal, 1=mild disability, 2=moderate disability, 3=gait disability, 4=early cane, 5=late cane, 6=bilateral support, 7=wheelchair or scooter, 8=bedridden). A parent-reported version of the tool was administered to parent/guardian, because the Flesch-Kincaid Grade Level estimate for the PDDS is grade 8.3. This level suggests that the tool is too complex for patients younger than 13 years.